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Multiple Mediation of Self-Esteem, Perception of Social Self-efficacy, and Social Anxiety in the Relationship Between Peer Support and Autonomy in Adolescents

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Abstract

The aim of this study is in the relationship between peer support and autonomy in adolescents; The aim of this study is to examine the mediating role of social self-efficacy perception, self-esteem and social anxiety variables in adolescents. The study group of the research consists of 462 high school students (237 women and 225 men). Of the students in the study group, 26% (120 people) were in the 9th grade, 28.6% (132 people) were in the 10th grade, 28.1% (130 people) were in the 11th grade and 16.5% (76 people) are studying in the 12th grade. Data collection tools used in the study; Adolescent Social Anxiety Scale, Rosenberg Self-Esteem Scale (Short Form), Social Self-Efficacy Perception Scale, Peer Support Scale, Adolescent Autonomy Scale were used. The data were analyzed with Regression-based method and Bootstrap methods. According to the findings obtained from the study, it was observed that as peer support increases in adolescents, individuals' self-esteem and social self-efficacy perceptions increase, and as a result, their autonomy levels increase. In addition, it is seen that the increase in peer support in adolescents decreases the social anxiety of the individuals and thus the level of autonomy increases. In addition, it was found that the established model explained 41% of autonomy in adolescents.

Keywords: Peer Support, Self-Esteem, Autonomy in Adolescents, Social Anxiety in Adolescents, Perception of Social Self-Efficacy.

1. Introduction

Adolescence is a period in which developmental growth and development are quite rapid. During this period, the individual matures not only physiologically but also spiritually (Greenfield, Keller, Fuligni, & Maynard, 2003). In this rapid change process, the adaptation of individuals to themselves and the outside world is shaken and they can go through a very turbulent and stressful process in adapting to new situations in order to survive. In the process of adaptation, the adolescent reconstructs his feelings, thoughts and behaviors (Lerner & Castello, 2002). Therefore, there are many duties and responsibilities that the individual has to undertake in adolescence, which is

the process of preparation for adulthood. These developmental tasks and responsibilities can bring along very important opportunities for adolescents in terms of risk taking, resilience and creating opportunities (Giedd, 2015). In this period, which Erickson (1969) defines as the process of gaining identity, the effort of the adolescent to create a unique identity is considered as the most important developmental task. Overcoming this period is like finding the bed of an enthusiastic river, and during this period, the effort to get independent from the parents, to review social values and to find a way for oneself is dominant (Öztürk, 2004). Although each individual in adolescence can experience this period in different ways, it is important for many individuals in this period to develop a sense of autonomy (Noom, Decovic & Meesus, 2001). Autonomy efforts increase during adolescence and adolescents may exhibit risk-taking behavior in order to gain autonomy and create identity (Curtis, 1992). A balanced meeting of the adolescent's need for autonomy is considered a developmental milestone in order to maintain a healthy pre-adolescence period (Ryan, Deci, Grolnick & La Guardia, 2006; Hortaçsu, 2003; Noom, 1999).

Noom, Decovic & Meesus (2001) stated that autonomy consists of three dimensions: behavioral, emotional and functional autonomy. Behavioral autonomy, ability to choose options, make decisions and set goals; emotional autonomy, confidence in one's own choices and goals; Functional autonomy has also been defined as the ability to develop strategies to achieve one's purpose. The autonomy experienced during adolescence is explained in various ways in different theoretical frameworks. While psychodynamic theorists emphasize autonomy as the evolution of the parent-adolescent relationship into a more egalitarian form, that is, its separation; Cognitive theorists have emphasized that autonomy is a structure that manifests itself with the development of the ability to make decisions, take control of one's life, make choices, and take responsibility (Noom, Decovic & Meesus, 2001). While Deci & Ryan (2000) define autonomy as a need from the perspective of self-efficacy, they stated that this need could be met when the individual sees himself as the source of his own actions. Steinberg & Silverberg (1986) describe autonomy as the adolescent's ability to express himself through reasoning about decision making, self-management, self-confidence and moral issues by resisting the pressures exerted by his parents and peers. Noom, Decovic & Meesus (1999) on the other hand; They define these values as the ability to be confident about their goals and decisions without feeling the pressure of approval and to reflect this on their behavior in the way they determine.

During adolescence, the individual tends to see his peers as more authority figures (Furman, Simon, Shaffer & Bouchey, 2002) while reducing his contact with his parents (Hazan & Zeifman, 1999). According to the approaches built on the basis of interpersonal relations, significant changes occur in the child-parent relationship during adolescence, but this is not seen as a relational break. According to this perspective, the adolescent can be autonomous without completely breaking away from the family and without harming their relationships (Kağıtçıbaşı, 1996). However, adolescents may turn to their peers due to insufficient autonomy in their relationships with their parents (Blos, 1967). It is stated that friend groups mediate the adolescents to resolve their conflicts and to get rid of their dependence on their parents (Arnett, 2000). It can be defined as a system of giving and receiving assistance based on the basic principles of peer support, respect, mutual responsibility and mutual agreement about what is beneficial (Mead, Hilton & Curtis 2001). At the same time, peer support is an inclusive model that includes helping individuals fully experience who they are, develop in line with their own choices, and restructure larger systems in the process of being supported in these goals (Mead, Hilton & Curtis 2001). Based on these statements, it can be said that peer support is a structure that contributes to the autonomy of the adolescent (Özdemir & Çok, 2011) and being a social individual (Mead, Hilton & Curtis 2001). When the studies are examined, it is seen that there is a positive and significant relationship between social support and autonomy (Bryan, Quist, Young, Steers & Lu, 2015).

During adolescence, individuals' self-development accelerates and emotions and behaviors are mostly regulated by the adolescent himself (Zimmer Gembeck & Collins, 2003). Self-esteem is defined as an individual's self-acceptance and self-satisfaction as a result of self-evaluation (Eriş & İkiz, 2013). Rosenberg (1965), on the other hand, conceptualized self-esteem as the attitude that an individual has as a result of his evaluations of himself. It is very important for the individual in adolescence how he is seen and perceived by the people around him. Being supported by peers, who have a very important place in adolescence life, helps the adolescent to increase his self-esteem by emphasizing that he is a lovable and valuable individual (Black & McCartney, 1997). Taysi

(2000) emphasized that social support supports the formation of a healthy self-perception by arousing a sense of competence and success in the individual. Adler, on the other hand, states that individuals can develop a strong sense of self only by meeting their social attention needs (Steffenhagen, 1990). It is stated that the self-esteem of individuals who are not supported by their peers decreases (Şad, 2007). Studies also show that there is a positive and significant relationship between individuals' perceived peer support and their self-esteem (Lan & Wang, 2019; İkiz & Çakar, 2010; Friedlander, Reid, Shupak & Cribbie, 2007; Ladd, 1999; Noom, 1999; Bolger, Patterson & Kupersmidt, 1998; Brown & Lohr, 1987; Rohner & Rohner, 1980).

Self-efficacy, another variable of the research, is a very important variable in understanding adolescent autonomy (Noom, Decovic & Meesus, 2001). Deci & Ryan (2000) argue that individuals have an internal need that motivates them to be the initiator of their own actions, and that the forms of relationships established with others also support the development of autonomy. In other words, the quality relationship patterns that individuals establish in the social context play an important role in the development of autonomy.

Due to the developmental period, individuals in this period tend to meet their social needs by communicating and interacting, however, they may experience negative evaluation, ridicule and humiliation concerns (Mehtalia & Vankar, 2004). Considering that peer support has a very important place in adolescence, it may turn into an expected situation for them to experience anxiety in a social context. Social anxiety is defined as the intense fear of embarrassment, humiliation, negative evaluation by others in the social environment, and the tendency to avoid these feared situations (American Psychiatric Association, 1994). Beck (2005) characterizes social anxiety as an evaluation anxiety and emphasizes that with this anxiety, the individual may tend to avoid social environments. The possibility of rejection can be shown as the main reason underlying avoidance (Leary & Kowalski, 1995). Based on these statements, it can be said that social support has a very important place as a determinant of social anxiety in adolescence. According to studies, it is seen that lack of social support causes social anxiety especially in adolescents (Erath, Flanagan & Bierman, 2007; Calsyn, Winter & Burger, 2005). It is expected that the adolescent who is supported by his social environment will be able to express himself more easily in the social context, to reveal his existence without worry, to improve himself and to reflect himself as he is. Adolescents who think that they are not supported by their social environment tend to mask themselves by worrying about being negatively evaluated by their peers (Beck and Emery, 1985). At the same time, socially anxious individuals may tend to identify with other individuals in order to be approved by them, they may be reluctant to conform more to others, to reveal themselves less, and to present themselves (Patterson & Ritts, 1997). This may result in the adolescent withdrawing from himself without expressing himself autonomously, not developing a healthy identity for himself and not revealing the essence inside him. This situation may negatively affect the development of identity, which is considered as the most important developmental crisis of adolescence. Studies also support that there is a negative relationship between anxiety and autonomy, that is, as individuals' anxiety levels increase, their tendency to act independently, make decisions and express themselves decreases due to negative evaluation concerns (Lüle, 2002).

Research and theoretical explanations show that understanding and explaining autonomy in adolescence is very important from a developmental perspective. In this context, it is thought that explaining the structure with the variables discussed will contribute to the field. Within the scope of the research, it is aimed to find answers to the following research questions by examining the related psychological structures and the relationships between them.

Research questions;

1. Does the perception of social self-efficacy have a mediating role between peer support and autonomy in adolescents?
2. Is there a mediating role of self-esteem between peer support and autonomy in adolescents?
3. Is there a mediating role of social anxiety in adolescents between peer support and autonomy?
4. Do perceptions of social self-efficacy, self-esteem, and social anxiety in adolescents mediate multiple ways between peer support and autonomy in adolescents?

2. Method

2.1. Research Design

This study, which examines the mediating role of social self-efficacy, self-esteem, and social anxiety in adolescents in the relationship between peer support and autonomy are in the type of relational screening model. In correlational screening models, it is aimed to investigate the relationships between variables (Fraenkel & Wallen, 2011; Heppner, Wampold & Kivlighan, 2013).

2.2. Participants

A private school, a science high school, and three Anatolian high schools with different success rankings were reached in order to reach students from various socio-economic and achievement levels in determining the study group of the research. Data were collected from students in the 9th, 10th, 11th, and 12th grades from these schools. The convenience sampling method was used to determine the study group of the research (Erkuş, 2009). This study was carried out with the participation of 462 high school students, 237 of whom were women and 225 were men. Of the students in the study group, 26% (120 people) were in the 9th grade, 28.6% (132 people) were in the 10th grade, 28.1% (130 people) were in the 11th grade and 16.5% (76 people) are studying in the 12th grade.

2.3. Data Collection Tools

Adolescent Autonomy Scale: Noom et al. (2001) aims to measure the perceptions of adolescents between the ages of 12-18 about their autonomy. It consists of three sub-dimensions: attitudinal, emotional, and functional autonomy. The scale, which consists of a total of 19 items, has a 5-point Likert-type rating. The Cronbach Alpha internal consistency coefficient calculated for the original scale was 0.71, 0.60 and 0.64 for attitudinal, emotional, and functional autonomy, respectively. The adaptation study of this scale was carried out by Musaağaoğlu (2004). Test-retest reliability was found to be 0.96. In the factor analysis, the adolescent autonomy scale exhibited a two-dimensional structure called behavioral and emotional autonomy in Turkish culture. The Cronbach Alpha internal consistency coefficients for behavioral and emotional autonomy were found to be 0.71 and 0.51, respectively. The Cronbach Alpha internal consistency coefficient calculated within the scope of this study is 0.78.

Peer Support Scale: Kuo et al. (2007) is a 4-point Likert-type scale consisting of 17 items. It has three sub-dimensions as physical, academic, and emotional help. The Cronbach Alpha internal consistency coefficient for the scale was calculated as 0.94. As the score obtained from the scale increases, it can be interpreted that the perceived peer support increases. The Cronbach Alpha internal consistency coefficient of the scale, whose validity and reliability studies were conducted by Çalışkan and Çınar (2012), was found to be 0.93. The test-retest correlation coefficient is 0.703. In the validity study, it was determined that the Kendal W coefficient calculated between experts did not show a significant difference. Again, as a result of the exploratory factor analysis, it was concluded that the structure was compatible with theory and literature. Within the scope of this study, the Cronbach Alpha internal consistency coefficient was calculated as 0.93.

Social Self-Efficacy Perception Scale: It was developed by Smith and Betz (2000). The 25-item scale is a 5-point Likert-type scale scored between I have no confidence (1)- I have complete confidence (5). It was adapted by Palanci (2004). In the construct validity study, it was determined that the whole scale was gathered under a single factor. The Cronbach Alpha internal consistency coefficient was 0.89 and the test-retest reliability was calculated as 0.82. Within the scope of this study, the Cronbach Alpha internal consistency coefficient was calculated as 0.93.

Rosenberg Self-Esteem Scale (Short Form): Developed by Rosenberg (1965). Adaptation studies were made by Çuhadaroğlu (1986) and Tuğrul (1996). Five items of the scale consisting of 10 items are scored positively and

five items are scored negatively. It is a 4-point Likert scale. Çuhadaroğlu (1986) found the test-retest reliability for the scale to be 0.71 and the Cronbach Alpha internal consistency coefficient to be 0.76. Within the scope of this study, the Cronbach Alpha internal consistency coefficient was calculated as 0.82.

Adolescent Social Anxiety Scale: Developed by La Greca and Lopez (1998). The scale has a three-factor structure consisting of 22 items, 4 of which are control items. The Cronbach Alpha internal consistency coefficients obtained as a result of the studies are in the range of 0.66-0.91. The validity and reliability studies of the Turkish scale were carried out by Aydın and Tekinsav Sütçü (2007). As a result of the factor analysis, the researchers obtained three sub-dimensions as in the original structure. The coefficients found as a result of the correlation analysis performed with scales measuring similar structures were reported as 0.66-0.75. The two-half reliability was reported as 0.85 and the Cronbach Alpha internal consistency coefficient as 0.88. Within the scope of this study, the Cronbach Alpha internal consistency coefficient was calculated as 0.87.

Personal Information Form: A personal information form was created by the researchers in order to define the study group, in which information about school type, gender, and class level was collected.

2.4. Data Analysis

High school students who voluntarily participated in the study filled out the personal information form and the measurement tools in which the measurement tools were presented together. It took approximately 20-30 minutes for the individuals participating in the study to answer the measurement tools. Descriptive statistics were used to define the study group and Pearson correlation coefficients were calculated. The model tested in the study was examined with the Regression-based method and Bootstrap methods using the software developed by Hayes (2012,2013). To perform these analyzes, PROCESS Macro working with the SPSS program was used. Model 4 was used for multiple mediation analysis. The bootstrap method was carried out on 5000 samples. The significance level was .05.

3. Results

The Pearson correlation coefficients to examine the relationships between the variables in the study, and the descriptive statistics to describe the variables used in the study are presented in Table 1.

Table 1: Pearson Correlation Coefficients and Descriptive Statistics

Variables	1	2	3	4	5
1. Peer Support in Adolescents	-				
2. Social Self-Efficacy Perception	0,346**	-			
3. Self-Esteem	0,133**	0,397**	-		
4. Social Anxiety in Adolescents	-0,136**	-0,368**	-0,362**	-	
5. Autonomy in Adolescents	0,153**	0,416**	0,569**	-0,451**	-
Mean	46,937	87,470	34,504	39,481	58,829
Standart Deviation	11,986	19,673	5,885	11,034	8,850
Skewness	-0,289	-0,129	-0,104	0,536	0,001
Kurtosis	-0,105	-0,142	-0,611	0,211	-0,019

**p<0,01

When Table 1 is examined, the variables of peer support and perception of social self-efficacy ($r=.35$, $p<.01$), self-esteem ($r=.13$, $p<.01$), and autonomy ($r=.15$, $p<.01$) in adolescents. It is seen that there are positive and significant relationships between adolescents and social anxiety ($r=-.14$, $p<.01$) in the negative direction. There was a positive correlation between the perception of social self-efficacy and self-esteem ($r=.40$, $p<.01$), autonomy in adolescents ($r=.42$, $p<.01$), and social anxiety in adolescents ($r=-.37$, $p<.01$).), a negative significant relationship was observed between It is seen that there is a negative relationship between self-esteem and social anxiety in adolescents ($r=-.36$, $p<.01$) and a positive relationship between autonomy ($r=.57$, $p<.01$) in adolescents. It is seen that there is a negative significant relationship between social anxiety in adolescents and

autonomy in adolescents ($r=-.45$, $p<.01$). In addition, it is seen that the kurtosis skewness values for the variables are in the range of ± 1.5 .

Details on the results of the parallel multiple mediation test of social self-efficacy perception, self-esteem and adolescent social anxiety variables in the relationship between peer support and autonomy in adolescents are given in Figure 1.

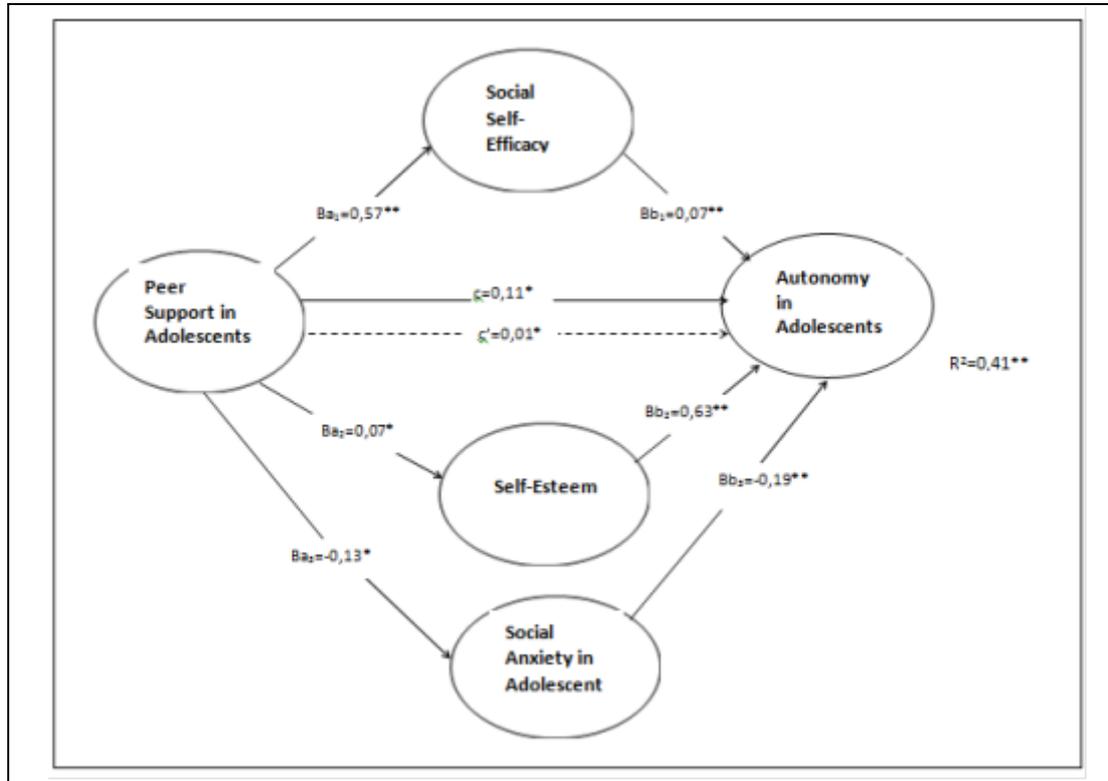


Figure 1: Parallel Multiple Mediation and Unstandardized Beta Coefficients of Social Self-Efficacy, Self-Esteem and Social Anxiety Variables in Adolescents in the Relationship Between Peer Support and Autonomy in Adolescents. * $p<.05$, ** $p<.001$

When Figure 1 is examined, the overall effect of peer support on autonomy in adolescents ($c=-.11$, $SH=.03$, $t=-3.31$, $p<.05$) is significant. The mediating variables of peer support were perception of social self-efficacy ($Ba_1=0.57$, $SD=.07$, $t=7.91$, $p<.001$), self-esteem ($Ba_2=0.07$, $SD=.02$, $t=2.87$, $p<.05$), direct effects on social anxiety ($Ba_3=-0.13$, $SH=.04$, $t=-2.94$, $p<.05$) in adolescents are significant. Considering the direct effects of mediator variables on autonomy in adolescents, social self-efficacy perception ($Bb_1=0.07$, $SH=.02$, $t=3.74$, $p<.001$), self-esteem ($Bb_2=0.63$, $SH=.06$, $t=10.35$, $p<.001$), its direct effects on social anxiety in adolescents ($Bb_3=-0.19$, $SH=.03$, $t=-6.01$, $p<.001$) were found to be significant. When peer support in adolescents and all other variables were processed simultaneously, the relationship between peer support and autonomy in adolescents decreased and the significance value disappeared in terms of direct effect ($c'=.01$, $SH=.03$, $t=0.25$, $p>.05$). According to these results, it is seen that three mediating variables fully mediate the relationship between peer support and autonomy in adolescents. In addition, it was found that the whole model was significant ($F(4-457)=80.45$, $p<.001$), and the established model explained 41% of autonomy in adolescents. Table 2 shows the indirect effects and specific indirect effects of peer support on autonomy in adolescents through the perception of social self-efficacy, self-esteem, and adolescent social anxiety.

Table 2: Comparisons of Indirect Effects and Specific Indirect Effects of Peer Support on Adolescents' Autonomy via Perception of Social Self-Efficacy, Self-Esteem, and Adolescent Social Anxiety

Effects	Point Estimation	SE	z	p	Product of Coefficients		Bootstrap	
					Low	High	%95	BCa
Total Indirect Effects	0,1056	0,0235			0,0600	0,1533		
Social Self-Efficacy Perception	0,0407	0,0133	3,3595	0,0008	0,0188	0,0710		
Self-Esteem	0,0409	0,0161	2,7564	0,0058	0,0121	0,0763		
Social Anxiety in Adolescents	0,0240	0,0097	2,6138	0,0090	0,0079	0,0460		
Comparisons								
C1	-0,0003	0,0215			-0,0451	0,0403		
C2	0,0166	0,0167			-0,0153	0,0509		
C3	0,0169	0,0172			-0,0156	0,0524		

N=462, BCa: Sample of 5000 Bootstrap (bias-corrected and accelerated)

The significance of indirect effects was tested in the model tested using 5000 Bootstrap samples. The confidence interval value is 95%. When Table 2 is examined, the total indirect effect of peer support on autonomy through the variables of perception of social self-efficacy, self-esteem, and social anxiety in adolescents is statistically significant (point estimate= .1056 and 95% BCa CI [.0600, .1533]). In the effect of peer support on autonomy in adolescents, perceptions of social self-efficacy (point estimate= .0407 and 95% BCa CI [.0188, .0710]), self-esteem (point estimate= .0409 and 95% BCa CI [.0121, .0763]) and adolescents, mediation of social anxiety (point estimate= .0240 and 95% BCa CI [.0079, .0460]) was statistically significant. In addition, pairwise comparisons of the effects of mediating variables (C1, C2, C3) were not found statistically significant as there was zero in the point estimation interval according to 95% BCa confidence intervals. In addition to all these, according to the results of the Sobel test, the mediation of three mediator variables was found to be significant ($z_1=3.36$, $p<.001$; $z_2=2.76$, $p<.01$; $z_3=2.61$, $p<.01$).

4. Discussion, Conclusion and Recommendations

In this study, it was aimed to test whether social self-efficacy perception, self-esteem and social anxiety variables in adolescents mediate the relationship between peer support and autonomy in adolescents. As a result of the study, it was found that the mediations of social self-efficacy, self-esteem and social anxiety in adolescents were statistically significant.

According to the findings obtained from the study, it was observed that as peer support increases in adolescents, individuals' self-esteem and social self-efficacy perceptions increase, and as a result, their autonomy levels increase. In addition, it is seen that the increase in peer support in adolescents decreases the social anxiety of the individuals and thus the level of autonomy increases. In addition, it was found that the established model explained 41% of autonomy in adolescents.

It is thought that how the individual is perceived by those around him during adolescence, whether they are supported by their peers or not is important in shaping the perceptions of individuals about their self. Adolescents who are supported by their peers see themselves as a more lovable and valuable individuals, so their self-esteem increases (Black & McCartney, 1997). It is supported by the literature that the individual who receives social support will experience the feelings of competence and success more intensely and will support the creation of a healthy self-perception (Taysi, 2000). In addition, Adler states that individuals can develop a strong sense of self only by meeting their social attention needs (Steffenhagen, 1990). In addition, it is stated in the literature that when adolescents do not receive support from their peers, their self-esteem drops (Lan & Wang, 2019; Şad, 2007; İviz & Çakar, 2010; Friedlander, Reid, Shupak & Cribbie, 2007; Ladd, 1999; Noom, 1999; Bolger, Patterson & Kupersmidt, 1998; Brow & Lohr, 1987; Rohner & Rohner, 1980).

While Deci & Ryan (2000) defines autonomy as a need from the perspective of self-efficacy, it is thought that the individual's satisfaction with himself will be directly affected when it is considered that this need can be met when the individual sees himself as the source of his own actions. It is thought that the quality relationship patterns that individuals establish in the social field play an important role in the development of autonomy. Therefore, the social self-efficacy of adolescents who receive peer support will be supported. When the literature is examined, the views of Deci & Ryan (2000) that the forms of relationships with others also support the development of autonomy strengthen this idea. At the same time, it is stated that self-efficacy is a very important variable in understanding adolescent autonomy (Noom, Decovic & Meesus, 2001).

Due to the developmental period in adolescence, individuals tend to meet their social needs by communicating and interacting, but they may experience intense negative evaluation, ridicule and humiliation anxiety (Mehtalia and Vankar, 2004). Social anxiety is defined as the intense fear of embarrassment, humiliation, negative evaluation by others in the social environment, and the tendency to avoid these feared situations (American Psychiatric Association, 1994). Therefore, in parallel with the finding of this study, the social anxiety of adolescents who cannot receive peer support will tend to increase. According to Beck (2005), the individual may tend to avoid social environments with social anxiety. The possibility of rejection can be shown as the main reason underlying avoidance (Leary & Kowalski, 1995). Based on these statements, it can be said that social support has a very important place as a determinant of social anxiety in adolescence and is supported by the findings of this study. When the literature is examined, it is seen that the social anxiety of adolescents who do not receive adequate social support increases (Erath, Flanagan & Bierman, 2007; Calsyn, Winter & Burger, 2005). Adolescents who think that they are not supported by their social environment may tend to mask themselves by worrying about being negatively evaluated by their peers (Beck and Emery, 1985). Socially anxious individuals may tend to identify with other individuals in order to be approved by them, so they may remain reluctant to conform more to others, to reveal themselves less, and to present themselves (Patterson & Ritts, 1997). When the studies are examined, it is seen that there is a negative relationship between anxiety and autonomy (Lüle, 2002).

As a result of the study, it was seen that the perception of social self-efficacy, self-esteem and social anxiety were strong mediating variables in the relationship between the perceived peer support and autonomy of adolescents. Individual and group counseling can be carried out by psychological counselors by identifying adolescents with low self-esteem, social self-efficacy perception and high social anxiety, especially those who think that they do not receive peer support in schools.

The ability to determine the mediation effects of more than one mediator variable by making a multiple mediation model in the relationship between the predictor and outcome variables can be expressed as a strong aspect of this study. In addition, there are some limitations of the study. In this context, it was assumed that all participants responded to the measurement tools as mentally healthy. Another limitation is that the study group was selected from only one province. Therefore, care should be taken when generalizing the findings of the study to groups of similar age. It may be suggested to researchers who will conduct similar studies in the future to examine whether the same model produces a similar result on adolescents in different regions where cultural diversity is rich.

References

- American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders, 4th edition* (DSM-IV). Washington, DC: American Psychiatric Association.
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*, 469-480.
- Beck, A. T. (2005). *Bilişsel Terapi ve Duygusal Bozukluklar*. (Çev. A. Türkcan). Litera Yayıncılık: İstanbul.
- Beck, A. T., & Emery, G. (1985). *Anxiety Disorders and Phobias: A Cognitive Perspective*. New York: Basic Books.
- Black, K., and McCartney, K. (1997). Adolescent females' security with parents predicts the quality of peer interactions. *Social Development, 6*, 91-110.

- Blos, P. (1967). The second individuation process of adolescence. *The Psychoanalytic Study of the Child*, 22, 162-186.
- Bolger, K. E., Patterson, C. J., & Kupersmidt, J. B. (1998). Peer relationships and self-esteem among children who have been maltreated. *Child Development*, 69, 1171-1197.
- Bryan, J. L., Quist, M. C., Young, C. M., Steers, M. N. & Lu, Q. (2015). General Needs Satisfaction As A Mediator Of The Relationship Between Ambivalence Over Emotional Expression And Perceived Social Support. *The Journal of Social Psychology*, 156(1), 115-121.
- Brown, B. B., & Lohr, M. J. (1987). Peer-group affiliation and adolescent self-esteem: An integration of ego identity and symbolic-interaction theories. *Journal of Personality and Social Psychology*, 52(1), 47-55.
- Calsyn, R. J., Winter, J. P. & Burger, G.K. (2005). The relationship between social anxiety and social support in adolescent: A test of completing causal models. *Adolescence*, 15 (40), 103-113.
- Curtis, S. (1992). Promoting health through a developmental analysis of adolescent risk behavior. *Journal of School Health*, 62(9), 417-420.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the determination of behavior. *Psychological Inquiry*, 11, 227-268.
- Erath, S. A., Flanagan, K. S. & Bierman, K.L. (2007). Social anxiety and peer relations in early adolescence: Behavioral and cognitive factors. *Journal of Abnormal Child Psychology*, 35, 405-416.
- Eriş, Y., & İkiz, F. E. (2013). Ergenlerin benlik saygısı ve sosyal kaygı düzeyleri arasındaki ilişki ve kişisel değişkenlerin etkileri. *Turkish Studies*, 8(6), 179-193.
- Friedlander, L. J., Reid, G. J., Shupak, N., and Cribbie, R. (2007). Social support, self-esteem, and stress as predictors of adjustment to university among first-year undergraduates. *Journal of College Student Development*, 48, 259-274.
- Furman, W., Simon, V., Shaffer, L., & Bouchey, H. (2002). Adolescents' working models and styles for relationships with parents, friends, and romantic partners. *Child Development*, 73, 241-255.
- Giedd, J.N. (2015). The amazing teen brain. *Scientific American*, 312, 32-37.
- Greenfield, P. M., Keller, H., Fuligni, A., & Maynard, A. (2003). Cultural pathways through universal development. *Annual Review of Psychology*, 54, 461-490.
- Hazan, C., & Zeifman, D. (1999). Pair bonds as attachments: Evaluating the evidence. In J. Cassidy, and P. Shaver (Eds.), *Handbook of Attachment: Theory, Research, and Clinical Applications* (pp. 336-354). New York: Guilford Press.
- Hortaçsu, N. (2003). *Çocuklukta İlişkiler*. Ankara: İmge Yayınları.
- İkiz, F. E., & Savi Çakar, F. (2010). The Relationship between multiple intelligences and academic achievements of second grade students. *Mehmet Akif Ersoy Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 3, 83-92.
- Kağıtçıbaşı, Ç. (1996). Özerk-ilişkisel benlik: Yeni bir sentez. *Türk Psikoloji Dergisi*, 11, 36-44.
- Ladd, G. W. (1999). Peer relationships and social competence during early and middle childhood. *Annual Review of Psychology*, 50, 333-359.
- Lan, X. Y., & Wang, W. C. (2019). Direct and interactive effects of peer support and resilience on psychosocial adjustment in emerging adults with early left-behind experiences. *Psychology Research and Behavior Management*, 12, 277-288.
- Leary, M. R. ve Kowalski, R. M. (1995). *Social Anxiety*. The Guilford Press, New York.
- Lerner, R. M., & Castellino, D. (2002). Contemporary developmental theory and adolescence: A developmental systems and applied developmental science. *Journal of Adolescent Health*, 31(6S), 122-135.
- Lüle, A. R., (2002). *Lise Mezunu Olup Üniversiteye Hazırlanan Ergenlerin Özerklik Düzeyleri İle Kaygı Düzeyleri Arasında İlişkinin İncelenmesi*. (Unpublished Master Thesis), İstanbul: Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü.
- Mead S, Hilton D, Curtis L. (2001). Peer support: A theoretical perspective. *Psychiatric Rehabilitation Journal*, 25(2), 134-141.
- Mehtalia, K. & Vankar, G. K. (2004). Social anxiety in adolescents. *Indian Journal of Psychiatry*, 46(3), 221-227.
- Noom, M. (1999). *Adolescent Autonomy: Characteristics and Correlates*. Delft: Eburen Publishers.
- Noom, M., Dekovic, M., & Meeus, W. (1999). Autonomy, attachment and psychosocial adjustment during adolescence: a double-edged sword?. *Journal of Adolescence*, 22, 771-783.
- Noom, M., Dekovic, M., & Meeus, W. (2001). Conceptual analysis and measurement of adolescent autonomy. *Journal of Youth and Adolescence*, 30(5), 577-595.
- Özdemir, Y., & Çok, F. (2011). *Ergenlikte Özerklik Gelişimi*. *Türk Psikolojik Danışma ve Rehberlik Dergisi*, 4(36), 152-164.
- Öztürk, M.O. (2004). *Ruh Sağlığı Bozuklukları*. Ankara: Nobel Tıp Kitapevi, s.98-99.
- Patterson, C. M. & Ritts, V. (1997). *Social and Communicate Anxiety: A Review and Meta Analysis*. Communication Yearbook 20.

- Rohner, R. P., & Rohner, E. C. (1980). Antecedents and con-sequences of parental rejection: A theory of emotional abuse. *Child Abuse and Neglect*, 4, 189-19
- Rosenberg, M. (1965). *Society and the Adolescent Self-Image*. Princeton, New Jersey: Princeton University Press.
- Ryan, R. M., Deci, E. L., Grolnick, W. S., & La Guardia, J. G. (2006). The significance of autonomy and autonomy support in psychological development and psychopathology. In D. Cicchetti and D. J. Cohen (Eds.), *Developmental psychopathology: Theory and method* (Vol. 1, pp. 795-849). New York: Wiley.
- Steffenhagen, R. A. (1990). *Self-Esteem Therapy*. Praeger Publishers. New York.
- Steinberg, L., & Silverberg, S. B. (1986). The vicissitudes of autonomy in early adolescence. *Child Development*, 57, 841-851.
- Şad, E.D. (2007). *Akranları Tarafından Reddedilen ve Kabul Edilen İlköğretim II. Kademe Öğrencilerinin Özsaygı, Sosyal Beceri, Davranış Problemleri ve Okul Başarılarının Karşılaştırılması*. (Unpublished Master Thesis). Ankara: Ankara Üniversitesi Eğitim Bilimleri Enstitüsü.
- Taysi, E. (2000). *Benlik Saygısı, Aile ve Arkadaşlardan Sağlanan Sosyal Destek: Üniversite Öğrencileriyle Yapılan Bir Çalışma*. (Unpublished Master Thesis). Ankara: Ankara Üniversitesi Sosyal Bilimler Enstitüsü.
- Zimmer-Gembeck, M. J. & Collins, W. A. (2003). Autonomy development during adolescence. In G. R. Adams and M. Berzonsky (Eds.), *Handbook of Adolescence* (pp. 175-204). Oxford: Blackwell.
- Heppner, P. P., Wampold, B. E. ve Kivlighan, D. M., Jr. (2013). *Psikolojik Danışmada Araştırma Yöntemleri* (D. M. Siyez, Çev.) (1. bs.). Ankara: Mentis Yayıncılık.
- Aydın, A. ve Tekinsav-Sütçü, S. (2007). Ergenler için sosyal kaygı ölçeğinin (ESKÖ) geçerlik ve güvenilirliğinin incelenmesi. *Çocuk ve Gençlik Ruh Sağlığı Dergisi*, 14(2), 79-89.
- Fraenkel, J. R. ve Wallen, N. E. (2011). *How to Design and Evaluate Research in Education* (8. ed.). New York: McGraw-Hill Education.
- Erkuş, A. (2009). *Davranış Bilimleri için Bilimsel Araştırma Süreci*. Ankara: Seçkin Yayıncılık.
- Musaagaoglu, C. (2004). *Ergenlik sürecinde özerkliğin gelişimi ile algılanan ana-baba tutumları arasındaki ilişkiler*. (Yayınlanmamış Yüksek Lisans Tezi). Ankara: Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü.
- Çalışkan T, Çınar S. (2012). *Akran Desteği: Geçerlik güvenilirlik çalışması*. *Marmara Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi*. 2(1): 1-7.
- Palancı, M. (2004). *Üniversite Öğrencilerinin Sosyal Kaygı Problemlerini Açıklama ve Gidermeye Yönelik Gerçeklik Terapisi Oryantasyonlu Bir Yardım Programının Geliştirilmesi*. (Unpublished Doctoral Dissertation). Trabzon: Karadeniz Teknik Üniversitesi, Sosyal Bilimler Enstitüsü.



Investigation of Self-Efficacy Perceptions Regarding the 21st Century Skills of University Students Enrolled in Different Faculties

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Abstract

The 21st-century skills are considered to be needed by individuals in a changing world. The aim of this research study is to determine whether or not the self-efficacy perceptions of students enrolled in the Faculty of Education, the Faculty of Literature, and the Faculty of Nursing (health) pertaining to the 21st-century skills cause any difference among the faculties. The population of the research is comprise of 1,056 students, 841 females and 215 males, at Ege University during the fall semester of the 2018-2019 academic year. “21st Century Skills Self-efficacy Perception” scale, which has 3 subdimensions such as “Learning and Renewal (LR) Skills,” “Life and Career (LC) Skills,” and “Information, Media and Technology (IMT) Skills,” is utilized in the study. The research study is designed in accordance with the causal-comparative model. In the data analysis, independent groups t-test is performed to detect differences in terms of gender, whereas the one-way analysis of variance) techniques are conducted to detect differences in terms of faculties. The margin of error is determined as .05 in the study. No significant difference is detected in the LR skills of university students in terms of the gender variable. It is found that a significant difference exists according to gender in the subdimension of LC skills. No significant difference is observed according to gender variable in the subdimension of IMT skills of university students. According to this result, the LC skills of female students are detected to be higher than that of male students. It is observed that the LR skills of the students in the faculty of education are higher than that of the students in the faculty of health sciences. It is determined that a significant difference exists in the LC skills of university students according to the faculty of education variable. It is determined that the LC skills of the students in both the faculties of education and literature are higher than that of the students in the faculty of health sciences. Furthermore, it is determined that the IMT skills of the students in the faculty of education and the faculty of literature are higher than that of the students in the faculty of health sciences.

Keywords: 21st-Century Skills, Faculty of Education, Faculty of Literature, Faculty of Nursing (Health)

1. Introduction

The contemporary, highly competitive, and knowledge-based global societal economy, as well as developments in information and communication Technologies (ICT), bring forth the requirement of individuals, especially for

education systems, to adapt to this change as soon as possible. It would be ensured that students who need to be prepared for the professions of the future are not lagged behind and that they do not encounter a disadvantageous situation by being equipped with the 21st-century skills, also known as “survival skills,” which are necessary for the education and professional life of the students. In a rapidly changing world, schools usually cannot keep up with such change and cannot adjust to the development at the same pace (Wagner, 2008; cited in Cemaloğlu et al., 2019). The contemporary age involves the era of the knowledge-based economy, and economic competition among countries depends on individuals who acquire skills that meet the requirements of the current age. This circumstance reveals the reality within which individuals’ cooperation changes competition and effective communication with others depends on technology, and it has created the need for individuals to acquire non-conventional problem-solving skills (Varis, 2007). Education looms large in acquiring the skills required by the ongoing era, in increasing the welfare level of the society, in the social and economic development of the society, and in raising individuals who form the dynamics of the society. The skills required by the era, which should be acquired through education, are generally expressed as the 21st-century skills (Uyar and Çiçek, 2020). Consisting of high-level thinking skills, as well as productivity, innovation, creativity, cooperation and communication skills, lifelong learning, ICT literacy, personal and social responsibility, those skills are included in the literature (Bozkurt and Çakır, 2016). Upon examining the classifications of the 21st-century skills, it is seen that certain common and different aspects become prominent. Cooperation, communication, IMT skills, social and cultural skills, and citizenship are perceived as common skills in all classifications. Creativity, critical thinking, problem-solving, and creating qualified products are among the skills that have been most frequently used in classifications (Voogt and Roblin, 2012).

The term “21st century skills” refers to core efficacies, including communication, collaboration, creativity, critical thinking, digital literacy skills, as well as the LC skills that support the idea that schools, administrators, and teachers should integrate these skills into their teaching contexts and curricula. The 21st-century skills are the ones that stem from synthesized skills and information. Briefly, the inclusive and up-to-date skills needed in the ongoing century define them (Griffin et al., 2018). At the same time, one of the most essential objectives of education in the 21st century is to provide students with information that would facilitate their daily lives and to facilitate their participation in the business world in the light of such information (Trilling and Fadel, 2009). As a result of economic, social, political, and especially technological changes throughout the last century, and contingent upon these developments, certain changes are observed in the qualifications of the required individuals. Therefore, these developments in different aspects influence the education systems that would enable the presence of qualified individuals and may render it compulsory for countries to determine some changes in their education policies (Özdemir, 2011). Within the advancing information society, the skills that students wish to acquire to render them qualified employees and good individuals are expressed as the 21st century skills (Ananiadou and Claro, 2009). In this context, various educational foundations have tried to generate frameworks to describe the 21st century skills and suggest the extent to which they are integrated, in general, into the education system (Brown et al., 2008). The global validity of the ongoing 21st century involves “skills.” In societies that are unable to achieve the necessary investment in these skills, people would be pushed to the fringes of the society, even if technological developments exist, these will not transform into economic growth, and societies in such situations would fall far behind the information-based global societies and fail in the global race. It is crucial to invest in the acquisition of “skills,” which is the most essential solution, throughout the life of individuals, that is, beginning from early childhood, throughout their mandatory education and professional life (OECD, 2012). While emphasizing active citizenship, creativity, problem-solving, critical thinking, and collaboration rather than good citizenship; the 21st century skills attach importance to literacy and the use of technological instruments such as information, media, or the digital age. It also includes respect for different cultures, coexistence, access to and use of information. In order for individuals to lead more qualified and productive lives, it is necessary to provide these skills to be acquired through education, and therefore, to include skills in education programs (Anagün et al., 2016).

Hixson et al. (2012) stated that each student in the 21st century must have had the following 8 skills: communication skills, Critical thinking, innovation, creativity, self-direction, collaboration, local and global connections skills, and technology as a learning instrument. In this study, the 21st century skills are categorized into 3 subdimensions such as “Learning and Renewal (LR) Skills,” “Life and Career (LC) Skills” and “Information, Media and Technology (IMT) Skills.”

Upon examining the literature regarding the subject, it is observed that various studies have been carried out on the 21st century skills. Studies, which dealt with the conceptual framework of those skills within the context of teachers' self-efficacy (Wilborn, 2013; Eryılmaz and Uluyol, 2015), emphasized that individuals should have had the 21st century skills besides their basic knowledge and skills in order to become successful both in their educational and daily lives. Başar (2018) examined preservice science teachers' beliefs on the 21st century skills as well as their self-efficacy views regarding the place of mathematics in science in his master's thesis. Several studies (Dede, 2009; Larson and Miller, 2011; Voogt and Roblin, 2012; Chalkiadaki, 2018) have been conducted to define the conceptual framework of the 21st century skills including classifications made in terms of different institutions. Anagün et al. (2016) conducted a study on the design of a reliable measurement instrument called "the 21st Century Skills Competence Scale" to determine the extent to which teaching candidates acquire the 21st century skills. On the other hand, there are studies (Latham et al., 2013; Aslan, 2015; Valtonen et al., 2016; Günc et al., 2013) conducted on the measurement (Kyllonen, 2012; Yalçın, 2018) and development (Kotluk, 2015; Short, 2012) of the 21st century skills, which usually evaluates them in terms of various dimensions according to the opinions of teaching candidates. Cansoy (2018) dealt with the investigation of the 21st century skills. Bozkurt and Çakır (2016), in their research study, handled the secondary school students' learning skills. Özdemir-Özden et al. (2018) discussed the efficacy perceptions of teaching candidates regarding the 21st century skills in this study. Dinler et al. (2021) dealt with the 21st century skills of 3-6-year-old children in terms of several variables. Cemaloglu et al. (2019) investigated the 21st century skills self-efficacy perceptions of vocational high school teachers. Göktepe-Yıldız (2020) analyzed the high school students' 21st century skills according to several demographic indicators. Uyar and Çiçek (2020) explicated the 21st century skills of teachers from different branches. Yalçın (2018), however, defined the 21st century skills and introduced several approaches and tools to measure those skills in his study. Moreover, although not described under the title of the 21st century skills, there are also various individual studies conducted on the 21st century sub-skills. Therefore, this research study is carried out as a pioneer in determining the self-efficacy perceptions of students in the Faculty of Education, Faculty of Literature, and Faculty of Nursing (Health) at Ege University, and to determine whether or not any difference exists among faculties. It is important in terms of providing data for other studies to be conducted.

In this context, the aims of the research study are determined as follows:

- Do the self-efficacy perceptions of the students in the Faculties of Education, Literature, and Nursing (Health) regarding the 21st century skills significantly differ by gender in the subdimension of "LR Skills"?
- Do the self-efficacy perceptions of the students in the Faculties of Education, Literature, and Nursing (Health) regarding the 21st century skills significantly differ by gender in the subdimension of "LC Skills"?
- Do the self-efficacy perceptions of the students in the Faculties of Education, Literature, and Nursing (Health) regarding the 21st century skills significantly differ by gender in the subdimension of "IMT Skills"?
- Do the self-efficacy perceptions of the students in the Faculties of Education, Literature, and Nursing (Health) regarding the 21st century skills significantly differ according to the subdimensions of "LR Skills," "LC Skills," and "IMT Skills"?

2. Method

In this part, information regarding the research model, population and sample, data collection tools utilized by the research study, and data analyses are included.

2.1 Research Model

This study, which examines the self-efficacy perceptions regarding the 21st century skills in terms of the gender and faculty variables of university students in the Faculties of Education, Literature, and Nursing (Health), is designed in a causal-comparative model. Causal comparative studies are conducted to determine the causes of an existing/naturally occurring situation or event, and the variables that affect those causes or the outcomes of an impact (Büyüköztürk et al., 2008: 185). Causal comparative research studies are similar to experimental research studies in terms of explaining the cause-effect relationship. Nevertheless, unlike experimental studies, the

investigated situation arises independently of the manipulation of the researcher in causal-comparative studies. The researcher, on the other hand, makes effort to detect the probable causes and impacts of this circumstance (Büyüköztürk et al., 2008; Cohen and Manion, 1994). In other words, no external intervention exists for generating a designed environment to determine cause-effect relationships, and to manipulate variables, as in experimental research studies (Emrahoğlu and Öztürk, 2010).

2.2 Research Population and Sample

The population of the research study consists of 1,056 students (841 females and 215 males) at Ege University during the fall semester of the academic year of 2018-2019. It is aimed at reaching the entire population, but due to the restriction of working with voluntary participants pursuant to research ethics, it is necessary to generate a sample.

The voluntary response sampling method, one of the non-probability sampling methods, is employed to determine the research sample. The voluntary response sampling method is determined later, and after reaching the entire population, the voluntary participants constitute the sample. The research is conducted with the participation of 1,056 out of 1,100 university students in the Faculties of Education, Literature, and Nursing (Health) at Ege University who have returned the completed scale forms.

2.3 Data Collection Tool

The data collection tool prepared to collect the views of university students in the Faculties of Education, Literature, and Nursing (Health) to investigate their self-efficacy perceptions regarding the 21st century skills was designed by Anagün et al. (2016). The scale, which is comprised of 42 items, has three-dimensions. The first dimension of the scale, namely, "LR skills" consists of 18 items; the second dimension of the scale, called "LC skills," consists of 16 items; whereas the third dimension of the scale, "IMT skills," consists of 8 items. The 21st century skills self-efficacy perception scale is a five-point Likert-type scale. The items in the scale are graded as "1-Never, 2-Rarely, 3-Sometimes, 4- Often, 5-Always."

2.4. Data Analysis

In this study, which aims to detect the differences in the 21st century skills of university students, differences in terms of gender are investigated performing independent groups t-test, whereas differences in terms of faculties are examined with the one-way analysis of variance techniques. The margin of error in the study is accepted as .05.

3. Findings

T-Test Results						
Variables	Gender	n	\bar{x}	sd	t	p
LR Skills	Female	841	68.37	10.08	-1.09	.28
	Male	215	69.20	9.55		
LC Skills	Female	841	66.41	6.75	-2.91	.00*
	Male	215	64.89	7.21		
IMT Skills	Female	841	34.49	4.50	.10	.92
	Male	215	34.46	4.22		

Note: *p<.05

No significant difference ($t(1054) = -1.09, p > .05$) is found in the LR skills of university students according to the gender variable. In other words, the levels of LR skills of men and women are quite similar.

It is determined that a significant difference ($t(1054)=2.91, p<.05$) exists in the LC skills of university students according to the gender variable. Accordingly, the levels of LC skills of female students are higher than that of male students.

It is observed that no significant difference ($t(1054)=.10, p>.05$) exists in the IMT skills of university students according to the gender variable. According to this finding, it can be stated that the IMT skills of male and female students are similar to each other.

Table 1: Examination of the LR skills in terms of the faculty variable

Dimension	Faculty	n	M	Source of Variance	Sum of Squares	sd	Mean Square	F	Diff.
LR Skills	1. Education	316	69.99	Between Groups	1470.30	2	735.15	7.48*	1-3
	2. Literature	321	68.88	Within Groups	103549.95	1053	98.34		
	3. Health	419	67.19	Total	105020.25	1055			

Note: * $p<.05$

A significant difference ($F(2, 1053)=7.48, p<.05$) exists in the LR skills of university students according to the faculty of education variable. In the Scheffe test, performed to determine the source of variance, it is detected that the levels of LR skills of the students in the faculty of education are higher than that of the ones in the faculty of health sciences.

Table 2: Examination of the LR skills in terms of the faculty variable

Dimension	Faculty	n	M	Source of Variance	Sum of Squares	sd	Mean Square	F	Diff.
LC Skills	1. Education	316	66.52	Between Groups	597.57	2	298.79	6.38*	1-3 2-3
	2. Literature	321	66.70	Within Groups	49325.69	1053	46.84		
	3. Health	419	65.20	Total	49923.26	1055			

Note: * $p<.05$

A significant difference ($F(2, 1053)=6.38, p<.05$) exists in the LC skills of university students according to the faculty of education variable. In the Scheffe test, performed to determine the source of variance, it is detected that the levels of LC skills of the students in the faculties of both education and literature are higher than that of the ones in the faculty of health sciences.

Table 3: Examination of the IMT skills in terms of the faculty variable

Dimension	Faculty	n	M	Source of Variance	Sum of Squares	sd	Mean Square	F	Diff.
IMT skills	1. Education	316	35.25	Between Groups	552.96	2	276.48	14.33*	1-3 2-3
	2. Literature	321	34.88	Within Groups	20312.88	1053	19.29		
	3. Health	419	33.61	Total	20865.84	1055			

Note: * $p<.05$

It is observed that a significant difference ($F(2, 1053)=14.33, p<.05$) exists in the IMT skills of university students according to the faculty of education variable. In the Scheffe test, performed to determine the source of variance, it is detected that the levels of IMT skills of the students in the faculties of both education and literature are higher than that of the ones in the faculty of health sciences.

4. Conclusion, Discussion, and Suggestions

In this research study, the students in the Faculties of Education, Literature, and Nursing (Health) are assessed by gender and it is aimed to investigate whether or not any difference exists among the self-efficacy perceptions of faculties regarding the 21st century skills.

In the study, no significant difference is shown in the LR skills of university students according to the gender variable. In other words, the LR skills subdimensions of women and men are similar to each other.

In terms of gender variables, a significant difference exists in the subdimension of university students' LC skills. According to this result, the LC skills of female students are higher than that of male students. Gülen (2013) and Karakaş (2015) also concluded in their studies that the 21st century skills of female students were higher than that of male students. This finding complies with the results of our study.

In terms of the gender variable, no significant difference exists in the subdimension of IMT skills of university students. According to this finding, it may be asserted that the IMT skills of both genders are similar to each other. It is asserted that a significant difference exists in the LR skills of university students according to the faculty variable. In the Scheffe test, performed to determine the source of variance, it is determined that the levels of LR skills of the students in the faculty of education are higher than that of the ones in the faculty of health sciences. It is found that a significant difference exists in the LC skills of university students according to the faculty of education variable. In the Scheffe test, performed to determine the source of variance, it is detected that the levels of LC skills of the students in the faculties of both education and literature are higher than that of the ones in the faculty of health sciences.

A significant difference exists in the IMT skills of university students according to the faculty of education variable. In the Scheffe test, performed to determine the source of variance, it is detected that the levels of IMT skills of the students in the faculties of both education and literature are higher than that of the students in the faculty of health sciences. The reason for this involves the fact that the 21st century students, who are quite accustomed to interacting with contemporary technology and the digital world, are expected to acquire high levels of information and technology (IT) literacy skills, given the frequent technology usage features, it is considered a positive outcome as it is one of the most crucial skills required to fulfill the needs of the 21st century. It is also thought that the personal characteristics of the students have an impact on the differences in IT literacy among nursing students.

Upon examining the literature; it is determined that similar measurement tools are used in studies investigating self-efficacy regarding 21st century skills. Therefore, it can be claimed that the utilized measurement tool is appropriate for the structure of the study. Gülen (2013), in his study conducted on secondary school students, detected that they had a good level of active learning, problem-solving, learning to learn, cooperation, and communication skills, which are within the scope of the 21st century skills. Karadaş et al. (2021) examined the 21st century skills of nursing and midwifery students according to several variables. They concluded that the 21st century skills of both nursing and midwifery students were above the average, and there were skill domains that needed to be improved. Similarly, Kozikoğlu and Altunova (2018), in their study conducted on the preservice teachers using the same scale, determined that the self-efficacy perceptions of the preservice teachers were at a high level, whereas did not differ by the subdimensions. Again, Özdemir- Özden et al. (2018), utilizing the same scale, indicated that preservice teachers had a high level of competence perceptions, nonetheless, there were differences in some subdimensions. Karakaş (2015), in his study conducted on the 8th-grade students, asserted that students had high levels of affective, cognitive and sociocultural dimensions of the 21st century skills.

This might be due to the parallelism between the skills included in the 21st century skills and the skills included in the curriculum. In order for individuals to keep up with the current age and have their shares in employment, it is imperative that they have a set of skills that are defined as the 21st century skills. This study is crucial in terms of revealing the self-efficacy perception levels of students in different faculties regarding the 21st century skills and investigating the impacts of various variables. Within the scope of the study, the impacts of the entire variables

discussed are revealed. No significant differences may be found in terms of some variables, however, the finding that involves lack of differentiation has also data quality, and is thought to contribute to researchers who would study in the field. Besides, the obtained results within the scope of this study are thought to provide an idea on such issues as the self-awareness of future teacher candidates, the extent to which they are ready for the era and the profession, and the effectiveness of the ongoing teacher training systems in raising the 21st century teachers. The same is true for students in the Faculty of Literature. It can be claimed that the reason why the students of the Faculty of Nursing (Health) have lower levels of IMT skills, as well as the LC skills, compared to the students in other faculties stems from the fact that they have weaker such skills since they work quite intensely in terms of profession. Therefore, it is thought that rendering the working hours of health workers a little more flexible and providing them with more social opportunities would mitigate the insufficiencies of health students in this regard.

References

- Anagün, Ş. S., Atalay, N., Kılıç, Z. & Yaşar, S. (2016). Öğretmen adaylarına yönelik 21. yy. becerileri yeterlilik algıları ölçeğinin geliştirilmesi: Geçerlik ve güvenilirlik çalışması. *PAU Eğitim Fakültesi Dergisi*, 40, 160-175. <https://doi.org/10.9779/puje768>
- Ananiadou, K. ve Claro, M. (2009). 21st century skills and competences for new millennium learners in OECD countries. OECD Education Working Papers, No. 41, OECD Publishing. <https://doi.org/10.1787/218525261154>.
- Aslan, S. (2015). Is learning by teaching effective in gaining 21st century skills? The views of pre-service science teachers. *Educational Sciences: Theory & Practice*, 15(6), 1441-1457.
- Başar, S. (2018). *Fen bilimleri öğretmen adaylarının fende matematiğin kullanımına yönelik özyeterlik inançları, 21.yy becerileri ve aralarındaki ilişkinin incelenmesi*. Yayımlanmamış yüksek lisans tezi, Hacettepe Üniversitesi Eğitim Bilimleri Enstitüsü.
- Bozkurt, Ş. B. ve Çakır, H. (2016). Ortaokul öğrencilerinin 21. yüzyıl öğrenme beceri düzeylerinin cinsiyet ve sınıf seviyesine göre incelenmesi. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, 39(39), 69-82
- Brown, P., Lauder, H. ve Ashton, D. (2008). Education, globalization and the knowledge society. London: The teaching and learning research programme.
- Büyüköztürk, Ş., Çakmak, E., Akgün, Ö., Karadeniz, Ş., Demirel, F. (2008). *Bilimsel Araştırma Yöntemleri*. (1. Baskı). Ankara: Pegem Akademi.
- Cansoy, R. (2018). Uluslararası çerçevelere göre 21. yüzyıl becerileri ve eğitim sisteminde kazandırılması. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi*, 7(4), 3112-3134.
- Cemaloğlu, N., Arslanlangilay, A. S., Üstündağ, M. T. ve Bilasa, P. (2019). Meslek lisesi öğretmenlerinin 21. yüzyıl becerileri özyeterlik algıları. *Kırşehir Eğitim Fakültesi Dergisi*, 20(2), 845-874.
- Chalkiadaki, A. (2018). A systematic literature review of 21st century skills and competencies in primary education. *International Journal of Instruction*, 11(3), 1-16.
- Cohen, L., Manion, L. (1994). *Research Methods In Education* (Fourth Edition), Routledge.
- Dede, C. (2009). Comparing frameworks for “21st century skills”. [http://sttechnology.pbworks.com/f/Dede_\(2010\)_Comparing%20Frameworks%20for%2021st%20Century%20Skills.pdf](http://sttechnology.pbworks.com/f/Dede_(2010)_Comparing%20Frameworks%20for%2021st%20Century%20Skills.pdf) adresinden 14.09.2021 tarihinde alınmıştır.
- Dinler, Simsar ve Yalçın. (2021). 3-6 Yaş çocukların 21. yüzyıl becerilerinin bazı değişkenler açısından incelenmesi. *e-Kafkas Eğitim Araştırmaları Dergisi*, 8, 281-303. doi: 10.30900/kafkasegt.941467.
- Emrahoğlu, N., & Öztürk, A. (2010). Fen bilgisi öğretmen adaylarının akademik başarılarına bilişsel farkındalığın etkisi: bir nedensel karşılaştırma araştırması. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 19(2), 18-30. <https://doi.org/10.31592/aeusbed.689518>
- Eryılmaz, S., & Uluyol, Ç. (2015). 21. yüzyıl becerileri ışığında Fatih projesi değerlendirmesi. *Gazi Eğitim Fakültesi Dergisi*, 35(2), 209-229.
- Göktepe-Yıldız, S. (2020). Lise öğrencilerinin 21. yüzyıl becerilerinin bazı demografik değişkenler açısından incelenmesi. *Ulakbilge Sosyal Bilimler Dergisi*, 8(51), 884-897. <https://doi.org/10.33905/bseusbed.523196>
- Griffin, P., Care, E., & McGaw, B. (2012). The changing role of education and schools. *In Assessment and teaching of 21st century skills* (pp. 1-15). Springer, Dordrecht. https://doi.org/10.1007/978-94-007-2324-5_1
- Griffin, P., Care, E., ve McGaw, B. (2018). The changing role of education and schools. Care, Esther, Griffin, Patrick, Wilson, Mark (Ed.), *Assessment and teaching of 21st century skills* (1. Baskı içinde (s. 1-15). Dordrecht: Springer.
- Gülen, Ş. B. (2013). *Ortaokul öğrencilerinin 21. yüzyıl öğrenme becerileri ve bilişim teknolojileri ile destekleme düzeylerinin cinsiyet ve sınıf seviyesine göre incelenmesi* (Yüksek Lisans Tezi). Erişim Adresi: <https://tez.yok.gov.tr/UlusalTezMerkezi/tezSorguSonucYeni.jsp>.

- Günüç, S., Odabaşı, H. F., & Kuzu, A. (2013). 21. Yüzyıl öğrenci özelliklerinin öğretmen adayları tarafından anımlanması: Bir twitter uygulaması. *Eğitimde Kuram ve Uygulama*, 9(4), 436-455.
- Hixson, N. K., Ravitz, J. ve Whisman, A. (2012). Extended Professional Development in Project-Based Learning: Impacts on 21st Century Skills Teaching and Student Achievement. West Virginia Department of Education. <https://files.eric.ed.gov/fulltext/ED565466.pdf> adresinden 10.09.2021 tarihinde alınmıştır.
- Karadaş, A. , Kaynak, S. , Ergün, S. & Palas Karaca, P. (2021). Hemşirelik ve Ebelik Öğrencilerinin 21. Yüzyıl Becerilerinin Bazı Değişkenlere Göre İncelenmesi . *Ordu Üniversitesi Hemşirelik Çalışmaları Dergisi* , 4 (2) , 232-239 . DOI: 10.38108/ouhcd.906190.
- Karakaş, M, M. (2015). *Ortaokul sekizinci sınıf öğrencilerinin fen bilimlerine yönelik 21. yüzyıl beceri düzeylerinin ölçülmesi* (Yüksek Lisans Tezi). Erişim adresi: <https://tez.yok.gov.tr/UlusalTezMerkezi/tezSorguSonucYeni.jsp>.
- Kotluk, N., & Kocakaya, S. (2015). 21. yüzyıl becerilerinin gelişiminde dijital öykülemeler: Ortaöğretim öğrencilerinin görüşlerinin incelenmesi. *Eğitim ve Öğretim Araştırmaları Dergisi*, 4(2), 354-363.
- Kozikoğlu, İ. & Altunova, N. (2018). Öğretmen adaylarının 21. yüzyıl becerilerine ilişkin öz-yeterlik algılarının yaşam boyu öğrenme eğilimlerini yordama gücü. *Yükseköğretim ve Bilim Dergisi/Journal of Higher Education and Science*, 8(3), 522-531. Doi: <https://doi.org/10.5961/jhes.2018.293>.
- Kyllonen, P. C. (2012, May 7-8). Measurement of 21st century skills within the common core state standards. K-12 Center at ETS. Invitational Research Symposium on Technology Enhanced Assessments, Washington D.C. <http://www.ets.org/Media/Research/pdf/session5-kyllonenpaper-tea2012.pdf> adresinden 14.09.2021 tarihinde alınmıştır.
- Larson, L. C., & Miller, T. N. (2011). 21st century skills: Prepare students for the future. *Kappa Delta Pi Record*, 47(3), 121-123. <https://doi.org/10.1080/00228958.2011.10516575>
- Latham, D., Gross, M., & Witte, S. (2013). Preparing teachers and librarians to collaborate to teach 21st century skills: Views of LIS and education faculty. *American Association of School Librarians*, 16, 1-23. <https://doi.org/10.3233/efi-150957>
- OECD (2012), Better skills, better jobs, better lives: A strategic approach to skills policies, OECD Publishing. <https://doi.org/10.1787/9789264177338-en> adresinden 10.09.2021 tarihinde alınmıştır.
- Özdemir, S. M. (2011). Toplumsal değişme ve küreselleşme bağlamında eğitim ve eğitim programları: kavramsal bir çözümleme. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi*, 12(1), 85- 110.
- Özdemir-Özden, D., Karakuş-Tayşi, E., Kılıç-Şahin, H., Demir-Kaya, S., & Bayram, F. Ö. (2018). Öğretmen adaylarının 21. yüzyıl becerilerine yönelik yeterlik algıları: Kütahya örneği. *Electronic Turkish Studies*, 13(27), 1163-1184. Doi: 10.7827/TurkishStudies.14928
- Short, B.J. (2012). 21 St century skills development: Learning in digital communities: Technology and collaboration (Unpublished doctoral dissertation). Department of Educational Methodology, Policy, and Leadership. Graduate School of the University of Oregon, USA.
- Trilling, B. ve Fadel, C. (2009). 21st century skills: Learning for life in our times. Francisco: Jossey-Bass.
- Uyar, A., Çiçek, B. (2021). Farklı branşlardaki öğretmenlerin 21. yüzyıl becerileri. *IBAD Sosyal Bilimler Dergisi*, 9, 1-11.
- Valtonen, T., Sointu E.T., Kukkonen, J., Häkkinen, P., Järvelä, S., Ahonen, A. ve diğ. (2017). Insights into finnish first-year pre-service teachers' twenty-first century skills. *Education and Information Technologies*, 22(5), 2055-2069.
- Varis, T. (2007). New technologies and innovation in higher education and regional development. *Revista de Universidad y Sociedad del Conocimiento*, 4(11), 16-24.
- Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies. *Journal of Curriculum Studies*, 44(3), 299-321.
- Wagner, T. (2008). *Why even our best schools don't teach the new survival skills our children need and what we can do about it*. New York: Basic Books.
- Wilborn, J.W. (2013). *Teacher self-efficacy: common core state standards within a 21st century skills framework*. (Unpublished doctoral dissertation). Liberty University, Lynchburg, VA.
- Yalçın, S. (2018). 21. yüzyıl becerileri ve bu becerilerin ölçülmesinde kullanılan araçlar ve yaklaşımlar. *Journal of Faculty of Educational Sciences*, 51(1), 183-201.



Preschool Teachers' Opinions Towards to Multicultural Education*

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Abstract

It is almost impossible to talk about a monocultural society in the world that exist diversity and differences. Cultural diversity also makes its presence felt in schools, as in every atmosphere. Pre-school institutions, where children leave their home environment and are involved in the educational environment for the first time, are the places in which each child brings the cultural diversity of himself and his family, and in which peer interaction first occurs and develops. For these reasons, it is important to determine the views and practices of pre-school teachers about multiculturalism and its applications. In this study, a phenomenological research model, one of the qualitative research methods, was used by interviewing 23 preschool teachers working in official independent kindergartens in the city center of Diyarbakır. Data were collected through interviews with teachers, and content analysis was used in the analysis of the data. So far as the results of the research; it has been determined that the number of teachers who make arrangements in terms of multiculturalism in their classrooms is quite low, and the teachers who do not make arrangements for this, justify that the children in their classes are from Diyarbakır province or its surroundings, and ignore the cultural diversity of the province they work in. It was designated that all of the participants included the issues of respect for differences in their plans, and due to the pandemic, the diversity of teachers' activities for multiculturalism and respect for differences decreased. It has been determined that teachers focus on different themes and subjects due to the limited education period during the pandemic process. All the teachers participating in the study emphasized that it is more effective to address cultural issues in face-to-face education, however it was determined that they could not associate some of their practices with multiculturalism and respect for differences.

Keywords: Multiculturalism, Respect for Differences, Cultural Diversity, Distance Education, Early Childhood Education

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1. Introduction

Our world, where cultures interact and affect each other, subcultures are formed within the same culture and we live together with different cultures, has become a living area where diversity and differences coexist (Erden, Ömeroğlu, Kandır, Yenice, Ayhan, Uzun, Eren, Demircan & Akçar, 2006) . Multiculturalism emerges as an important concept with the interaction of individuals coming together with different characteristics (Cırık, 2008).

Multiculturalism; language, religion, ethnicity, race, gender, age, disability, socio-economic status, sexual orientation, etc. Classrooms, which are an area for preparation for the natural world, teachers need to reflect a multicultural environment consisting of different cultural characteristics in order to organize their classrooms according to cultural diversity, taking into account the cultural structures of individuals, and to make multicultural education visible in classroom environments (Gayle Evans, 1992; Ramsey, 2013). So then it is recommended that the images of different cultural groups be posted on the boards in schools and that materials suitable for multiculturalism should be kept in the classrooms (Bartelo, 2014). For this purpose, regulations regarding multiculturalism can be made in learning centers where children learn in accordance with their own interests and needs including written works and visuals of different cultures can be kept in the book center, musical instruments of different cultures can be placed in the music center, paints and artistic materials belonging to different skin colors can be placed in the art center, clothes and dolls from different cultures can be placed in the dramatic play center.

Erden, Ömeroğlu, Kandır, Yenice, Ayhan, Uzun, Eren, Demircan & Akçar (2006) determined in their observations that the materials in most preschool institutions comply with traditional and stereotyped structures. All the dolls in the classrooms are white and their gender is female, they do not have any physical disabilities, they represent the traditional family structure with pictures of the nuclear family consisting of parents and children, mothers usually do housework, and fathers sit on the sofa while reading the newspaper, have determined that they are depicted. The inclusion of such materials in the classroom causes children to generalize them, and to find individuals outside of their generalizations strange.

Children who grow up in a world full of contradictions between diversity in real life and the education offered in the classroom also hear many words about the equality of cultural differences, but they observe and experience inequality in daily life (Ramsey, 2013). Children's being in environments where inequality, discrimination and prejudice do not take place in the preschool period, where all individuals are considered valuable with their differences, and having positive experiences about cultural diversity and equality, will be tangible steps taken from the early years in order to live together and create a multicultural understanding will contribute to the upbringing of tolerant individuals (Carson, 1998). Knowing, researching and putting into practice multiculturalism at an early age is very important in this sense. For this reason, there is a need to carry out studies on perceptions and practices for multicultural education.

When the literature on the subject in Turkey is analyzed, it is possible to come across studies on teachers' perceptions and practices of multiculturalism and its components. These studies generally examine preschool teachers' perceptions and attitudes towards multiculturalism (Akkaya, Sahin & Gezer Sen, 2021; Alabay & Ersal, 2020; Mazi, 2018; Özözen Danacı, Eran, Çetin, Pınarcık, & Bahtiyar, 2016; Mazi, 2018; Pekdoğan, 2018; Taştekin, Bozkurt Yukcu, Izoglu, Gungor) . Işık Uslu & Demircioğlu, 2016) Alabay & Ersal (2020), as a result of their interviews with the teachers of preschool children from different cultural backgrounds, revealed that the teachers did not make any arrangements for these children in their plans, classroom environments and family participation. In the study conducted by Mazi (2018), teachers' perceptions of multiculturalism were examined and it was determined that teachers' perceptions of multiculturalism were substantial according to the branch variable and the type of school they worked at. Pekdoğan (2018), in his study in which he examined the views of preschool teachers on respect for differences education; it has been stated that preschool teachers mostly aim to bring empathy to children within the scope of respect for differences, activities and achievement-indicator examples should be given more place in the preschool education program regarding respect for differences education. In addition, it was found that teachers mostly use drama and game methods as methods and that they should be good

models for children in the education process. Along with these studies, compilation studies on multicultural education (Başbay & Bektaş, 2009; Polat & Kılıç, 2013) and pre-school teacher candidates' perceptions of multiculturalism (Şahin & Ateş, 2019) are also included.

In abroad, multiculturalism studies are mostly carried out in countries with different ethnic cultural diversity. For example, Ng, Chai, Chan & Chung (2021) investigated teacher competencies in utilizing the culture-sensitive teaching method in teaching Chinese to ethnic minorities in Hong Kong. As a result of the research, it was concluded that preschool teachers working in kindergartens where ethnic minority children are concentrated are more sensitive to the learning styles and learning needs of ethnic minority children and are more competent in applying culturally appropriate educational methods. They found that pre-school teachers working in schools where there are fewer children from ethnic minorities have a more monocultural understanding when teaching Chinese. Zain, Basir & Mustafa (2020), in their study on 754 six-year-old preschool children in Malaysia, to demonstrate skills related to multiculturalism and respect for differences; it has been reached that the average scores of the children from the sub-dimensions of the questionnaire are mostly related to the skill of mutual respect for other individuals. In his study conducted in New Zealand, Guo (2017) revealed that this multicultural physical learning environment created supports the development of young children when the home environment, social and cultural aspects of children from minority families are represented in the classroom environment in early childhood education environments. Hong (2017), in his study, which aims to investigate the difficulties or current successes of early childhood teachers in their classrooms towards cultural diversity in their classrooms, Hong (2017) stated that teachers mostly experience problems such as lack of information, lack of support services and temporal regulation regarding cultural diversity. reached the relevant results.

Besides studies with teachers and children, parent-child relationships of children from multicultural family structures were scrutinized (Mamat, 2014); how preschool children understand racial and ethnic diversity and how they recognize speech and action about diversity in their school life (Park, 2010); There have been studies on a wide variety of subjects, including the level of evaluation of families from different cultural backgrounds in preschool institutions without prejudice and in terms of cultural socialization (Davidson, 2016).

Among the studies conducted in the literature, no studies have been found that revealing how preschool teachers are involved in multiculturalism and all of its components during the pandemic process. In the cartoons that children watch on digital platforms, some cartoon characters are treated as genderless. The toys that adults buy for their children are chosen as gender neutral (Özer & Akgül, 2021). In addition, in educational environments, education for the cognitive areas of children is preferred rather than cultural values, and practices are carried out in accordance with the values of the culture that represents the majority, instead of the characteristics of different cultures. These practices prevent children from seeing the differences.

As a result of the Corona virus epidemic that occurred in China in 2019; social life and physical intimacy were avoided (UNDP, 2020, cited in Külekçi Akyavuz & Çakın, 2020). In this process of social distancing, a need arises to reveal the impact of the pandemic on practices related to multiculturalism and respect for differences. Although there are studies that include gender, disability and age / agedness elements (Esin & Yeniceri, 2020; Kalaç, Telli & Erönel, 2020; Varışlı & Gültekin, 2020), which are the components of multiculturalism together with the pandemic process, studies focusing on all the components of the concept of multiculturalism have not been found during the pandemic process. . In this respect, it is necessary to reveal what preschool teachers do in their classroom practices and activities regarding multiculturalism, their possession of multicultural education in their plans, the elements of multiculturalism in their classrooms and their practices regarding multiculturalism and its components, as well as the pandemic process.

When the related literature on multiculturalism and respect for diversity is searched, no studies have been found that examining the views of teachers on the arrangement of physical environments in terms of multiculturalism and respect for diversity, their inclusion in plans, and the practices related to cultural diversity in distance education carried out during the pandemic process. For these reasons, the following questions were investigated in this study.

1. How do preschool teachers define multiculturalism?
2. What arrangements do preschool teachers make regarding multiculturalism in their classrooms?

3. How do preschool teachers plan and implement multicultural education?
4. What are the multiculturalism and its components in the classrooms of preschool teachers?
5. What are the views of pre-school teachers regarding education and multicultural practices during the pandemic process?

2. Method

In the research designed in the phenomenological research design, which is one of the qualitative research methods, the phenomenon is multiculturalism and sub-components of multiculturalism.

2.1. Participants

In the fall semester of the 2020-2021 academic year, it was paid attention to the participant group of the research, that 19 independent kindergartens were selected from each district out of 33 independent kindergartens in the central districts of Diyarbakir (Sur, Yenişehir, Kayapınar, Bağlar) using the maximum diversity sampling method. 23 of the teachers who volunteered to participate in the study and gave their consent were female and three male preschool teachers. The descriptive characteristics of the teachers who constitute the participant group of the research are given in Table 1. TF1, TF2... for female participant teachers; for male participant teachers, codes were given as TM1, TM2....

Table 1: General Information on Teachers

Code	Age	The place born and raised	The place participants' born and raised	Graduated Program	Educational status	Professional Seniority Year	Working Time at School
TM1	32	City Center Diyarbakir	City Center Diyarbakir	Preschool	Bachelor	8 years	2 years
TM2	30	City Center Diyarbakir	City Center Diyarbakir	Preschool	Bachelor	6 years	7 months
TM3	28	Village Malatya	Village Malatya	Preschool	Bachelor	5 years	1 year
TF1	36	District Center Diyarbakir	District Center Diyarbakir	Preschool	Bachelor	6 years	6 months
TF2	32	City Center Istanbul	City Center Istanbul	Preschool	Bachelor	11 years	5 years
TF3	34	District Center Mersin	District Center Mersin	Preschool	Bachelor	12 years	4 years
TF4	40	City Center Diyarbakir	City Center Diyarbakir	Preschool	Bachelor	15 years	2 years
TF5	30	City Center Siirt	City Center Siirt	Preschool	Bachelor	7 years	3 years
TF6	36	City Center	City Center	Preschool	Bachelor	12 years	10 years
TF7	27			Preschool		5 years	7 months
TF8	42	City Center Diyarbakir	City Center Diyarbakir	Preschool	Bachelor	18 years	6 months
TF9	43	Diyarbakir	Diyarbakir	Preschool	Bachelor	18 years	6 months
TF10	44	City Center Diyarbakir	City Center Diyarbakir	Preschool	Bachelor	12 years	7 years
TF11	37	City Center Diyarbakir	City Center Diyarbakir	Child development department	Bachelor	11 years	3 years

TF12	41	City Center Istanbul	City Center Istanbul	Preschool	Bachelor	10 years	7 years
TF13	30	City Center Batman	City Center Batman	Preschool	Bachelor	7 years	3 years
TF14	38	City Center Diyarbakir	City Center Diyarbakir	Preschool	Bachelor	6 years	2 years
TF15	31	District Center Mardin	District Center Mardin	Preschool	Bachelor	7 years	2 years
TF16	31	City Center Diyarbakir	City Center Diyarbakir	Preschool	Bachelor	13 years	3 years
TF17	28	City Center Karaman	City Center Karaman	Preschool	Bachelor	7 years	2 years
TF18	34	District Center Mardin	District Center Mardin	Preschool	Bachelor	11 years	2,5 years
TF19	30	City Center Eskisehir	City Center Eskisehir	Preschool	Bachelor	9 years	2 years
TF20	35	City Center Diyarbakir	City Center Diyarbakir	Preschool	Bachelor	13 years	7 years
TF21	27	City Center Batman	City Center Batman	Preschool	Bachelor	2 years	1 year
TF22	34	City Center Adana	City Center Adana	Preschool	Master	10 years	5 years
TF23	35	District Center Adana	District Center Adana	Preschool	Master	9 years	5 years

When Table 1 is analyzed, it is seen that the ages of the teachers are between 27-44, the majority of them were born and raised in the city center (20 people), half of the participants (13 people) were born and raised in Diyarbakır, where the study was conducted, it appears that 25 of the teachers have graduated from pre-school education and one teacher has a child development graduate. While 24 of the teachers are undergraduate degree, two teachers have master degree. Professional seniority of teachers varies between at least two and at most 18 years and it is understood from Table 1 that the working period in the school they are attending is between at least six months and at most ten years.

2.2. Data Collection Tools and Methods

Semi-structured interview questions were harnessed as data collection tool in the research. After the literature review on multiculturalism and respect for differences, the scales used in the literature on the subject were examined and interview questions were prepared accordingly. The content validity was provided by submitting the interview questions to the expert opinion of three lecturers who completed their doctorate education. After the necessary arrangements and changes, the interview questions were used in the pilot interview with five teachers, and the question statements were ended up with making adjustments. The interview questions consist of 10 semi-structured interview questions that aim to reveal the definitions and naming of the concept of multiculturalism, the environment arrangements, the activities created in the context of multiculturalism in the classroom environment and the experiences they express.

2.3. Data Collection

Prior to the data collection process of the research, an application was made to the İnönü University Social and Human Sciences Ethics Committee, and approval was obtained that it is ethically appropriate in accordance with the report of the Social and Human Sciences Ethics Committee dated 27.02.2020 and numbered 2020/5-5. The

schools where the research will be conducted were determined in December 2020, and the data were collected in December and January of the 2020-2021 academic year. Before starting the study, the participants were informed about the content of the study and their consent for participation was acquired by signing the Informed Consent Form. Before the interview, an appointment was made with the teachers, and interviews were held when the teacher and the researcher were convenient. Due to the collection of data during the pandemic process, phone interviews were made with nine of the teachers and face-to-face interviews were conducted with 17 of them. Face-to-face interviews were carried out in a quiet place in the school designated during the visits to the schools where the teachers work. Voice recordings were taken during the interviews with 21 of the teachers, and since five teachers did not want the voice recording to be recorded, the continuous writing method was utilized while interviewing these teachers.

2.4. Analysis of Data

Content analysis method was used in the analysis of the data gained from the interviews with the teachers. According to Büyüköztürk et al. (2018), content analysis is defined as a systemic and repeatable technique in which some words of a text are summarized by dividing them into smaller categories with coding based on certain rules. The interview records obtained from the semi-structured interviews with the teachers were first converted into written documents. In the content analysis, first of all, the statements of the participants were read in line with the research questions and codes were created from the statements. In the creation of the codes, the expressions of the participants were sometimes taken directly, and sometimes the meaning of the participant's expression was used. Then, the semantically related codes were brought together to reach the themes and the findings were acquired. The reliability formula [$\text{Reliability} = \text{Consensus} / (\text{Agreement} + \text{Disagreement})$] proposed by Miles and Huberman (1994) was used to calculate reliability in the coding that two researchers independently made (Miles & Huberman, 1994). While making the reliability calculations, calculating the intercoder reliability as at least 70% ensures that the research is accepted as reliable, while the reliability was calculated as 91% in this study and the research was found reliable.

3. Findings

The presentation of the findings was grounded on the research questions, but the findings related to the research questions in terms of phenomenology were explained with the components of multiculturalism.

3.1. Preschool Teachers' Definitions of Multiculturalism

In order to learn how preschool teachers define the concept of multiculturalism, the teachers were asked whether they had heard of the concept of multiculturalism before. Twenty-one of the participating teachers stated that they had heard of the concept of multiculturalism, and five of them had not heard of this concept. The teachers who stated that they had heard of the concept of multiculturalism were asked what they understood from this concept and how they would define it if they wanted to define it. According to the analysis of the answers from the teachers, it was determined that the definition made by only 16 of 21 teachers who stated that they had heard of the concept of multiculturalism before was suitable for the concept of multiculturalism and the components included in this concept. The concept of multiculturalism defined by teachers and their perceptions of its components are grouped under two themes: multiculturalism in terms of social cohesion and multiculturalism in terms of differences within the dominant majority.

Evaluating multiculturalism in terms of social cohesion, 11 teachers come from different cultures, lifestyles/experiences/upbringing styles/customs, ethnic origins (Kurdish, Turkish, Zaza, Syrian etc.), religious origins (Alevism, Sunnism, etc.), languages, countries/ They stated that people/children from countries/geographical segments/environments, age groups, genders are formed, and that such differences are a social richness and contribute to cultural diversity. One of the teachers explained this situation as "I know, according to our definition in Turkey; different, religiously, culture, country, way of life and their coexistence. I have only one Greek student. I can only give an example. There is no one from any other culture other than him. All of them are from here...(TF3)".

The five teachers who regard multiculturalism as the differences within the dominant majority in the society are based on culture, countries (regional, districts), ethnic origins (Kurdish, Turkish, Zaza, Black, etc.), different religious origins (Alevisism, Sunnism, etc.), languages/accents. defined as people who differ in society in terms of traditions/customs, eating-drinking/dressing. It was observed that teachers focused on differences/being different and bein a minority while defining multiculturalism.

When the five teachers who stated that they had not heard of the concept of multiculturalism before, were asked their opinions on what the concept could be, the comments of two of the five teachers could not be related to multiculturalism, and it was determined that the comments of the other three teachers included the lexical meanings of the words that make up the concept of multiculturalism. The definition made by five of the teachers who stated that they had heard of the concept of multiculturalism did not coincide with the concept. It was noteworthy that they made statements about a high level of reading, having knowledge on many subjects, having knowledge in different fields, traveling and seeing, meeting people at all levels, and being in a rich environment.

3.2 Regulations and Practices Regarding Multicultural Education in Educational Environments

When asked whether they made arrangements regarding multiculturalism in the classrooms, 18 teachers stated that they made arrangements regarding multiculturalism in their classrooms, while eight teachers said that they did not. Two of the 18 teachers who stated that they made arrangements for multiculturalism could not be associated with multiculturalism. It has been determined that a teacher has misconceptions because he tries to explain contemporary approaches and different teaching methods as multiculturalism, and a teacher says that he/she applies it even though he/she does not know the concept. The themes regarding the regulations and practices of 14 teachers who correctly understand and apply multicultural education practices are shown in Table 2. One participant gave more than one opinion.

Table 2: Teachers' Inclusion of Multiculturalism in Classroom Arrangements and Practices

Theme	Sub-theme	<i>f</i>
Preferred activities and practices as subjects	Game/Drama/Turkish/Art events	7
	Family involvement	1
	Making field trips	1
Arrangements in learning centers	Using visual materials,	3
	Introducing the products of geographical regions,	2
	Putting costume/outfit	1
	Houses of different countries	1
Seating arrangement	Creating a mixed seating arrangement	1

Teachers who stated that they included multicultural education in activities said that they mostly covered the issue by including children's families in education through games, drama, Turkish, art activities, field trips, and family participation studies. A teacher said about this situation, "... I mostly include Turkish language activities. First of all, on World Children's Day, I will explain that there are different children, different clothing styles, different colors, different lives, both with visuals, videos and stories, with a conversation first... He stated that it is important that the weeks coincide. Another teacher said, "Because I worked with students from different cultures for a while. In the region where I work... We had a student who came from Syria, and he made something belonging to the Syrian culture, he brought something to eat...(TF11), he explained the multicultural education practice in a specific day and week event to introduce the culture of refugee children in the classroom in classroom activities.

Only four of the 14 teachers who participated in the study stated that they made arrangements regarding multiculturalism in learning centers in their classrooms. It has been determined that the teachers use visual materials that will attract attention for children in the learning centers, they introduce products that represent different geographical regions of our country, they include clothes and costumes from different cultures in our country or around the world, and they include products that show geographical settlements. A teacher (TF22) who stated that although he included multiculturalism as a subject in the activities, did not make arrangements in the

learning centers, stated that there was a lack of information about organizing the learning center and that it was not suitable for creating a center due to its small class.

Only one teacher (TF5), who stated that he arranged the seating arrangement for multiculturalism in the classroom, stated that he placed the children in a mixed order without making any gender, culture or ethnic origin discrimination. In this thought, this teacher emphasized that the child would be deprived of learning experiences from each other's cultures in the distinction to be made regarding the sub-culture to which the child belongs, and mentioned the richness that cultural diversity will add to the lives of children.

Eight teachers, who stated that they did not make arrangements regarding multiculturalism in their classrooms, were asked about the reasons for their opinions that were effective in not making arrangements regarding multiculturalism. The teachers did not prefer to encompass different cultures because they thought that all of the children in their classrooms came from the same culture and did not encounter different cultures, subcultures do not make a difference and that dealing with cultural differences would cause marginalization, they did not address this issue because the education period shortened due to the pandemic was not enough, and the lack of knowledge about the concept of multiculturalism.

3.3. Planning and Implementation of Multicultural Education

Preschool teachers were also asked whether they included multicultural education in the plans they prepared. While 18 of the teachers stated that they included multicultural education in their plans, eight of the teachers stated that they did not include such activities in their plans.

The teachers who stated that they included multicultural education in their plans were asked how they included it. According to the content analysis made for the answers received from the teachers, 15 of the teachers conducted activities to promote the cultures of different countries, cities or regions related to multiculturalism, they carried out activities explaining the concepts of children's rights and equality, they introduced the unique characteristics and differences of cultures, they especially introduced children from different parts of the world. It was learned that they carried out activities in the activities for April 23 National Sovereignty and Children's Day, World Children's Day and Children's Rights days, where they talked about children from different parts of the world. Teachers were asked in which activities they used these practices for multicultural education the most. Six of the teachers stated that they preferred art, drama, game, music and Turkish activities for multicultural education practices. One of the teachers (TF6) explained that they used Native American feathers as accessories in the art activity and they animated them through drama. This teacher stated that she also benefited from costumes specific to different cultures.

The educational materials that teachers use most when dealing with multiculturalism are Digital Tools (video), Written and Visual Materials (pictures and cards, books, boards and different country flags), Role Playing Materials (clothes, puppets, accessories and costumes), and sometimes It was determined that they benefited from Visual Art Materials (residual materials and cutting, painting, sticking materials). Two of the teachers participating in the research (TF5 and TF21) stated that they did not use materials related to this subject and preferred the method of expression. It was determined that they benefited from videos and visual materials in concretizing the subject, and they preferred clothes and costumes to facilitate children's role in drama studies. It was determined that they used visual art materials to create materials for cultures.

Eight teachers, who stated that they did not prefer multicultural education practices in their classrooms, were asked about their thoughts that caused this situation. Teachers use ready-made plans and even if they make arrangements in these plans, it is not about changing the subject and they do not go beyond the plan, there is a culturally homogeneous structure among the children who attend their classes, they have misconceptions about this concept and they do not have enough information about the subject. They stated that they did not want to deal with it. Teachers were inquired whether they included the issue of respect for differences in their plans. All of the 26 teachers who participated in the study stated that they included the issue of respect for differences in their plans. According to the content analysis, the opinions of the teachers were gathered under the themes of introducing

feelings and behaviors towards differences, Informing Studies on Differences and Developmental Support Studies and presented in Table 3. One participant gave more than one opinion.

Table 3: Contents of Teachers Discussing Respect for Diversity Education in Their Plans

Theme	Sub-theme	f
Introducing the right feelings and behaviors towards differences	Proper behaviors towards people with disabilities/different cultures/different physical characteristics	12
	Respect for the elderly	3
	Respect for different opinions	2
	Priority for pregnant women	1
Informative work on differences	Introduction of different cultures/countries/skin color/age level/physical differences/abilities/languages/accents	11
	Introduction of people with disabilities	8
	Introduce regional products	2
Developmental Support Studies	Developing your empathy skills	8
	Developing verbal language skills	3

It was determined that the teachers mostly included the content of displaying correct behaviors towards individuals with disability / different cultures / different physical characteristics, which are the components of multiculturalism, in the activities they carried out to introduce the right emotions and behaviors towards differences. In addition, teachers stated that they are working towards respecting the elderly and different opinions and giving priority to pregnant women on certain issues.

Within the scope of information activities about differences, it has been determined that teachers carry out activities such as the promotion of different cultures / countries / skin color / age level / physical differences / abilities / languages / accents, the lives of people with disabilities and their types of disabilities, and the promotion of products from different geographical regions. A teacher related to this situation stated that the content of the differences was very wide-ranging, that he included a video about the life of a disabled painter in the classroom, that everyone introduced products specific to their region during the domestic goods week, and that he also worked to introduce disabled people. Another teacher stated that she works to break down gender-specific stereotypes.

Teachers who stated that they do developmental support activities stated that they use drama activities to develop empathy skills with different cultures and disabled individuals. It has been determined that the teachers, who stated that they work to improve children's verbal language skills, do articulation and speaking activities for children with expression problems while speaking Turkish due to their ethnic origins and cultural speaking styles.

It has been determined that the materials used by the teachers while covering the issues of respect for differences are the same materials as multicultural education. Accordingly, mostly written and visual materials such as books and pictures to read stories to children, role-playing materials, especially costumes and various accessories, to facilitate acting in drama/animation studies, and digital tools such as video and television to facilitate presenting concrete experiences on the subject, At the end of the activity, it was determined that children used visual art materials such as painting materials and painting tools to paint their feelings about differences. Three of the teachers stated that they do not have a special material preference regarding respect for differences.

3.4. Elements of Multiculturalism in the Classroom Environment

Various questions were asked to the teachers about which multicultural components they include in their classrooms. In this phenomenologically structured study, the components of multiculturalism used by teachers were discussed as culture, disability, gender and old age.

3.4.1. Culture

Teachers were asked whether there were children from different cultural backgrounds in their classes. While 11 of the teachers stated that there were children from a different culture than the majority in their classes this year, 15 teachers said that there were no children from different cultures in their classrooms this year. It has been determined that teachers consider children from different cultural backgrounds to be members of families from different cities/professional groups/countries/socioeconomic levels and to use different accent/dialects.

It was asked what the teachers do in getting information about the culture of children from different cultural backgrounds. It has been determined that the teachers have gained knowledge through information gathering/research and in-class impressions. The teachers, who stated that they carry out activities to collect information/research about the culture of children from different cultural backgrounds, acquired the information from the information given to the school administration during school registration, by the guidance service about the children, the family participation studies conducted with the child's family, and the experiences of other teachers in the school. Moreover, they stated that they obtained information about the culture of children by scanning parent introduction forms, resources on the region and culture, and reading the information about refugees reflected on the agenda in social media. The teachers, who stated that they learned about the cultural backgrounds of children through in-class impressions, also stated that they had an idea thanks to the family participation studies conducted with the parents they invited to the class, and they obtained information about the children's culture by observing the children in the classroom.

Teachers were asked what they do about the adaptation of children from different cultural backgrounds in their classrooms to school and their peers. Teachers indicated that these children needed developmental support. They stated that these children interact with their peers and enable them to socialize with their peers. They try to develop teacher-child interaction and give responsibility to these children in the class. Teachers also stated that children need support in terms of language development. Therefore, the teachers stated that by using the correct ways of speaking to support children in language development, they are a model for children, do articulation and pronunciation exercises with them, and support children by giving them the opportunity to speak in the classroom.

Three of the 11 teachers who stated that there were children from different cultural backgrounds in their classrooms stated that they made educational arrangements in their plans for children from different cultural backgrounds, and eight of them stated that they did not make any arrangements for these children in their plans. Teachers, who stated that they made educational arrangements, mentioned that they preferred to simplify the activities with concretization and to use economic materials in the changes they made for these children. Teachers who stated that they did not make educational arrangements in their plans, mentioned they use ready-made plans and they do not need to make changes in these plans, the parents come from the same socioeconomic level, making changes while implementing the activities even though they do not make arrangements in the plan, and thus they do not believe that it is right to make changes in the plan.

3.4.2. Disability

When teachers were asked whether there were children with special needs in their classes, it was determined that only four teachers had special needs children in their class this year. Teachers who have children with special needs in their class were asked to evaluate their classroom environment in terms of suitability for children with special needs. Only one of the four teachers (TF23) stated that his class was a class with a suitable educational environment for children with special needs, since there was a material or toy in his class that would cause harm to the child due to his/her disability group. The other three teachers (TM2, TF16, TF22) stated that the physical environment of their classrooms is not suitable for individuals with special needs who are constantly in their classrooms.

A teacher who has a child with autism in her class stated that the child hits his head against the walls in moments of sudden crisis, but the walls are not covered with a soft material such as a sponge. A teacher who has a physically disabled child in her class (TF22) stated that the chairs in the classroom are not suitable for the child and therefore

there is no space for the child to rest when he is tired. Teachers who stated that their classrooms are not disabled-friendly classrooms said that they made the arrangements and transformations themselves, such as fixing the cabinets, expanding the playgrounds, taking out the toys that may be harmful or broken for children, in order to turn their classroom into a disabled-friendly classroom. However, they also stated that certain items (cabinet, desk, etc.) in the classroom environment are not completely suitable for disabled individuals.

In addition to the special education support received by children with special needs, preschool teachers were also asked about what preschool teachers do in terms of education for these children. Teachers provide developmental support for these children's social language and cognitive areas. They have stated that doing activities to inform and integrate other children in the classroom to increase interaction with other children, they also get information by meeting with the family. Other teachers at school and the child's special education teacher to support the development of the child, and they make adaptations in the activities.

3.4.3. Gender

When the participants were asked what kind of work they did in the context of gender differences, the teachers' opinions were divided into themes as activities, seating arrangement, use of materials, use of the environment and gaining behavior in line with the answers given by the teachers.

Teachers who stated that they practiced within the scope of the activities, emphasized gender equality in the content, professions/colors do not have gender, paid attention to the balanced distribution of gender while forming small groups in the activities, talked about physical differences and different clothing styles, went beyond gender stereotypes and working on privacy education. Regarding this situation, a teacher said that from the beginning of the term, girls or boys focused on the concept of equality rather than gender roles, and tried to fulfill this understanding of equality in all of their activities. She stated that she carried out this situation by first explaining it to the parents at the beginning of the year.

In the use of materials, the teachers stated that they preferred gender toys and that they prepared coloring pages with visuals that discover gender differences. The teachers, who stated that they made arrangements for the seating arrangement and preferred the mixed sitting arrangement. A teacher on this subject stated that the balanced distribution of boys and girls in the classrooms is important, that girls and boys tend to sit with children of their own gender in the sitting arrangement, but they direct children to mixed sitting themselves. Emphasizing the use of the environment in the context of gender differences, the teachers said that they made guidance as for the use of toilets based on gender. A teacher who stated that she was working towards gaining behavior observed that girls and women were not valued much in the environment she worked in, and stated that she directed especially boys in her class to give priority to their girlfriends in the classroom. Another teacher stated that he was trying to correct his masculine speaking style.

3.4.4. Elderliness

When the teachers were asked whether they made plans and practices regarding the relations between the 'elderly' and the children in the pre-pandemic period, all teachers stated that they included activities for the relations of children with the elderly in their plans and educational activities. The practices made by the teachers were grouped under the themes of informative activities and practices for interaction. These themes are given in Table 4. One participant expressed more than one opinion.

Table 4: Including Child-Elderly Relationship in Plans

Theme	Sub-theme	f
Information studies	Communication skills with the elders	13
	The importance of the elders	8
	Love for the elders,	6
	Respect for the elders	5

	Knowledge/cultural transfer characteristics	4
	Spending time with the elders	2
Interactive apps	Providing the participation of the elders in educational activities	2
	Making nursing home visits	1
	Observing the physical differences of the elders	1

A teacher (TF5), who stated that he was doing informative activities, said that the elderly have a very serious knowledge, they are a cultural value, and they are a plane tree extending from the past to the present. The teacher stated that he gave priority to the children to adopt that their health status was not good due to their old age. Another teacher (TF19) said that he considered the activities for the elderly as respect for the elderly within the scope of values education, and that he worked on respecting the elders, valuing the elderly, and empathizing with the elderly. Regarding the theme of teachers' practices for interaction, it has been determined that they do activities such as spending time with the elderly, participation of the elderly in educational activities, visiting nursing homes, and observing the physical differences of the elder people.

3. 5. *Pandemic Process and Multicultural Practices*

It was asked how preschool teachers carry out educational practices for multiculturalism and its components in the pandemic process and the distance education process that came with the pandemic. Content analysis findings for the answers given by the teachers were classified according to the phenomenon of multiculturalism and its components.

3.5.1. Multiculturalism

The teachers were asked to address the issues of multiculturalism and respect for diversity, and whether there were any changes in the arrangements they made for these issues with the pandemic process. Eleven of the teachers stated that the pandemic had an impact on their handling of these issues and making arrangements. When asked how these changes were, nine of the teachers cited restrictions such as reduced contact and shortening the face-to-face education period in pre-school. Five of the teachers stated that they had difficulty in creating a variety of activities, and three teachers stated that it was effective not to address these issues in the plans because they used ready-made plans. Three teachers stated that they did not include these subjects due to the difficulty of interacting with children in digital areas during the distance education process, while two teachers stated that they gave priority to other subjects.

When the teachers were asked what work they did on cultural diversity during the pandemic process, the teachers included the explanation of individual differences on certain days and weeks related to the subject, such as World Children's Day, that they made models of people living in different houses in different parts of the world (like an igloo) through an art activity, and that they made a model of each child's different skills through drama. They stated that they preferred the way of resuscitation. Teachers also stated that by choosing activities that can be done at home from the activity books, they included cultural diversity and differences through family participation.

3.5.2. Distance Education Support for Children from Different Cultural Infrastructures

11 teachers, who stated that there were students from different cultural backgrounds in their classes, were asked whether they had family involvement activities with the families of these children. While five of the teachers stated that they participated in family participation, six of them stated that they did not include family participation studies. Five teachers who stated that they participated in the family said that they sent stories, poems and lyrics so that the work done at school could be repeated at home; He stated that parents want their children to introduce a country that the teacher told them to and to do experiments at home. In addition, they stated that they directed the parents and the child to carry out their daily routines at home, such as preparing the table, making fruit salad, and preparing cakes/cookies together. It was determined that the teachers carried out these family involvement studies once a week, twice a week and in an unsystematic time period.

3. 5. 3. Child-Elder Relationships in the Pandemic

Teachers were asked whether they observed a change in children's relations with the elderly during the pandemic process. While 10 of the teachers stated that they observed a change in the child-elderly relations that emerged with the pandemic process, 14 teachers stated that they did not observe any change. While a teacher (TF9) said that he had no opinion on this subject, another teacher (TF19) did not express an opinion on this issue. Teachers' observations were grouped under the themes of negative changes and positive changes. It has been determined that the positive change observed by three of the teachers in the relations of children with the elderly is the increase in the time that children spend together because they live in the same house with their grandparents. In the theme of the negative changes observed by the teachers, they stated that the contact between grandparents and children decreased due to social distance, accordingly the children's longing for their grandparents, the elderly being in the risk group in terms of health due to the pandemic and the children witnessing their health problems.

3.5.4. Gender Element in Classrooms in the Pandemic

Teachers were asked whether the genders of the children who continue to be educated in their classrooms during the pandemic process are equally distributed. 13 teachers, who stated that the genders of the children enrolled in their classes were not balanced, were asked whether this had an effect on the children playing games, forming groups and choosing activities, and if so, how. Four of the teachers said that there was a gender-based difference in playing games and choosing activities in the classroom. Especially the teachers of the classes where boys are concentrated stated that they prefer running, jumping, competition-style games for boys, and they do gender-appropriate coloring page studies. The teacher of one of these classes (TF3) stated that boys like competition-style games more, that's why he chooses games for boys more when choosing games, he is aware that female students suffer as a result of these choices, but the distribution of children into classes according to their gender is not balanced (8 girls, 20 boys) said that she had to choose activities for boys who represent the majority. She stated that she had difficulty in classroom management when she chose an activity that did not attract the attention of boys, and therefore she carried out activities that would keep boys' interest alive. As a result, she stated that the girls had to adapt. Another teacher (TF17) said that all of her students were girls this year, so she used coloring pages for girls with girl characters. In addition, the teachers stated that they experienced problems such as the uneven distribution of gender and the inability to match in games, activities and paired shows.

3.5.5. Pandemic Precautions in Multicultural Classrooms

12 of the 14 teachers who stated that there are children from different cultural backgrounds in their classrooms, including individuals from different cultures, socioeconomic levels or special needs, stated that the children did not have a problem in complying with the mask, distance and cleaning; Two teachers (TF2, TF16) stated that the children did not comply with the measures. One of the teachers of the children who did not comply with these measures (TF16) added that the child had a diagnosis of autism and that he refused to wear a mask despite all the directions. Another child keeps his mask under his chin despite being constantly warned by the teacher (TF2). This teacher also stated that he organized the educational environments for the children in his class to comply with these rules, that he had a board in the classroom, that there were warnings about pandemic measures on these boards, and that he constantly talked to the children about social distance in the classroom environment.

Stating that they are working for children from different cultural diversity and other children in the class to adapt to pandemic measures, teachers stated that they ensure that children comply with the measures by creating a social distance-based seating arrangement and placing visual stimuli in various parts of the classroom by arranging educational environments. Three of the teachers carry out activities based on making children realize the importance of complying with the precautions through drama activities and giving practice through play activities. Two of the teachers stated that they were trying to teach children behavior by being a model by showing behaviors to comply with pandemic measures. Two teachers, on the other hand, stated that by providing that children use disinfectants in the classroom at regular intervals, they ensure that children comply with the precautions by creating a routine.

3.5.6. Multiculturalism Planning in the Distance Education Process

When pre-school teachers were asked how they planned multiculturalism in the distance education process, the teachers stated that they found it more appropriate to do the activities related to this subject in face-to-face education. When asked about the reasons for this, the teachers preferred that face-to-face education contributes more to learning because it offers the opportunity to observe, drama activities and learning by doing. They reasoned that social-emotional interaction should be provided more easily in face-to-face education, since there is interaction between peers-teacher and children, so that children get to know different cultures in the social environment and have more opportunities to empathize with them. Teachers stated that they found face-to-face education more effective than distance education because it offers the opportunity to make activities in the classroom and in other areas of the school and to benefit from different environments.

Teachers were asked which themes and subjects they gave more weight to instead of multiculturalism during the pandemic process. Teachers stated that they do activities based on improving children's cognitive skills through concept teaching, basic skills related to literacy preparation, mind games and science activities. Social skills based on improving children's relationships with their peers, increasing family communication and spending quality time at home during the pandemic process; They stated that they gave more space to their self-care skills and language skills development activities when they encountered problems in their expressive language, based on their implementation of the cleaning rules and thus the pandemic measures in order to protect them from the epidemic.

Teachers were also asked how they determined the training time in the distance education process. Content analysis findings for the answers given by the teachers are presented in Table 5.

Table 5: Interaction Hours of Teachers on Digital Platforms and Reasons for Preference

Theme	Sub-theme	f
Suitability for child	Waking up from sleep	8
	Having breakfast	7
	Completion of courses of other education levels	5
	Having a productive time	1
	Energetic/ Being mindful	1
Suitability for parent	Suitable for working parents	7
	Having a suitable time frame	3
	Housewives' finishing their housework	1
Suitability for teacher	High participation,	4
	Parenting role	2
	Planning to the care of the baby,	1
Suitability for training program	Using the time slot in face-to-face training	3
Suitability for digital resource	Not occurring EBA intensity	2
	Only one computer at home	1

Table 5 shows that teachers take into consideration the cultural diversity opportunities that children and their families have while planning their education time. Besides, teachers prefer times when digital resources are not used intensively, they both increase the effectiveness of the education they will offer and make it easier for children to access education without having connection problems.

4. Conclusion, Discussion and Recommendations

The research, which was conducted to determine the views and practices of preschool teachers on multicultural education. It has been seen that in the multiculturalism, teachers divide them into very broad components such as race, ethnicity, language, sexual orientation, gender, age, being with special needs, social class, education, religious choices, different culture (APA, 2002); coming from different geographical regions (countries, countries, provinces, counties) (Berry, 2013), eating and drinking habits, experiences and coming from their upbringing (Wise & Velayutham, 2009; Colombo, 2014). However, it was concluded that teachers do not address without mentioning factors such as family structures (single-parent, extended family, nuclear family, etc.) and sexual orientation (Berger, 2004; APA, 2002) and not considering to define with multiculturalism, especially religion, language, ethnicity (Gay, 1994), customs and traditions that constitute the concept of culture. It has been determined that the teachers emphasize the coexistence of individuals with various characteristics in the society or the differences within the dominant majority while defining multiculturalism.

While the Turkish Ministry of National Education (MEB) Pre-School Education Program (2013) emphasizes the importance of recognizing the values of the societies in which children live and taking responsibility for cultural and universal values; NAEYC (2009) states that one of the duties of teachers is to plan the efficient use of learning environments in the classroom. However, in this study, it was thought that the lack of knowledge of teachers both about multiculturalism and how to make arrangements in learning centers was effective in the low number of teachers who made arrangements for multiculturalism in learning centers.

Aktin et al. (2015) used drama and play activities in their research on teaching different cultures with activities, and they helped children to understand different cultures and develop positive behaviors towards these cultures. The results of the research are similar to each other, since the teachers in this study preferred to deal with multiculturalism with play and drama activities mostly. In this research, teachers also cover the topics of multiculturalism through Turkish, art, family involvement and field trips. In drama and game activities, it becomes easier to understand others and to adopt different cultures by playing a role, pretending to be someone else. For this reason, teachers prefer these activities in order to provide more permanent learning than demonstration and expression methods. According to Durden, Escalante & Blich (2015), teachers' presentation of cultural diversity to children through activities creates awareness in children about cultural diversity that is not represented in the classroom in culturally homogeneous classrooms; In culturally heterogeneous classrooms, it reduces prejudices towards children in the classroom. It was concluded that teachers especially use Turkish activity to support the language development of children who speak a language other than Turkish (Kurdish, Arabic, English, Zazaki, etc.) in their classrooms. However, teachers forbid children from different linguistic backgrounds to speak in their mother tongue with their peers in the classroom in order to learn Turkish. This situation may cause children to develop a negative perception of their own culture, therefore it is thought that it would be more appropriate for teachers to use other language teaching methods such as concretization and exposure to language that will facilitate language learning instead of prohibitions.

Although the teachers stated that the majority of the children in the classroom are from Diyarbakır and there is no different culture in the classroom, there are ethnic origins such as Turkmen, Kurdish, Zaza, Armenian, Arab and various communities speaking different languages in Diyarbakır (Wikipedia, 2021). With the migration from the village to the city (Ekmekçiler, 2014), ethnic origins, different religious groups (Alevis, Sunnis, Assyrians, Christians, etc.), families who learned Turkish later or continue to learn (Yanmış & Kahraman, 2013), multicultural creates a structure, and this structure contributes to the formation of a heterogeneous structure in classroom environments. In addition, teachers stated that they may need multicultural arrangements if there are individuals who are foreign nationals (Syrian, other countries, etc.) or who speak different languages. According to Say (2017), even communities speaking the same language, having the same religious belief, and coming from the same ethnic origin in the same society can define each other with their differences and express that they are different in terms of certain characteristics.

Moreover, it was determined that the teachers gave the priority to other education subjects as the reason for not making arrangements for multicultural education, because the time allocated to the activities they prepared and

implemented in distance education was limited to time. The teachers' lack of knowledge about multicultural education and their lack of knowledge of the concept of multicultural education and its components make us think that they cannot apply cultural arrangements and multicultural education activities in the classroom consciously and within a certain plan. So much so that Abdullah & Abdullah (2018) in their study in which they investigated teachers' attitudes towards multicultural education; They concluded that two-thirds of the teachers misunderstood the concept of multiculturalism, and therefore there were differences in their attitudes towards multicultural education.

4.1. Discussion on Planning and Implementation of Multicultural Education

It was determined that the teachers included activities such as introducing the cultures and cultural differences of different countries/cities/regions in their plans, and included them within the scope of games, drama, art, music and Turkish activities. The fact that the children come from families from different linguistic backgrounds and that they do not know or speak Turkish is effective in the teachers' inclusion of Turkish activities. It was revealed that the most common educational materials used by teachers when they included multicultural education were videos, visuals/cards and clothes/costumes. When children work with different materials on different cultures, they are willing to learn more about different cultures through videos and photographs (Alves, 2016).

The teachers, who stated that they did not include multiculturalism in their education plans, mentioned that they did not include this subject because the subject of multiculturalism was not involved in the ready-made plans they used. Göle & Temel (2015) state that since teachers use inappropriate ready-made plans, the plans do not comply with the child-centered education approach. In this research on multiculturalism and respect for differences, although it is not aimed to investigate the way the plans are created and used, the findings regarding the ready use of the plans by the teachers were also reached. The fact that teachers do not make plans and use children and the education offered to them. According to the MEB (2013) Pre-School Education Program, teachers should create activity pools from activity plans, store the plans here, update the plans according to the student group every year and make them suitable for group dynamics. It is thought that the unwillingness of teachers to plan leads them to use ready-made plans. So much so that teachers are reluctant to update the plans for their classrooms, which will not be homogeneous even if it is due to individual differences. For this reason, it was concluded that they did not include multiculturalism in their plans, arguing that they have culturally homogeneous classes.

It was thought that all participants included the issue of respect for differences, and this contributed to the achievement indicators of respecting the differences in the MEB Preschool Education Program (2013) and living together in harmony with individuals with different characteristics. Üner (2011) researched the views of teachers on respect for differences, in which teachers dealt with the subject with different types of activities (Turkish, drama, etc.) stated that they included individuals from different cultures. The results of the study and the results of the research are similar in this respect.

4.2. Discussion on the Elements of Multiculturalism in the Classroom Environment

Teachers stated that they support the social-emotional development of children from different cultures in order to adapt to the school and their peers. Furthermore, it has been concluded that teachers are a model for children in language development so that children can communicate well, and they do articulation and pronunciation exercises with them. In the study of Kardeş & Akman (2018), teachers stated that they work on language and social-emotional development to solve the adaptation problems of (Syrian) children from different linguistic backgrounds to school and their peers. This result in both studies showed that teachers needed to provide an interaction between children in the classroom. Teachers' work to ensure that children belong to the classroom culture will enable children to develop a sense of belonging to the school and to develop peer interaction positively (Kotluk & Kocakaya, 2019).

It was concluded that the teachers did not make arrangements in their plans for children from different cultural backgrounds. Alabay & Ersal (2020) state that this may be due to the fact that teachers' knowledge and skills about children from different cultural backgrounds are not adequate in the classroom. Sağlam & Kanbur (2017) stated

in their study that they analyzed teacher attitudes towards refugee children, that they found it more appropriate not to make any changes in the plan. In this direction, it can be said that the teachers' failure to make educational arrangements for children from different cultures in this study may be due to their insufficient knowledge and skills on multiculturalism and planning multicultural education.

Teachers described their classrooms as an unsuitable environment for children with special needs. Ekmişoğlu (2007) emphasizes that classrooms and physical environments should be arranged considering the needs of individuals with special needs. Arrangements made in line with the needs of individuals with special needs facilitate access to educational needs together with normal individuals and provide equality of opportunity in education (Erden et al., 2006). Teachers said that they made arrangements such as positioning the desks in a way that would not pose a danger, and removing broken toys and materials from the classroom in order to transform their classrooms into a barrier-free environment. Nevertheless, these environment arrangements made by the teachers are not arrangements for the special needs group of the individual with special needs and are not sufficient for the adaptation of the environment. For this reason, these arrangements should be made by the school administration or the experts of the business.

Teachers who stated that they made practices in the context of gender differences, in the dimension of activities; emphasizing gender equality, gender neutrality of occupations/colors, balanced distribution of gender in activities, talking about physical differences/dressing styles, talking about staying out of gender stereotypes; teachers stated that they mentioned gender differences with privacy education, and they preferred mixed seating arrangement in seating arrangement. The research findings of Temiz & Cin (2017) in which teachers sit in the form of a girl and a boy in the classroom and make directions such as acting together in order to prevent gender-based grouping in the classroom support this research. It was determined that teachers carried out activities and practices to prevent the formation of gender stereotypes in children.

4.3. The Pandemic Process and Discussion on Multicultural Practices

All the teachers who participated in the study stated that they included activities for the elderly in their plans. Newman, Morris & Streetman (1999) emphasized in the study that examined the interactions of 60 children and 12 elderly people, children and the elderly create positive interactions with each other and that there are positive changes in children's attitudes towards the elderly.

Teachers taking part in the study stated that the pandemic limited the variety of activities. Başaran, Doğan, Koraloğlu & Şahin (2020) revealed that many educational activities were suspended due to the necessity of social distance included in our lives with the Covid-19 epidemic process and educational arrangements were made in accordance with the pandemic process. In the interviews, the teachers mentioned that they have difficulties in terms of time management, and stated that the time in the live lesson interactions, which was declined from 300 minutes to 180 minutes a day due to the pandemic, and limited to 60 minutes a week in distance education, does not allow the topics of multiculturalism and respect for differences to be addressed. They justified the necessity of addressing themes and issues that cover the basic skills that children need to acquire in life and in preparation for primary school. Teachers could not include multiculturalism issues because they had difficulty in transitioning to digital platforms with distance education and could not carry out activities such as drama and game activities in distance education. The studies expressed by the teachers on multiculturalism and differences in the pre-pandemic period are insufficient in terms of quantity and diversity when compared to the issues of multiculturalism and respect for differences that they expressed during the pandemic process. This situation suggests that teachers focus on different themes and issues during the pandemic process and leave the issues related to cultural diversity in the background.

It has been concluded that the teachers do activities for children from different cultural backgrounds as family participation, repetition of activities at home, preparation for the studies to be done in the classroom, activities for exploring, and activities for spending quality time between parents and children. In the content of the OBADER (2013) program prepared by the Ministry of National Education, various activities that parents and children can do at home are included, and it has been determined that teachers do not benefit from such studies, and that the

family participation activities that they mention are activities that can be done with any family. It is thought that this situation is due to the fact that they do not know the families adequately during the pandemic process. In the distance education process, every activity which is sent for children to do at home can actually be considered as a family participation study suitable for home education activities specified in the OBADER (2013) program. Also, it has been determined that teachers perceive family participation only as activities done in the classroom, and they do not see the work they do at home as family participation.

Along with the pandemic process, teachers mentioned that the child-elder relationship decreased and emphasized the development of excessive longing between children and their relatives because the elderly are in the risk group in terms of health. Teachers also mentioned that the elderly are exposed to age discrimination with the pandemic process. It is thought that this situation is caused by the fact that many people have wrong attitudes and beliefs such as the spread of disease and irresponsible behavior of elderly individuals. Varışlı & Gültekin (2020) elderly individuals; they stated that they were subjected to age discrimination, although there should be individuals who are in the risk group with the Covid-19 epidemic and need to be protected in terms of health.

13 of the teachers stated that gender is not evenly distributed in their classes. It can be thought that teachers who state that they organize activities convenient for the dominant gender in classes where gender is not evenly distributed reinforce their gender roles, while causing the other gender to have to adapt, causing some of their wishes to be ignored.

Stating that there is a multicultural structure in their classrooms, the teachers stated that the children comply with the pandemic measures, one of the two children who do not comply has a diagnosis of autism, and the other child does not wear a mask despite all warnings. It is thought that the families of the children and the mass media also support the children to adopt the rules by stimulating activities and being a model for the harmony of other children. All of the teachers emphasized that face-to-face education is more effective in teaching cultural subjects. Foti (2020) the teachers stated that the distance education process can never be as effective as the face-to-face education process and cannot prevent the face-to-face education process. They emphasized the importance of face-to-face education because it offers the opportunity to make observations, use drama activities and learn by doing and experiencing. Teachers also stated that face-to-face education is more effective in learning cultural subjects due to peers, teacher-child interaction and the ability to use different environments. Cordovil, Ribeiro, Moreira, Pombo, Rodrigues, Luz, Veiga & Lopes (2021) in their study; They found that children were deprived of social processes such as staying away from peer interaction with the effect of the pandemic, applying material restrictions, playing games together and sharing.

With the pandemic process, the teachers included social-emotional skills, cognitive skills, self-care skills and language skills, but they did not include motor skills. It was found that the teachers mainly included science/experiment studies, concepts, cleaning, and pandemic measures. Yıldırım (2021), in his study with teachers, found that teachers wanted to deal with concepts such as cleanliness, healthy life, hygiene, numbers, and shapes.

References

- Abdullah, M.N.L.Y. & Abdullah, A.C. (2018). Preschool teachers' training and attitudes towards multicultural education in Malaysia. *International Journal of Early Childhood Education and Care*, 7, 1-13. <https://doi.org/10.37134/saecj.vol7.1.2018>.
- Akkaya, S., Sahin, S. & Gezer Sen, B. (2021). An investigation of the relationship between prospective teachers' attitudes towards multiculturalism and refugee students. *Shanlax International Journal of Education*, 9(2), 164–74. <https://doi.org/10.34293/education.v9iS1-Sep.4381>
- Aktın, K., Karakaya, M., Türk, Z. & Aslan, Y. (2015). An applied study for teaching of different cultures at pre-school period. *International Journal of Turkish Education Sciences*, 4, 258-277.
- Alabay, E. & Ersal, H. (2020). Examining the opinions of education program applications of preschool teachers with different culture child in classroom. *Sinop University Journal of Social Sciences*, 4(1), 107-134. <https://doi.org/10.30561/sinopusd.699738>.

- Alves, I.M.E. (2016). *Teaching multiculturalism in a preschool classroom*. Retrieved from https://comum.rcaap.pt/bitstream/10400.26/19165/1/26_06%20-%20In%C3%AAs%20Mendes%20Erse%20Alves-%20Thesis%20Final-Final%20Print.pdf
- APA. (2002). *Guidelines on multicultural education, training, research, practice, and organizational change for psychologists*. Retrieved from <https://www.apa.org/about/policy/multicultural-guidelines-archived.pdf>
- Bartelo, K. A. (2014). *Prekindergarten teachers' multicultural knowledge, skills, and classroom environment*. (Doctoral Dissertation). Available from ProQuest Dissertations &Theses Global. (Accession No: 3640697).
- Başaran, M., Doğan, E., Karaloğlu, E., & Şahin, E. (2020). A study on effectiveness of distance education, as a return of Coronavirus (covid-19) pandemic process. *AJER*, 5(2), 368 – 397.
- Başbay, A. & Bektaş, Y. (2009). Instructional environment and teacher competences in the context of multiculturalism. *Education and Science*, 34(152), 32-42.
- Berger, E. H. (2004). *Parents as partners in education: Families and schools working together*. Pearson.
- Berry, J. W. (2013). Research on multiculturalism in Canada. *International Journal of Intercultural Relations*, 37(6), 663-675. <https://doi.org/10.1016/j.ijintrel.2013.09.005>.
- Carson, P. (1998). *Anti-bias education in early childhood: Preparing teachers for diversity*. (Doctoral Dissertation). Available from ProQuest Dissertations &Theses Global. (Accession No: 35397).
- Cırık, İ. (2008). Multicultural education and its reflections. *H. U. Journal of Education*, 34, 27-40.
- Colombo, E. (2014). Multiculturalisms. *Sociopedia*, 1–17. doi: <https://doi.org/10.1177/2056846014101>.
- Cordovil, R., Ribeiro, L., Moreira, M., Pombo, A., Rodrigues, L.P., Luz, C., Veiga, G. & Lopes, F. (2021). Effects of the COVID-19 pandemic on preschool children and preschools in Portugal. *Journal of Physical Education and Sport*, 21, 449-499. doi: <http://10.7752/jpes.2021.s1052>.
- Dikici Sığırtmaç, A., Hoş, G. & Abbak, B. S. (2011). Solution methods and suggestions of preschool teachers towards inclusive education problems. *Ahi Evran University Journal of Kirsehir Education Faculty*, 12(4), 205-223.
- Erden, M., Ömeroğlu, E., Kandır, A., Yenice, B., Ayhan, N., Uzun, Ş., Eren, Z., Demircan, C. & Akçar, Ş. (2006). *Erken çocuklukta farklılıklara saygı eğitimi el kitabı*. İstanbul: Kadın Emegini Değerlendirme Vakfı Publications.
- Foti, P. (2020). Research in distance learning in Greek kindergarten schools during the pandemic of Covid-19: Possibilities, dilemmas, limitations. *European Journal of Open Education and E-learning Studies*, 5(1), 19-40. <http://10.5281/zenodo.383906>.
- Gay, G. (1994). *A synthesis of scholarship in multicultural education*. Retrieved from <https://eric.ed.gov/?id=ED378287>
- Gayle Evans, G. (1992). *A survey of kindergarten teachers' implementation of multicultural education in the classroom*. (Doctoral Dissertation). Available from ProQuest Dissertations &Theses Global. (Accession No: 9322151).
- Göle, M.O. & Temel, F. (2015). The opinions of preschool teachers on the importance of necessary features that should be found in a quality preschool curriculum. *Mersin University Journal of the Faculty of Education*, 11(3), 663-684. <http://10.17860/efd.25056>.
- Guo, K. (2017). Immigrant children in the context of multicultural early childhood education. *Journal of Cultural Diversity*, 24(1), 13-19.
- Hong, Y. (2017). Facing diversity in early childhood education: teachers' perceptions, beliefs, and teaching practices of anti-bias education in Korea. *MSU Graduate Theses*. 3188. Retrieved from <https://bearworks.missouristate.edu/theses/3188>
- Kalaç, M.Ö., Telli, G. & Erönel, Y. (2020). *Covid-19 mücadelesi kapsamında uzaktan eğitim sürecinde engelli öğrencilerin durumu sorunlar ve çözüm önerileri*. Manisa: Manisa Celal Bayar University Publications.
- Kardeş, S. & Akman, B. (2018). Teachers' views on the education of Syrian refugees. *Elementary Education Online*, 17(3). <https://doi.org/10.17051/ilkonline.2018.466333>.
- Koç, E. & Yeniçeri, Z. (2021). The Effects of COVID-19 pandemic on gender (in)equality. *Mediterranean Journal of Gender and Women's Studies (KTC)*, 4(1), 80-102. <https://doi.org/10.33708/ktc.899892>
- Kotluk, N. & Kocakaya, S. (2019). Teachers' views about culturally relevant education in Turkey: A mixed methods study. *Sakarya University Journal Of Education*, 9(2), 304-334, doi: 10.19126/suje.541535. <http://10.19126/suje.541535>.
- Külekçi Akyavuz, E. & Çakın, M. (2020). School administrators' views on the effect of Covid-19 pandemic on education. *Turkish Studies*, 15(4), 723-737. <https://dx.doi.org/10.7827/TurkishStudies.44140>.
- Mazı, A. (2018). *Examination of the teachers multicultural perception: Sample of Hatay province*. (Master Thesis). Available from YÖK Ulusal Tez Merkezi. (Accession No: 511976).
- Miles, M. B. & Huberman, A.M. (1994). *Qualitative data analysis : An expanded sourcebook*. (2nd Edition). Calif. : SAGE Publications.
- MEB. (2013). *Preschool education program*. Retrieved from <http://mufredat.meb.gov.tr/Programlar.aspx>
- NAEYC. (2009). *NAEYC Standards for early childhood professional preparation programs*. Retrieved from <https://www.naeyc.org/files/naeyc/file/positions/ProfPrepStandards09.pdf>

- Newman, S., Morris, G., & Streetman, H. (2012). Elder-child interaction analysis: An observation instrument for classrooms involving older adults as mentor, tutors, or resource persons. In (Edt: Valerie S. Kuehne), *Intergenerational programs: understanding what we have created* (pp. 129-148). Routledge, Taylor and Francis Group: New York and East Sussex.
- Ng, C.S.M., Chai, W., Chan, S.P. & Chung, K.K.H. (2021). Hong Kong preschool teachers' utilization of culturally responsive teaching to teach Chinese to ethnic minority students: A qualitative exploration. *Asia Pasific Journal of Education*, 1-20. <https://doi.org/10.1080/02188791.2021.1873102>.
- OBADER (2013). *Family support program integrated with preschool education*. Retrieved from https://webcache.googleusercontent.com/search?q=cache:qwl_j6kEpNkJ:https://anaokulu.cu.edu.tr/_/file/OBADER_2013.pdf+&cd=1&hl=tr&ct=clnk&gl=tr
- Özer, Ö. & Akgül, D. (2021). The effect of parents' gender perception in toy selection on purchasing choices. *OPUS-International Journal of Society Researches*, 17(38), 5332 – 5353. <https://doi.org/10.26466/opus.891026>.
- Özözen Danacı, M., Eran, N., Çetin, Z., Pınarcık, Ö. & Bahtiyar, M. (2016). The preschool teachers' attitudes about education of multiculturalism. *Hacettepe University Faculty of Health Sciences Journal*, 3(2), 73-86.
- Pekdoğan, S. (2018). Examination of preschool teachers views on respect for diversity education. *Electronic Journal of Social Sciences*, 17, 90-102. <https://doi.org/10.17755/esosder.305549>.
- Polat, İ. & Kılıç, E. (2013). Multicultural education in Turkey and teachers' competencies in multicultural Education. *Yüzüncü Yıl University Journal of Education*, 10(1), 352-372.
- Ramsey, P.G. (2018). *Çeşitliliklerin olduğu bir dünyada öğrenme ve öğretim: Çocuklar için çokkültürlü eğitim*. (Yıldız, T.G., Trans.) Ankara: Anı Publishing.
- Sağlam, H.İ. & İlksen Kanbur, N. (2017). Investigation attitudes towards refugee students of class teachers' in terms of several variables. *Sakarya University Journal of Education*, 7(2), 310-323. <http://10.19126/suje.335877>.
- Şahin, S. & Ateş, A. (2019, June). *Examination of pre-school teacher candidates' perception of multiculturalism in terms of various variables*. VIth International Eurasian Educational Research Congress, Ankara University, Ankara.
- Taştekin, E., Bozkurt Yükçü, Ş., İzoğlu, A., Güngör İ., Işık Uslu A.E. & Demircioğlu, H. (2016). Investigation of pre-school teachers' perceptions and attitudes towards multicultural education. *Hacettepe University Graduate School of Educational Sciences The Journal of Educational Research*, 2(1), 1-20.
- Temiz, Z. & Cin, F.M. (2017). A descriptive study on gender equity in pre-school education. *Yüzüncü Yıl University Journal of Education*, 14(1), 940-965. <http://dx.doi.org/10.23891/efdyyu.2017.35>.
- Üner, E. (2011). *Evaluation of 36-72 months old childrens' acquisition of respect to dissimilarity education in the preschool education programme, in accordance with opinion standpoints of teachers*. (Master Thesis). Available from YÖK Ulusal Tez Merkezi. (Accession No: 274513).
- Varışlı, B. & Gültekin, T. (2020). Pandemic state of ageism: Transformation of intergenerational interaction during COVID-19 pandemic. *Turkish Studies*, 15(4), 1227-1237. <https://dx.doi.org/10.7827/TurkishStudies.44376>.
- Yanmış, M. & Kahraman, B. (2013). Young people's perception of religious and ethnic identity: The case of Diyarbakır. *Journal of Academic Inquiries*, 8(2), 117-153.
- Yıldırım, B. (2021). Preschool education in Turkey during the covid-19 pandemic: A phenomenological study. *Early Childhood Education Journal*, <https://doi.org/10.1007/s10643-021-01153-w>.
- Zain, A., Basir, J.M. & Mustafa, M.C. (2020). Malaysian preschool children global readiness in diversity and multiculturalism knowledge. *International Journal of Academic Research in Progressive Education and Development* 9(4), 164-175. <http://10.6007/IJARPED/v9-i4/8457>
- Wikipedia. (2021). *Diyarbakır*. Retrieved from <https://tr.wikipedia.org/wiki/Diyarbak%C4%B1r>.
- Wise, A. & Velayutham, S. (2009). Introduction: Multiculturalism and everyday life. *Palgrave Macmillan*, 29(4), 1-17. http://10.1057/9780230244474_1



Equal Opportunities in Learning in Diverse Groups in Nepal in the Pre-COVID Realm: Socioeconomic Status, Mathematics Learning, and the Diverse Groups

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Abstract

The article discusses the diversity and equity issues behind the learning outcomes of mathematics in the pre-COVID context in Nepal. The article intends to give a baseline for the further studies on the effect of COVID-19 pandemic in the educational realm. Datasets from the national assessment of student achievement in Nepal at grades 3 and 5 and grade 8 are reanalyzed based on socioeconomic status (SES), gender, caste-ethnicity, language, and geographical variables. In Nepal, where the society is customarily highly structured, gender-biased, and poverty-driven, SES influences remarkably in mathematics achievement. The datasets show notable relationships between SES and mathematics achievement ($r = 0.35, 0.27$ and 0.30 in grade 3, 5 and 8, respectively). In lower grades, the difference between the highest and lowest SES in the achievement of girls is wider than boys and it is reverse in grade 8. Nepali speakers had high scores when they had high SES but, when SES was very low, the non-Nepali speakers performed better in all grades. The advantageous castes tended to always perform higher irrespective of their level of SES. Nevertheless, it is difficult to know with certainty when average and marginalized caste/ethnic groups perform better.

Keywords: Equity, Equality, Socioeconomic Status, Diversity, Gender, Mathematics Achievement

1. Introduction: Covid-19 pandemic, Educational equity, SES, and Diversities in Nepal

The ongoing global pandemic crisis related to COVID-19 virus from Spring 2020 onwards has “created the largest disruption of education systems in history” as described by United Nations policy brief (UN, 2020, p. 2). The UN estimates that, due to lockdowns all over the world, schools have been closed up to 99 percent in vulnerable low and lower-middle income countries including Nepal. In some countries, mainly in highly developed countries such as Finland, which is used for comparison in the article, within a couple of weeks the schools were functional due to quick digital leap in distant pedagogy and related practices (FINEEC, 2021). In Nepal, the Ministry of Education Science and Technology (MoEST) has issued guidelines and procedures to continue learning through virtually or reopening schools in safe environment or through alternatively learning modalities during the pandemic situation to minimize the learning loss (see MoEST, 2020a for COVID-19 contingency plan; MoEST, 2020b for Student

Facilitation Guidelines; MoEST, 2020c for School Reopening Procedure). Also, the curriculum was condensed to meet the minimum learning outcomes of the curriculum. However, Dawadi, Giri, and Simkhada (2020) evaluate that the pandemic has had serious impacts on students' learning and well-being, and that it potentially widens the gaps between advantaged and disadvantaged children in their equitable access to quality education. The major challenges and constraints in transitioning to online education include, among others, poor network, lack of digital skills, lack of technological support from institutions (Shrestha, Haque, Dawadi, & Giri, 2021). Hence, the worry UN expressed may be reasonable: these kinds of catastrophes tend to increase the difference between the most disadvantaged and the most advantageous countries. "The crisis is exacerbating pre-existing education disparities by reducing the opportunities for many of the most vulnerable children, youth, and adults—those living in poor or rural areas, girls, refugees, persons with disabilities and forcibly displaced persons—to continue their learning" (UN, 2020, p. 2).

This article does not study the effect of COVID-19 pandemic itself but, instead, intends to lay a base for further studies related to the effects of the pandemic. The aim is to describe elements of educational equity before the pandemic from the viewpoint of varying subgroups in Nepal. To some extent, Finland is used as a comparison although the comparison is unfair due too vast socioeconomic and cultural differences. However, that would be in line with some earlier comparisons related to realities and teaching in Nepal and Finland (see Metsämuuronen & Metsämuuronen, 2013; Metsämuuronen, 2019).

This section discusses some relevant aspects of equity and equality from the viewpoint of diversity in pupils' and students' families latent to inequalities related to equal opportunities in the realm of education. In the empirical section, three large datasets based on large samples of learning results in mathematics in Nepal are re-analyzed from the equality viewpoint.

1.1 Educational equity, equality, and diversity

Educational equity is a *value* related to fairness and justness related to educational matters and educational equality indicates the level of equity (see discussion in Metsämuuronen, 2019). Levin (2010) defines educational equity as fairness in access to opportunities to benefit from education. Field, Kuczera, and Pont (2007, p. 29) highlight the fairness and inclusion related to diversity issues: "Fairness implies that personal and social circumstances such as gender, socio-economic status or ethnic origin should not be an obstacle to educational success. Inclusion implies a minimum standard of education for all." We may admit that all children within a country should have the moral right to get equal opportunities even though they may come from different backgrounds and they are unique; all children have the "basic equality" to claim to be treated with justness and as equal (see Arneson, 2014; Metsämuuronen, 2019; Nathan, 2014). Aristotle would say "treat the like cases as like" (Aristotle, *Nicomachean Ethics*, V.3. 1131a10-b15; *Politics*, III.9.1280 a8–15, III. 12. 1282b18–23), that is, when two persons have equal status in at least one normatively relevant respect (such as being citizens in the same country), they must be treated equally in this respect (Metsämuuronen, 2019).

The children, pupils and students will always differ from each other because of having, for example, different genes and motivational structures, as well as developmental phases even at the same age. Therefore, there will always be differences in learning outcomes, knowledge base, and skills between individuals even within the groups of individuals we assume to be at the same level as in the same grade in schools. Even though we see individual differences, the equality in *opportunities* (see Rawls, 1999, pp. 73–78) should still be embedded in our educational policy. Though we would even *expect* to see the individuals to differ from each other in their learning outcomes, we should *not expect* to see structural and systematic inequality between the groups of individuals that we assume to have equal opportunities.

Mathematics is one of those subjects that are connected to higher incomes and social leverage; the higher achievement in mathematics in school is related to the higher salary level in the future life (e.g., Altonji & Blank, 1999; Blau, Ferber, & Winkler, 2010; Crawford & Cribb, 2013; James, 2013). Mathematics is an elementary component in the so-called STEM subjects (science, technology, engineering, mathematics); without high

knowledge of mathematics, it is difficult to enter the higher education related to the STEM subjects, which would increase, in a natural manner, one's income level and, hence, the socioeconomic status in the society.

Combining the previous ideas, every student should have equal opportunities to learn mathematics and reach her or his full potential once enrolled in the school regardless of their diverse backgrounds. However, students' performance may not be the same despite equal learning opportunities. Some students excel in their learning with high scores whereas some students continuously face disappointments with low scores.

Metsämuuronen (2019) has collected some indicators of educational equity or parity that may be relevant to note here – these are referred to in the latter part of the article. An elementary indicator is *Population Parity*. If the national distribution of student achievement shows several populations instead of only one normally distributed population, this indicates inequality and disparity in the population. Two distinctive student populations (or widened normal distribution) may indicate differences between boys and girls, different geographical areas, or school types. Some related indicators reflecting the status of equality in a country, more specifically, are *Gender Parity*, *Ethnicity Parity*, *Home Language Parity*, *Geographical Parity*, *School type Parity* or *School location Parity*; we should see no differences between the learning outcomes between genders, ethnic groups, language groups, geographical areas or between different types of schools with different location. Family-related indicators like *Parents' education Parity*, *Parents' occupation Parity*, *Home possessions- and accessories Parity* and *Socioeconomic status Parity* are not such that we could forcefully change, but schools should be able to take care that children from the most vulnerable families are able to have equal possibilities to reach their potential. Hence, if we observe systematic disparities in these areas, the educational system has not been able to fulfil the need to offer equal opportunities for all citizens.

1.2. SES influencing the school performance

Researchers have revealed many factors related to the differences in student achievement. Among these, socioeconomic status (SES; APA, 2007) or economic, social, and cultural status (ESCS; OECD, 2012, 2017, p. 339–340) has been emphasized as one of the most influencing factors in a student's performance associated with mathematics (see, e.g., Ahmar & Anwar, 2013; Bowden & Doughney, 2010; Bradley & Corwyn, 2002; Chmielewski, 2019; Levin, 2010; Metsämuuronen & Kafle, 2013; OECD, 2019; Salmela-Aro & Chmielewski, 2019; Willingham, 2012).

The combination of education, occupation, and economy is widely accepted as indicators to measure SES (e.g., APA, 2007; Bradley & Corwyn, 2002; OECD, 2017) even though the best theoretical framework for SES has not been proposed or accepted unanimously. SES influences a range of societal variables explicitly and implicitly related to inequalities in society. It may unpredictably affect students' achievement depending on diverse factors (such as personal abilities and interests, geographical or cultural positions, home language or gender). Studies range from setting up a strong connection between SES and achievement in mathematics (e.g., Metsämuuronen & Kafle, 2013) to mere noteworthy (e.g., Ukkola, Metsämuuronen, & Paananen, 2020) or no relation (e.g., OECD, 2013) between the two depending on various factors. Also, Sirin (2005) noted the inconsistent results of SES effects in the literature and emphasized that *parents' education* is considered as the most stable and influencing indicator between SES and achievement. An OECD report (2012) indicates the performance gaps in another way: students from a low SES perform almost half lower in comparison with the high SES background due to personal and social barriers. Among the countries that participated in the PISA study from 2003 to 2012, some succeeded in reducing the achievement gap between students from low and high SES backgrounds (OECD, 2013).

Because OECD has been very keen on the effect of SES to the achievement (see the PISA reports from 2003 onwards) and is stated mainly in the high SES countries, it is unsure what the effect of SES would be in the fragile or developing countries such as Nepal. However, Aasland and Haug (2011) found out that the perception of Nepali citizens from the traditional low castes was that their leverage in the ladders of society is more dependent on SES factors than caste factors. Acharya, Shakya, and Metsämuuronen (2013; see also MoE, 2015) studied SES and achievement in the Nepalese context and noticed that the correlation between SES (including education,

occupation, and economy) and students' performance was around $r = 0.30$ depending on the grade. Hence, according to these studies, SES seems to play a prominent role in the Nepalese context in explaining the differences in performances though it depends on other diversity factors.

Obviously, with a high achievement level in mathematics at the final stage in basic education, there are more possibilities of entering higher education and prestigious jobs. Parents from high SES know this well and, hence, they tend to support their children in many ways to master mathematics. Since the very beginning of the school life, such parents may try to select a higher-esteemed school where children are proposed to learn high level mathematical skills (Willingham, 2012). High SES parents support their children academically and spend more time with them than low-SES parents (Shakya, 2014). Additionally, parents with high SES also provide for auxiliary materials and create a conducive learning environment necessary for enhancing their children's learning (APA, 2007; Levin, 2010; Willingham, 2012). All those arrangements explicitly and implicitly shape and require one's learning abilities and attitudes towards attaining higher scores than low-SES students (APA, 2007; Bowden & Doughney, 2010). In contrast, low-SES parents tend to concentrate on earning to meet their basic needs and have less productive time for their children. Even though they have time due to their low-level education or none, there are less possibilities for them to support their children's learning (see APA, 2007; Bowden & Doughney, 2010).

Although many studies have been conducted related to SES, it is difficult to find the definite answers about which component of SES influences the achievement level the most, specifically in the fragile countries. In their review of relevant studies, Bradley and Corwyn (2002) concluded that, in some studies, *mother's education* played a more significant role whereas in some studies the *income* of the family had a higher impact on children's outcomes. They argue that a combination of two or more SES variables explains more variance than a single variable. In the Nepalese context, parents' education and economic factors may play an even more crucial role in mathematics achievement because the differences in SES between the families may be wide. In some families, both parents may be illiterate without much schooling, which, in many cases, leads to low economic level with agriculture as occupation while, in other families, both parents may have university degrees and may be able to offer relatively high economic standards to their children. From Metsämuuronen and Acharya (2013, p. 44) it is known that, at grade 8, parents' education alone explained the achievement score moderately (2.5–2.8 percent of the student variation; see Table 2).

1.3. Diversity and performance equality

Together with SES dimensions, other diversity factors such as geographical and cultural positions, or home language and gender may be related to the achievement level. In some cases, the diversity may explain the achievement inequality more than SES. Banks (2012) states that, in education, the challenge of diversity deepens when the society is stratified based on race, ethnicity, language, religion, disabilities and so on, which creates intellectual complexities among individuals (see details in Ahearn et al., 2002, p. 3).

It is challenging to determine the full magnitude of the impact of diversity in achievement. In the USA, for example, achievement discrepancy tends to be related to the racial and ethnic groupings (OCED, 2011). In contrast, in Finland and Iceland, as examples of the highest performers in the international PISA and TIMSS tests, the differences between schools in different geographical areas are notably small. However, from the language- and gender diversity viewpoint, even in Finland the differences in achievement are prominent. The difference between Finnish and Swedish speaking pupils is clear at the lower grades (Metsämuuronen, 2010); boys seem to score slightly higher than girls in mathematics on average (Metsämuuronen & Tuohilampi, 2014 for 9th graders and Ukkola & Metsämuuronen, 2019 for 1st graders), boys outnumber girls remarkably at the highest quartile and decile (around 75 percent boys vs. 25 percent girls; Metsämuuronen, 2013; 2017); the difference in the mother language performance is opposite: girls outperform boys in an obvious manner (e.g., OECD, 2019, p. 16).

In the Nepalese context, education has historically been a cultural capital for certain privileged caste/ethnic groups (e.g., Brahmins and Chhetris) which generally is reflected in their high level of achievements. Besides, geographical-, gender-, and cast variations are also apparent in students' performances (see Acharya, Shakya, & Metsämuuronen, 2013; NIRT, 2017). The impetus in creating coherence, fairness, and justice over the diversity to

minimize the cognitive conflict or obtain equity in terms of mathematics achievement is one of burning issues in fragile societies. EQUIP2 policy paper (2012) notes that the performance difference originates in socioeconomic inequalities in the longer run or it is the reverse.

1.4 Diversities in Nepalese Context

Nepal is socio-economically and -culturally highly diverse country with complex structures (see Acharya, Shakya, & Metsämuuronen, 2013; NIRT, 2017). There are altogether 125 caste/ethnic groups located in different geographical areas (CBS, 2012). Uniquely, most of them have their own spoken language (there are 123 languages in Nepal), which are different from the national language (Nepali). Traditionally, the economic system of the people is guided by the caste/ethnic system, which is still prominent in some specific groups. Again, those caste/ethnic- and language groups vary within each group, representing specific geographical areas.

A high proportion of Nepali population (25.2 percent) is below the poverty level. The Global Gender Gap Report ranked Nepal at 112th position in 2014 (WEF, 2014) and at 105th position in 2018 (WEF, 2018). The gender gap sub-index shows alarming situations, mainly in political empowerment (0.176–0.185), and economic participation (0.547–0.608). Although the index scores are comparatively high in educational attainment (0.889–0.926) and health and survival (0.972–0.966), due to poor index in political and economic areas, the country is situated in the bottom quartile of the list.

Among the total population, 32.9 percent, mainly females, are illiterate (CBS, 2019). Encouragingly, the trend of students' attainment in schools in the last decade indicates the growing popularity of education among all groups in the country. In 2019, 6.2 percent of children in basic-level school-going age were out of school, which was 10.6 percent in 2016 (CEHRD, 2020). It indicates a rapid change in the Nepalese society, and it is not only limited at the school level but is gradually also seen at all education levels.

Due to the higher illiteracy and poverty rates, awareness among parents about education and supporting their children's education is not yet up to the level. This means that, even though parents enroll their children in schools to get them educated, their performance or achievement level tends to be low. Some years back, the decreasing trends of annual School Leave Certificate (SLC) results (from 2020 onwards, Secondary Education Examination, SEE) in a decade also clearly indicated the hindered improvement in learning achievement, which was especially alarming in some specific social groups and geographical regions (Mathema & Bista, 2005). Similarly, the results of national assessment 2011 strongly support the reality that student performance is better when the parents have middle- or higher level of education and high economic status (Acharya, Metsämuuronen, & Koirala, 2013; Acharya, Metsämuuronen, & Adhikari, 2013; Shakya, Metsämuuronen, & Upadhyaya, 2013).

2. Research questions

Because COVID-19 has changed the educational realities, maybe permanently, the empirical section intends to offer historical perspectives and baseline results for the in-depth studies of the effects of COVID-19. So far, it is known that SES had an overall effect on achievement in Nepal. What is not known is how SES affects certain groups. This article studies the (in)consistency of SES over different groups before COVID-19. To be focused, only mathematics achievement is selected as the reference subject. The main, overall, research question is:

- 1) How did SES and other diversities affect the inequalities in mathematics achievement in Nepal before the COVID-19 pandemic?

This broad research question has connections with many diversity factors related to mathematics. Assessment studies conducted in various years revealed mathematics as one of the low-level subjects (CERID, 1999; EDSC, 1999; FBC & CHIRAG, 2008; EDSC, 2008; Metsämuuronen & Kafle, 2013; MoE, 2015). Historically, mathematics is known as a subject of boys, whereas girls are limited by non-technical subjects (Koirala & Acharya, 2005). However, the gender gap is reducing since the last decade at national as well as at regional and zonal levels (see

details in MoE, 2015) though the results may fluctuate with the SES factors. Hence, a sub-question is formulated to seek the answers to SES effects on various diversity factors.

- 2) How did relevant diversity factors such as gender, geographical zone and region, location in urban or rural area, language, caste/ethnicity, and school type explain equalities and inequalities in relation to SES before the COVID-19 pandemic?

The questions are answered based on three large empirical national datasets concerning the learning outcomes in Nepal and related background questionnaires in grades 3, 5, and 8.

3. Methods

3.1 Sampling and datasets

Three nationally representative datasets of national assessment of student achievement of mathematics in Nepal are reanalyzed in this article: dataset of grade 3 and 5 (MoE, 2015) and dataset of grade 8 (Metsämuuronen & Kafle, 2013). Mathematics is one of the common subjects in all datasets and it is also a universal subject. Hence, it is selected to be assessed in this article with a purpose.

The basic unit for the sample-based national student assessment was the school, and schools were selected to represent the whole nation using the proportional stratified random sampling method (see Metsämuuronen & Acharya, 2013; MoE, 2015). The strata are: 1) Ecological zones (Mountain, Hill, Terai, and Capital Valley), 2) Developmental regions (Eastern, Central, Western, Mid-Western, Far-Western, and Valley), 3) Districts (75 altogether), 4) School type (Community and Private), and 5) School location (Rural and Urban) (see Figure 1a). After the sampling for the studies in the article, a new administrative division of provinces was formed by a new Constitution of Nepal: In the current situation, seven provinces have replaced the earlier system where Nepal was divided into 14 administrative zones which were grouped into five development regions (see Figure 1b).



Figure 1a: Main strata used in the samples at the time of sampling

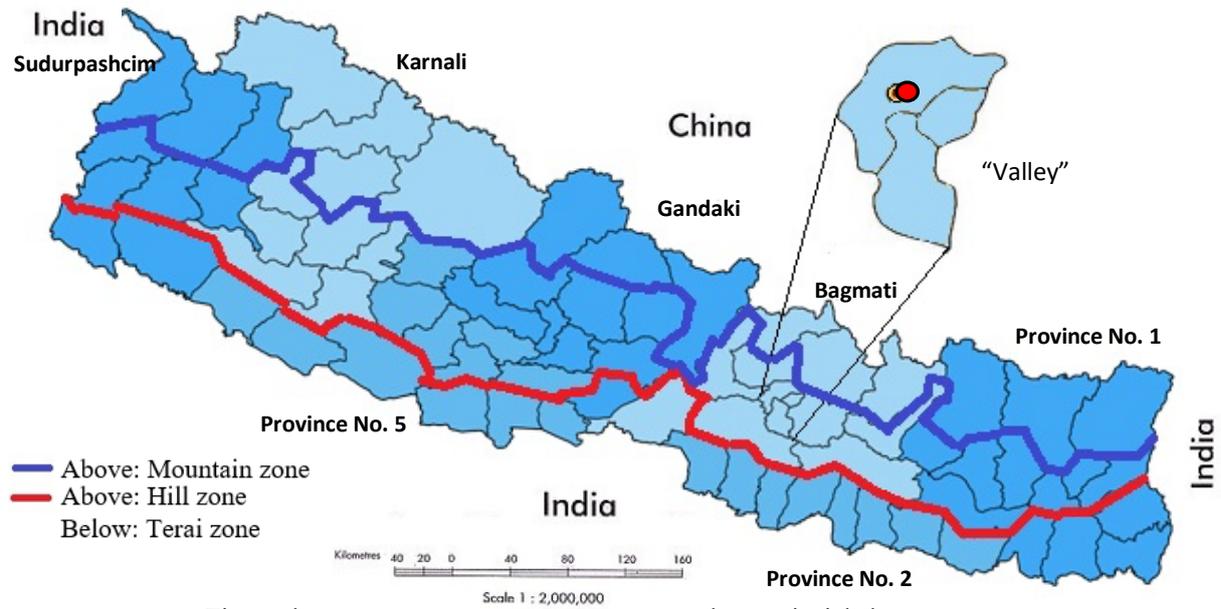


Figure 1b: Main administrative divisions after the provincial changes 2015

The schools were selected proportionately from randomly selected 25 districts out of the 75 for grade 8 and 28 districts for grades 3 and 5. The grade 3 mathematics dataset covered 841 schools and 19,252 students. In grade 5, there were 557 schools and 13,714 students and, in grade 8, 421 schools and 16,033 students. Three districts from the Kathmandu Valley were selected in all samples. The reason is that the Capital area consists many schools and it is the most diverse area from the viewpoint of caste/ethnic, language, environment, economic activities, population, and development opportunities. Gender-wise distribution of the sample is reported in Table 1.

Table 1: Gender-wise distribution of the datasets

	Grade 3			Grade 5			Grade 8		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Girls	8,071	59	25.5	6,302	53	23.1	8,043	41	21.0
Boys	8,300	59	25.2	6,570	54	22.5	7,963	45	21.4
Total	16,371	59	25.3	12,872	54	22.8	16,006	43	21.3

3.2 Background variables and SES Dimensions

The datasets provide information about the diversity including geography, gender, language, religion, culture, caste/ethnicity, occupation, home possessions, home accessories, achievement, and parents' literacy level and occupation. There are altogether seven variables related to parents' education, income, and economy, which are combined to measure the SES (Table 2). These indicators are the same as used in PISA and TIMSS background questionnaires (e.g., OECD, 2017).

The SES variables were originally measured by using different scales (from nominal to ordinal scales). Because of incomparable scales (from 0–1 to 0–12), all variables were first re-scaled to 0/1 variables to give them an equal weight (see Table 2). In this process, the variables were first analyzed with the respect of educational outcomes. Decision Tree Analysis (DTA), the data mining tool in SPSS software, and ANOVA, the basic tool for analyzing the differences between group means, were used to find the best classification of each variable regarding the statistical differences in learning outcomes. Second, 11 to 12 variables comprising the home possessions and three variables comprising the home accessories were summed up and dichotomized on the basis of DTA and ANOVA.

Third, all seven variables for SES were dichotomized based on DTA and ANOVA. Hence, all variables—regardless of their original scale—are scaled as 0 or 1. Finally, seven indicators are summed up as the final SES indicator.

Table 2: Indicators of SES in the dataset of grade 8 (Metsämuuronen & Acharya, 2013, p. 44)

Variable	cut-off ¹	effect on total score ² (percent points)
Father's education	less than SLC-passed = 0, other = 1	+6%, $\eta^2 = 0.025$
Mother's education	less than SLC-passed = 0, other = 1	+7%, $\eta^2 = 0.028$
Father's occupation	Agriculture = 0, other = 1	+6%, $\eta^2 = 0.023$
Mother's occupation	Agriculture = 0, other = 1	+6%, $\eta^2 = 0.017$
Home possessions	5 or less out of 12 possessions = 0, 6 or more = 1	+5%, $\eta^2 = 0.016$
Home accessories		
Mobile phone	2, 3 = 1, other = 0	+6%, $\eta^2 = 0.025$
Television	1–3 = 1, other = 0	+7%, $\eta^2 = 0.032$
Computer	1–3 = 1, other = 0	+8%, $\eta^2 = 0.028$
Car	1–3 = 1, other = 0	+3%, $\eta^2 = 0.003$
Bathroom	2, 3 = 1, other = 0	+3%, $\eta^2 = 0.006$
all together	0 out of 5 = 0, other = 1	+6%, $\eta^2 = 0.019$
Attending to private school	no = 0, yes = 1	+19%, $\eta^2 = 0.142$
Total SES		+25%, $\eta^2 = 0.106$

1) based on Decision tree analysis (DTA)

2) based on one-way ANOVA

3.3 Achievement tests

Mathematics achievement was measured by using a set of tests with three versions in each grade. Experienced teachers from the respective grades prepared items, which were pretested and selected for the final test. The final test versions were compiled by using the following six principles: (1) Content's dependence on the curriculum (construct validity), (2) Content's coverage to be as wide as possible (content validity), (3) Proper structure of cognitive levels of the cognitive domain (ecological validity), (4) High test discrimination (reliability), (5) Proper difficulty level, and (6) the Comparability of the results with the international results like TIMSS and PISA. All the tests showed up to be very discriminative; reliability of the total score is higher than $\alpha = 0.90$ in all three grades (Metsämuuronen, & Kafle, 2013; MoE, 2015).

In each grade, the three versions of tests were equated to the same scale using IRT modeling (see the mechanics in Metsämuuronen & Acharya, 2013; MoE, 2015). Because IRT modeling requires a linking procedure between different test versions, a good number of common items were selected carefully to link the version with each other. Some items were borrowed from the international TIMSS database. IRT was used for item calibration, finding the latent ability (Theta, θ), as well as comparing and equating the three versions with the TIMSS database. SPSS software was used for the classical item analysis and One Parametric Logistic Model software (OPLM, Verhelst, Glas, Verstralen, 1995) was used for the IRT modeling.

The parameters of the international items were fixed during item calibration so that all test items were calibrated in the international TIMSS scale: grade 3 and 5 datasets were calibrated into TIMSS grade 4 scale and grade 8 dataset into TIMSS grade 8 scale. The original output is the latent ability (θ), which is a standardized normal score ranging usually from -4 to $+4$. These values in each test version were later transformed to equated scores which were further converted into the percentage of maximum score so that the score of 100 means that the student made a perfect score and 0 means that no items were successfully answered. From now onwards, "marks" or "average" or "mean score" refers to the percentage of the maximum marks ranging from 0 to 100. The notation of 50 percent refers to 50 percent correct of the equated maximum score. The scores are not equated over the grades and, hence, the scores in different grades are not strictly comparable.

3.4 Used Methods

Basic methods are used for the analysis, mainly ANOVA- and ANCOVA type of modeling and Pearson correlation. Two indicators of the explaining power of single factors of models are used: eta squared, or partial eta squared (η^2), and Cohen's f (Cohen, 1988). The first tells strictly how many percent of the total variance in the dataset can be explained with the factor under study. Then, $\eta^2 = 0.030$ means that the factor explains 3 percent of the total variance ($= 0.03 \times 100$ percent). Cohen's f is a commonly used indicator of effect size where the values near zero refer to trivial or non-existent differences between the groups, values around 0.1 refer to a small effect size, values around 0.2–0.3 to medium effect size, and values higher than 0.4 to high effect size referring to remarkably wide differences between the groups (see Cohen, 1988, pp. 285–287). When the traditional significance (p value) indicates whether the difference would be seen in the population, effect size tells how remarkable this difference could be.

4. Results

4.1 Population disparity based on distributions of achievement

The distributions of the mathematics test score show remarkable *Population disparity* (see the criteria of this kind of disparity in Metsämuuronen 2019) in Nepal before COVID-19 pandemic. Although the raw scores from different grades are not comparable, the *patterns* in the distributions indicate the prevailing learning inequalities. In each grade, there are two to three distinct populations (low-, medium- and high performers; Figure 2) instead of only one normally distributed population as we see, for example, in Finland (see graphs in e.g., Ukkola & Metsämuuronen, 2019 p. 37 for grade 1; Ukkola & Metsämuuronen, 2021 for grade 3; Metsämuuronen, 2013, p. 45 for grades 3, 6, and 9; Metsämuuronen, 2017, p. 62 for grade 12).

In grade 3 we observe a long tail at the left-hand side; this means that pupils enter the system with quite wide differences so that most of the students are quite good in mathematical operations in relation to the expectations explicated in the national curriculum. In grade 5, the distribution is a widened normal distribution, showing that there are at least two populations that are somewhat close to each other. At grade 8, again, we observe a long tail in the right-hand side; this indicates that the educational system produces wide differences in the student population. The last point indicates a potential inequality generated by the system. These datasets show the serious gaps in the achievement levels, which is more prominent in the 8th grade.

From the average national score viewpoint, the mathematics achievement is found in a downward pattern, from lower to upper grades, that is, 59 percent (SD 25.3), 53 percent (SD 22.8), and 43 percent (SD 21.3) of the equated correct answers in grades 3, 5, and 8, respectively. Although the scores are not fully comparable, the trend in the means reflects the fact that the item writers, reflecting the demands of the curriculum, expected more from the students in higher grades but the students were not able to fulfill these expectations to the same extent as did the pupils at lower grades.

4.2 Inequalities based on school type and SES

In what follows, the inequalities that exist in achievement with different variables of diversity such as gender, caste, language, and geographical locations are discussed. The disparity in the performances is seen at the school- and the student level. In this section, the school level disparity is discussed while the student level disparity is in focus in Section 4.3.

The achievement disparity in Nepal can be seen easily when we aggregate the achievement and SES scores at the school level, illustrated by the school type: community and private schools (see Metsämuuronen & Ilic, 2018 for the description of pedagogical differences between these schools). By using the term suggested by Metsämuuronen (2019), we observe an obvious *School type disparity* in Nepal.

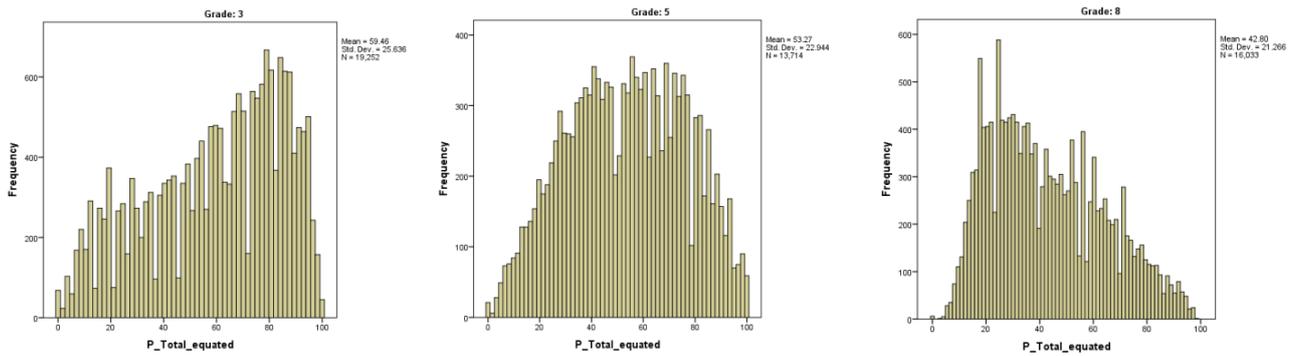


Figure 2: Population distributions of grades 3, 5 and 8 in Mathematics tests in Nepal; pre-COVID-19 pandemic

Establishing a private school is a good business and their number is growing in Nepal. In 2013, out of all basic level schools at grades 1–8, 16 percent were private schools, where nearly 15 percent students were enrolled, and 84 percent were community schools (DOE, 2013). In 2017, 18 percent schools were private, and 17 percent of the students enrolled in these institutions (MoEST, 2018). Figure 3 illustrates that students in the private schools (denoted by a triangle), located in the upper right-hand quarter of the graph, mostly get high scores and their average SES is high. On the contrary, most of the students in community schools have a low SES, and, notably, the range of the average achievement score in the school is extremely wide ranging from 5 percent to above 95 percent. This situation is similar in all three grades under study.

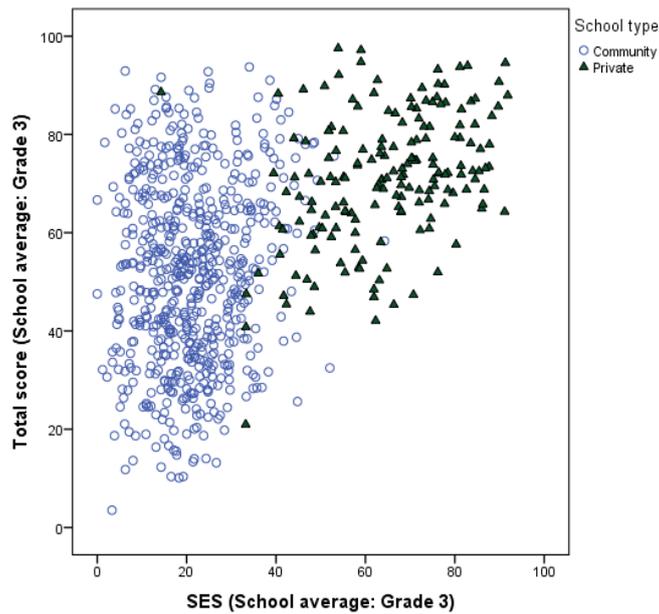


Figure 3: School achievement in mathematics based on SES and types of schools

It should be noted that, in Nepal, the high level of achievement in private schools can be explained almost fully by their selection of students: lower-achieving students are not enrolled in private schools. Obviously, the private schools are also expensive and hence the unprivileged families cannot afford their fees. However, it is notable that some community schools with students from a low average SES are at the same achievement level as the highly privileged private schools. This draws attention to the pedagogical processes: what was done differently in these

highly achieving community schools with less resources where the outcomes are at the same level as in the private schools with much more resources (see the discussion and answers in Metsämuuronen & Ilic, 2018).

The achievement gap between community and private is the highest in grade 8 (24 percent units), followed by grade 3 (20 percent units) and 5 (17 percent units) (see Figure 4).

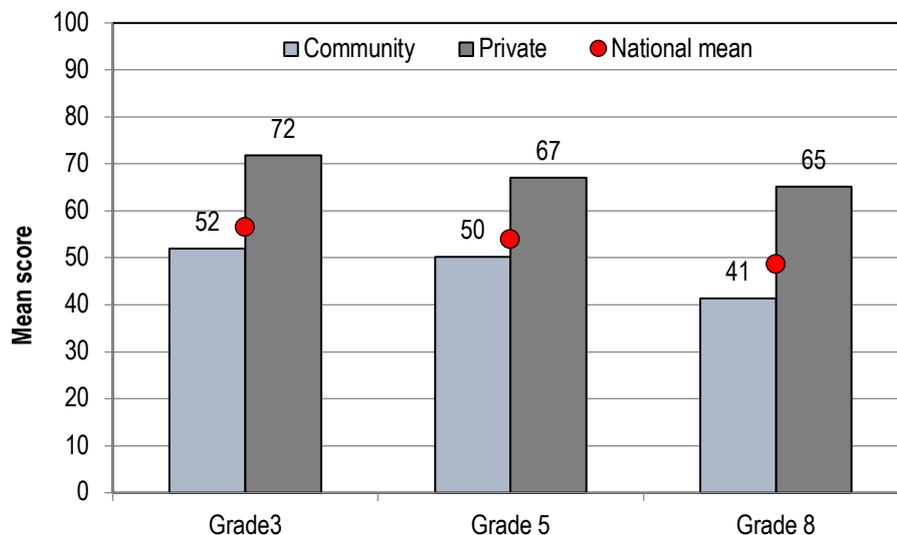


Figure 4: Mean scores in the community and private schools

The diversity tends to exacerbate the inequalities in achievement when it is associated with the SES of students. This is seen clearly when we focus on the average scores of the schools. Among the schools with the highest average achievement level (the highest quartile), 47, 41, and 70 percent of the schools for grades 3, 5, and 8, respectively, were private ones. On the contrary, of the schools with the lowest quartile, only 1–3 percent are private ones. We note the obvious discrepancy at the grade 8 schools: practically all (70 percent) of the best performing schools are private ones.

4.3 Diversity, SES, and disparity

Analysis based on students provides more detailed results about the existing situations as they represent diverse SES backgrounds. Hence, from now on, the analysis concentrates on students' achievement score as the dependent variable, students' diverse backgrounds as the independent variable and SES indicator as the explanatory factor.

4.3.1. SES and achievement

Like the school mean, the students' performance also shows an almost linear connection between SES and achievement in all three grades (Figure 5). The correlation is highest in the dataset for grade 3 ($r = 0.35$) and somewhat lower at the other grades ($r = 0.27$ and 0.29 in grades 5 and 8, respectively). The performance gap between the highest and the lowest SES groups is notable (29, 22, and 25 percentage points). Notably, the thresholds of the SES are found when students have met more than three out of the seven indicators of SES. Beyond this threshold, students performed above the national average in their respective grades.

SES alone explains 8–12 percent of the variation in the student dataset depending the grade: 12.4 percent in grade 3 ($f = 0.33$), 8.0 percent in grade 5 ($f = 0.27$), and 8.7 percent in grade 8 ($f = 0.28$), showing at least a medium effect size; 12 percent is a notable explaining power in the educational settings. In what follows, SES is included in models to explain the differences between other diversity groups.

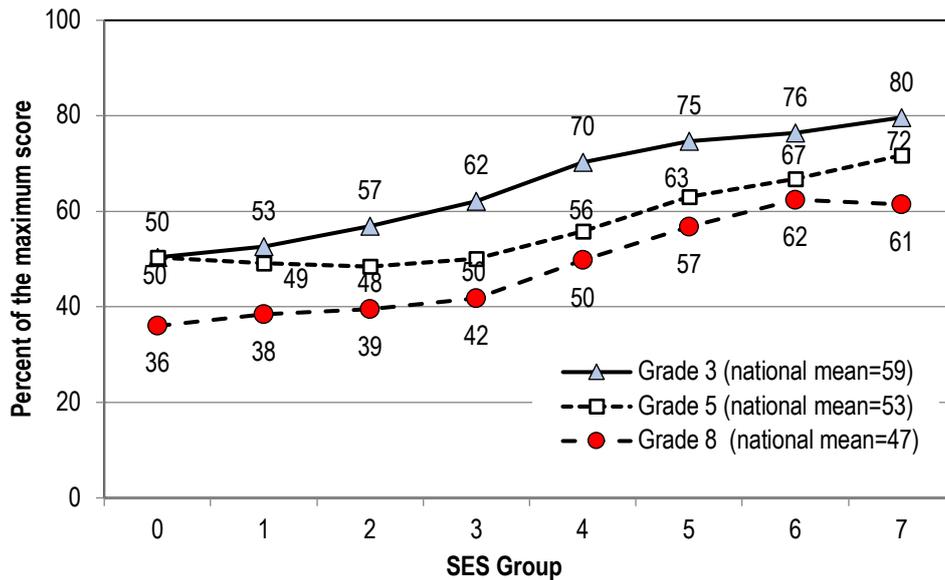


Figure 5: Student achievement and SES in different grades

4.3.2. Gender and SES: toward gender parity in mathematics

There is no statistically significant difference between boys and girls when it comes to the achievement level in mathematics (59 percent in both groups) at grade 3 (Table 3). The same phenomenon is seen also in Finland (Ukkola & Metsämuuronen, 2021). A mild gender disparity is seen in upper grades favoring boys (a difference of one point in grade 5 and three points in grade 8). This seems to indicate a slight gender-biased social scenario of Nepal seen prominently with the increment of students' grade so as in achievement levels. When categorizing the achievements into quartiles, the disparity is wider in grades 5 and 8. In grade 5, around 53 percent girls and 47 percent boys are in the lowest quartile and the reverse in the highest quartile, that is, 48 percent girls and 52 percent boys. The situation is more widened in grade 8: 56 percent girls and 44 percent boys in the lowest quartile and 44 percent girls and 56 percent boys are in the highest quartile.

Table 3: Gender wise achievement in upper and lower quartile groups

Sex	Quartile	Grade 3			Grade 5			Grade 8		
		N	Mean	SD	N	Mean	SD	N	Mean	SD
Girl	lowest	1,455	18	7.8	1,359	21	7.6	3,412	22	6.5
	highest	3,143	84	7.0	1,441	84	7.4	723	82	6.3
	Total	8,071	59	25.5	6,302	53	23.1	8,043	41	21.0
Boy	lowest	1,474	18	8.1	1,197	21	7.6	2,733	22	6.2
	highest	3,080	84	7.0	1,564	84	7.3	938	83	6.5
	Total	8,300	59	25.2	6,570	54	22.5	7,963	45	21.4
Total	lowest	2,929	18	8.0	2,556	21	7.6	6,145	22	6.4
	highest	6,223	84	7.0	3,005	84	7.3	1,661	82	6.4
	Total	16,371	59	25.3	12,872	54	22.8	16,006	43	21.3

Table 4: ANCOVA table of SES and Gender explaining achievement

Tests of Between-Subjects Effects								
Dependent Variable: Total score in Math								
Grade	Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Cohen's f
3	Corrected Model	1299567.271a	2	649783.6	1156.51	<0.001	0.124	
	Intercept	18999607	1	18999607	33816.1	<0.001	0.674	
	SES	1299368	1	1299368	2312.66	<0.001	0.124	0.33
	Gender	38.354	1	38.354	0.068	0.794	0.000	0.00
	Error	9196366	16368	561.85				
	Total	67736904	16371					
	Corrected Total	10495933	16370					
	5	Corrected Model	544382.049b	2	272191	569.128	<0.001	0.081
Intercept		9718102	1	9718102	20319.7	<0.001	0.612	
SES		534759.6	1	534759.6	1118.14	<0.001	0.08	0.27
Gender		7883.703	1	7883.703	16.484	<0.001	0.001	0.03
Error		6154727	12869	478.26				
Total		43672134	12872					
Corrected Total		6699109	12871					
8		Corrected Model	685298.136c	2	342649.1	836.728	<0.001	0.095
	Intercept	4929786	1	4929786	12038.2	<0.001	0.429	
	SES	623910	1	623910	1523.55	<0.001	0.087	0.28
	Gender	45873.05	1	45873.05	112.019	<0.001	0.007	0.08
	Error	6553403	16003	409.511				
	Total	36579133	16006					
	Corrected Total	7238701	16005					

a R Squared = .124 (Adjusted R Squared = .124)
b R Squared = .081 (Adjusted R Squared = .081)
c R Squared = .095 (Adjusted R Squared = .095)

The gender disparity seems to fade when we add SES to the model. When SES is taken as a covariate, the gender difference exists at the higher grades ($p < 0.001$) but is not notable in any of the grades (Table 4). This means that SES explains the difference and gender does not add much to our knowledge ($\eta^2 < 0.007$). Notably, the effect of SES at grade 3 is high ($\eta^2 = 0.124$, Cohen's $f = 0.33$).

The gender parity indicates a positive signal towards equity. It seems that “mathematics as boys’ subject” is not anymore true in the Nepalese context. It would be interesting to see how the COVID-19 pandemic affects this phenomenon.

4.3.3. Social hierarchy, SES, and achievement

The traditional caste system is still deeply embedded in Nepalese society, creating unintended inequalities. Many lower caste and marginalized groups suffer in an obvious or un-obvious manner, which also impacts students’ performance. Historically, the advantageous caste groups (Brahmins and Chhetris) were those who were maximally educated—Brahmins to be the teachers and Chhetris to be the nobles and warriors. In contrast, for many years, literacy was forbidden for the marginalized groups known as *Dalits* (“untouchables”) and rare also within *alpasankhyak* (“minorities”). Also, many indigenous tribes (*Adivasi janajatis*) did not relate their traditions

by using literal education while some other ethnic groups such as *Newars* were devoted to keep higher standards in studies. Hence, it is no wonder why the higher castes and certain ethnic groups have traditionally dominated education, administration, and economical activities in Nepal. Gurung (2005) evaluated the situation at the beginning of 1990's: the major three cast/ethnic groups (Brahmin and Chhetris, and Newars) combined together shared 89.2 percent civil service employment in the Government of Nepal in 1991. At that time, 73.8 percent of the students in the higher education came from the higher castes, 22.0 percent janajatis and 2.9 percent Dalit. When it comes to adult literacy rate, Brahmin and Chhetris, and Newars were noted to be advanced groups also on 2017 (NIRT, 2017, p. 19). Although formal education has been open since 1950s, the debates of educating all groups of children was discussed seriously with the introduction of the international program Education for All (EFA) in 1990 on (see UNESCO, 1994; 2011).

In the datasets used in this study, the privileged casts (Brahmin/Chhetri) have the highest achievement score in grades 3 (66 percent) and 5 (57 percent) and comparatively high also in grade 8 (45 percent) while Dalits have the lowest scores in all grades (55, 50, and 37 percent, respectively; see Table 5). The differences are mild though (7–9 percentage points) in comparison with the SES groups. An interesting fact is that students from Madhesi background, that is, people of Indian ancestry residing in the Terai zone near the Indian border, outperformed mildly (49 percent) the Brahmins and Chhetris (45 percent) in grade 8. The high performance of the Madhesi students may be explained as a kind of “Jokk-Mokk effect” (for the phenomenon, see Metsämuuronen & Ilic, 2018) where some unexpected group in the rural areas performs better than others to ensure their study places in the cities—or, in this case, maybe in India which would be a natural direction for Madhesi students.

The achievement gap between students in the highest and the lowest quartiles indicates obvious inequalities between the castes/ethnicities, especially in grade 3 (Table 6). Students from the Brahmin/Chhetri background enroll in school with good knowledge of mathematics in comparison with other castes and ethnic groups. In grade 3, 48 percent of Brahmin/Chhetri students belong to the highest quartile and 11 percent to the lowest quartile while, if the students would be randomly distributed in the quartiles, we expect to see 25 percent of the students in both groups. Also, in grade 5, the distribution of Brahmins/Chhetris is notably towards the highest quartile (27 percent) than in the lowest quartile (14 percent). In all assessed grades, the proportion of Dalits students is comparatively high in the lowest quartile, especially in grade 8 (i.e., 49 percent of Dalits in the lowest quartile and only 4 percent in the highest quartile). A good sign from the equity viewpoint is that, in grade 3, students from the Dalit background are distributed somewhat evenly in the lowest and the highest quartiles (21 and 30 percent, respectively). This may indicate that when these students get older, if these proportions continue at this level in the higher grades too, they may see a totally different world than their parents.

Table 5: Achievement by caste/ethnicity in the lowest and highest quartiles

Caste/ ethnicity	Quartile	Grade 3			Grade 5			Grade 8		
		%	Mean	SD	%	Mean	SD	%	Mean	SD
Brahmin/ Chhetri	lowest	11	19.7	7.4	14	22.4	7.4	34	22.0	6.3
	highest	48	84.8	7.1	27	83.8	7.3	12	82.5	6.6
	Total	100	65.7	23.1	100	57.0	21.7	100	45.0	21.6
Janajati	lowest	15	18.9	7.7	21	22.0	7.1	42	21.8	6.4
	highest	40	84.3	6.9	20	83.5	7.5	9	82.3	6.1
	Total	100	61.1	24.3	100	51.8	22.2	100	41.1	20.9
Dalit	lowest	21	18.5	7.5	25	22.2	7.2	49	21.5	6.3
	highest	30	82.9	6.7	20	82.7	7.4	4	82.2	6.7
	Total	100	54.6	24.6	100	50.2	22.4	100	36.8	18.6
Madhesi	lowest	19	19.2	7.7	25	20.1	8.3	27	22.6	6.5
	highest	33	84.5	7.2	21	84.4	7.5	18	82.9	6.4
	Total	100	57.5	25.0	100	50.9	24.3	100	49.1	22.2
Other	lowest	25	17.7	8.3	24	19.0	8.2	43	22.2	6.4
	highest	30	83.6	6.9	25	83.5	7.1	5	79.8	4.8
	Total	100	53.6	26.2	100	52.5	24.7	100	40.2	19.4

Table 6: Gender and caste-wise achievement in different grades

Caste	Grade 3			Grade 5			Grade 8		
	Girl	Boy	Difference	Girl	Boy	Difference	Girl	Boy	Difference
Brahmin/Chhetri	65	66	-1	56	59	-2	43	47	-5
Janajati	62	61	2	52	52	0	40	43	-3
Dalit	55	55	0	49	51	-2	35	39	-4
Madhesi	56	60	-3	48	54	-6	48	50	-2
Other	54	55	-1	53	53	-1	41	40	1
Total	61	61	0	53	55	-2	41	45	-4

Caste/ethnicity is linked with gender to a certain extent (Table 6). Except for the groups of Dalit students in grade 3 and Janajati students in grade 5, the gender gap is found ranging 1–6 percentage points. Among the groups, the highest gender gap is noted in Madhesi students favoring boys in grade 3 and 5 (three and six percentage points, respectively). Even in the high castes Brahmin/Chhetri, the gap between boys and girls is five percentage point in grade 8.

With knowledge of the SES of the students, the interpretations get somewhat complicated. When students have a high SES (5–7 out of the seven indicators of SES are met), they achieve, on average, more than 70 percent of the maximum score in grade 3, more than 60 percent in grade 5, and more than 64 percent in grade 8 regardless the cast (except Dalit, 42 percent). The GML ANCOVA model with SES as a covariate the interaction of sex and caste shows statistically significant difference at $p < 0.001$ between the casts in all three grades (Table 7). However, the effect size of caste/ethnicity is small (Cohen's $f = 0.12, 0.10,$ and 0.15 in grades 3, 5, and 8, respectively) and the factor explains only around 1 percent of the student variation in grades 3 and 5 and 2 percent in grade 8 ($\eta^2 = 0.013, 0.010,$ and 0.023). SES explains the difference more than caste does in all grades with a medium effect size of SES on the achievement (grade 3: $\eta^2 = 0.097$ and $f = 0.328$; grade 5: $\eta^2 = 0.075$ and $f = 0.285$; grade 8: $\eta^2 = 0.081$ and $f = 0.297$). Hence, if we know the SES of a family, the cast/ethnicity does not seem to be an important factor in explaining the differences in mathematics achievement.

All in all, the analysis shows that students' SES is a more prominent factor of achievement inequality than caste and gender. However, the difference in achievement between the privileged castes (Brahmin/Chhetri) and low caste (Dalit) is still notable. This result may require more effective interventions for students from the marginalized groups. The positive signal is that the distribution of Dalit students at grade 3 shows equality in being evenly distributed in the lowest and the highest quartile instead of being mainly located in the lowest quartile as seen in higher grades. It would be interesting to see what the effect of COVID-19 epidemic of this matter is.

Table 7: ANCOVA table of SES (Covariate) and Caste/ethnicity×Gender (fixed variable) explaining the achievement

Tests of Between-Subjects Effects								
Dependent Variable: Total score in Math								
Grade	Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Cohen's <i>f</i>
3	Corr.d Model	1092745.643a	10	109274.6	208.791	<0.001	0.123	
	Intercept	15039092	1	15039092	28735.23	<0.001	0.659	
	Gender*Caste	102918.2	9	11435.36	21.85	<0.001	0.013	0.11
	SES	836960.5	1	836960.5	1599.182	<0.001	0.097	0.33
	Error	7772011	14850	523.368				
	Total	64411533	14861					
	Corrected Total	8864757	14860					
5	Corr.d Model	584465.967b	10	58446.6	125.058	<0.001	0.09	
	Intercept	7864158	1	7864158	16826.93	<0.001	0.572	
	Gender*Caste	57436.81	9	6381.868	13.655	<0.001	0.01	0.10
	SES	473124.4	1	473124.4	1012.343	<0.001	0.075	0.28
	Error	5875127	12571	467.356				
	Total	43037235	12582					
	Corrected Total	6459593	12581					
8	Corr.d Model	790615.187c	10	79061.52	196.111	<0.001	0.109	
	Intercept	2515272	1	2515272	6239.081	<0.001	0.281	
	Gender*Caste	151360.2	9	16817.8	41.716	<0.001	0.023	0.15
	SES	565568.5	1	565568.5	1402.881	<0.001	0.081	0.30
	Error	6435448	15963	403.148				
	Total	36529206	15974					
	Corrected Total	7226064	15973					

a R Squared = .123 (Adjusted R Squared = .123)
b R Squared = .090 (Adjusted R Squared = .090)
c R Squared = .109 (Adjusted R Squared = .109)

4.3.4. Language, SES, and Achievement

Out of all community schools for grades 1–8 in Nepal, 84 percent have Nepali as their instruction language (DoE, 2013) while most, if not all, private schools use English as their medium of instructions (see Metsämuuronen & Ilic, 2018). Socially, language is associated with ethnicity in Nepal. However, at present, the domination of Nepali language is growing in other language groups as well. Out of the 123 categorized languages of Nepal, in the dataset, 12 major languages were classified in the background questionnaires. In what follows, language is discussed from two viewpoints: first, by comparing Nepali speakers to other language groups (non-Nepali) and, second, by examining single language groups.

When speakers are divided into two groups—Nepali speakers and non-Nepali speakers—Nepali speakers' achievement level is somewhat higher than non-Nepali speakers' though the gap is small in grade 8 (around two percentage points) and slightly higher in lower grades (around four percentage points). The obvious reason for the discrepancy at the lowest level may be the domination of mother language: students with non-Nepali background may face difficulties in their learning in lower grades because of low proficiency in the instruction language. GML ANOVA shows achievement difference between Nepali and non-Nepali language groups to be statistically significant with $p < 0.001$ in grades 3 and 5 and $p = 0.002$ in grade 8. But the effect size and variation explained of language groups is small in all grades ($\eta^2 = 0.007$ and $f = 0.084$ in grade 3 and 5; $\eta^2 = 0.001$, $f = 0.032$).

SES somewhat complicates the matter. In high SES families, the difference in the achievement score between Nepali-and non-Nepali students in grade 8 is very small if not non-existent (Nepali speakers, 57–63 percent and non-Nepali speakers, 62 percent). However, when SES is low, non-Nepali speakers' achievement is four percentage points higher than that of the Nepali speakers (39 percent and 35 percent). Likewise, in grade 5, when the Nepali speakers are from a low SES, the achievement score is found to be lower than that of the non-Nepali speakers (i.e., 49 percent and 52 percent). In grade 3, Nepali speakers slightly supersede (52 percent) the non-Nepali speakers (49 percent) in the group of low SES.

When it comes to individual languages, in grade 3, certain language groups seem to be ahead of the others though the difference is difficult to explain. In any case, speakers of Magar (79 percent), Tamang (73 percent), Maithili (71 percent), and Nepali (61 percent) achieved the highest scores. Except for Tamang speakers, girls are ahead of boys in high achiever groups, especially the Maithili girls are six percentage points better than boys. The high gender gap of eight percentage points is found also for Gurung speakers, favoring boys (girls, 52 percent and boys, 60 percent). In grade 5, speakers of Magar (65 percent), Tamang (62 percent), Rai (61 percent), Nepali (55 percent), and Urdu (54 percent) are above the national average. Of these, in Magar and Rai language groups, boys mildly outperform girls. All in all, the variation in achievement depending on gender is notably high in grade 5, varying from no gender difference to the difference of 17 percentage points (Gurungs). In grade 8, the highest achievement levels are observed in the language groups of Sherpa (54 percent), Newar (52 percent), Gurung, and Tharu (45 percent). Out of total 12 language groups, boys are ahead by 2–4 percentage points in eight language groups (Nepali, Magar, Tharu, Tamang, Urdu, Rai, Gurung, and “Other”) and, only in the groups of Newar and Sherpa, girls are ahead of boys by 4–6 percentage points. Hence, there seems to be some cultural restrictions in some language groups for girls to reach the level of boys in mathematics.

GML ANOVA indicates that the achievement level due to home language is statistically significant ($p < 0.000$) in all three grades (Table 8). In grade 3, the home language explains 3 percent of the student variation showing a medium level of effect size ($\eta^2 = 0.029, f = 0.20$). Likewise, in grade 5, the home language explains around two percent of variation, showing a medium effect size ($\eta^2 = 0.024, f = 0.20$). In parallel, in grade 8, two percent of the student variation can be explained by language, showing a small effect size ($\eta^2 = 0.018, f = 0.10$). It seems the home language may affect mathematics learning to some extent in the lower grades but in the upper grades, the language is a less influential factor. This could be explained by the medium of instruction in schools: the language is not an issue for those who speak Nepali fluently, but the achievement at beginning of the school may be affected by the home language, but this effect wanes within the school years.

It seems that gender does not explain the achievement level ($p > 0.280$) when we have more powerful factors in the model such as home language and SES (Table 8). However, there seems to be a mild interaction effect of language and gender in the lower grades ($p < 0.043$), that is, boys and girls with different language backgrounds, behave differently when it comes to learning mathematics. The effect size of this interaction factor is small—if not non-existent—in all grades ($f < 0.10$). Language seems to have a unique effect ($f > 0.12$)—specifically in grade 3 ($f = 0.12$). SES, when controlled, appear to explain the differences the best ($f > 0.26$)—specifically in grade 3 ($f = 0.31$).

The mixed results of the effect of home language indicates a complexity in the phenomenon. It is difficult to claim categorically that speakers of some language groups would perform systematically lower or higher than others. However, it is safe to say that disparity exists when language groups are categorized only into two (Nepali and non-Nepali). However, it seems that when the SES of the family is high, the home language background has less effect on the mathematical achievement in school. Like with gender and caste, SES explains inequalities in language more clearly than the language itself. Nevertheless, there seems to be language-wise differences in mathematics achievement that cannot be explained by gender or SES. Because language reflects the cultural and ethnic background of the students, this indicates cultural and ethnic disparity in education in Nepal. In the studies to come of the effects of COVID-19, the language issue would be important to include to the analysis: did the pandemic affect equally to different language groups.

Table 8. ANCOVA table of SES (Covariate) and Language and Gender (fixed variable) explaining achievement

Tests of Between-Subjects Effects								
Dependent Variable: Total score in Math								
Grade	Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Cohen's <i>sf</i>
3	Corr.d Model	1609394.410a	24	67058.1	123.3	<0.001	0.153	
	Intercept	598571.089	1	598571	1101	<0.001	0.063	
	SES	1070107.47	1	1070107	1968	<0.001	0.107	0.31
	Language	294833.778	11	26803.1	49.3	<0.001	0.032	0.18
	Gender	71.022	1	71.022	0.131	0.718	0	0.00
	Lang.*Gender	10980.981	11	998.271	1.836	0.043	0.001	0.03
	Error	8886538.57	16346	543.652				
	Total	67736903.7	16371					
	Corrected Total	10495933	16370					
5	Corr.d Model	649410.537b	24	27058.8	57.46	<0.001	0.097	
	Intercept	1522052.57	1	1522053	3232	<0.001	0.201	
	SES	459992.334	1	459992	976.8	<0.001	0.071	0.26
	Language	92494.034	11	8408.55	17.86	<0.001	0.015	0.12
	Gender	89.912	1	89.912	0.191	0.662	0	0.00
	Lang.*Gender	10534.515	11	957.683	2.034	0.022	0.002	0.04
	Error	6049698.77	12847	470.904				
	Total	43672133.8	12872					
	Corrected Total	6699109.31	12871					
8	Corr.d Model	781015.326c	23	33957.2	84.04	<0.001	0.108	
	Intercept	173699.363	1	173699	429.9	<0.001	0.026	
	SES	588999.943	1	589000	1458	<0.001	0.084	0.28
	Language	90872.731	11	8261.16	20.45	<0.001	0.014	0.12
	Gender	464.353	1	464.353	1.149	0.284	0	0.00
	Lang.*Gender	3262.021	10	326.202	0.807	0.622	0.001	0.03
	Error	6457686.17	15982	404.06				
	Total	36579133	16006					
	Corrected Total	7238701.5	16005					

a R Squared = .153 (Adjusted R Squared = .152)
b R Squared = .097 (Adjusted R Squared = .095)
c R Squared = .108 (Adjusted R Squared = .107)

4.3.5. Geographical diversity and achievement

Geographically, Nepal can be divided into ecological and locational strata (see Figures 1a and 1b above). There are three ecological zones (Mountain, Hill, and Terai) and two locations (rural and urban). At the time of sampling, there were also five development regions (Eastern, Central, Western, Mid-Western, and Far-Western; see Figure 1a). Capital Valley consisting of three districts from Hilly zone Kathmandu, Lalitpur and Bhaktapur has unique characteristics, so it is considered as a different stratum within the ecological regions. Distinctively, caste and language groups are historically recognized depending on the specific ecological zones of Nepal like Sherpa and Rai in Mountain zone; Gurung, Brahmin/Chhetri, and Newar in Hill zone; and Madheshi, Brahmin, and Newar in Terai zone. Hence, the ecologic division is most important from the perspective of Nepalese social structure. Besides, the location of the student (rural or urban) can also indicate inequalities in achievement. We may also keep in mind Aasland's and Haug's (2011) result that people's perception of their own social situation in Nepal seems to be more to do with geography and objective social class (SES) than with caste, ethnicity, or religion.

GLM ANOVA and the related Tukey's post hoc test shows that Capital Valley at the Hill zone is ahead of all other regions in grade 3 and 5 (Table 9) regarding mathematics achievement. In grade 3, the widest gap is observed between students from the Capital Valley and Terai zone (22 mean points), which is followed by Hill (21) and Mountain (16) zones. Students from the Hill zone areas are five points lower than the Mountain areas. Students from the Terai zone are at the lowest in the strata although there is no statistical difference between the means of the students from the Terai and Hill zones in grade 3.

In grade 5, the gap is notably high between students from the Capital Valley and from the Hill zone as well as from the Capital Valley and the Terai zone, which is 19 points on average for each zone. Likewise, the difference between students from the Capital Valley and Mountain zones is 13 points. The difference is not statistically significant between Hill and Terai zones. After Capital Valley zone, students from the Mountain zone perform six points better than students from the Hill and Terai zones. In grade 5, students from the Hill zone are the lowest achievers out of all four ecological zones.

In grade 8, students from the Terai zone are ahead of other zones (except Valley). This was seen also in Madhesi students' high performance over the advantageous castes discussed above. The highest difference between Terai and Hill zones is notably 16 points, which is followed by the differences between the Terai and Mountain zones (14) and Terai zone and Capital Valley (11). Again, students from the Hill zone have the lowest achievement score.

Table 9: Multiple comparisons of Ecological zones

Multiple Comparisons Tukey HSD							
Dependent Variable: Total score in Math							
(I)	(J)	Grade 3		Grade 5		Grade 8	
Ecological zone	Ecological zone	Mean Difference (I-J)	Sig.	Mean Difference (I-J)	Sig.	Mean Difference (I-J)	Sig.
Mountain	Hill	5.03*	< 0.001	6.52*	< 0.001	2.84*	< 0.001
	Terai	5.89*	< 0.001	6.29*	< 0.001	-13.62*	< 0.001
	Valley	-15.71*	< 0.001	-12.67*	< 0.001	-2.93*	< 0.001
Hill	Mountain	-5.03*	< 0.001	-6.52*	< 0.001	-2.84*	< 0.001
	Terai	0.86	0.216	-0.24	0.956	-16.47*	< 0.001
	Valley	-20.74*	< 0.001	-19.1960*	< 0.001	-5.77*	< 0.001
Terai	Mountain	-5.89*	< 0.001	-6.29*	< 0.001	13.62*	< 0.001
	Hill	-0.86	0.216	0.24	0.956	16.47*	< 0.001
	Valley	-21.5958*	< 0.001	-18.96*	< 0.001	10.69*	< 0.001
Valley	Mountain	15.71*	< 0.001	12.6718*	< 0.001	2.9297*	< 0.001
	Hill	20.74*	< 0.001	19.20*	< 0.001	5.7727*	< 0.001
	Terai	21.60*	< 0.001	18.96*	< 0.001	-10.6934*	< 0.001

Based on observed means.

* The mean difference is significant at the .05 level.

All in all, the inequalities between the geographical zones are noticeable in all grades. Nevertheless, in grades 3 and 5, students from the Capital Valley outperform the students from other zones whereas in grade 8, students from Terai outperform other zones. The reason is the surprisingly high performance of Madhesi students locating in Terai zone. From the equity perspective, zonal differences reflect wide inequalities of learning opportunities in different ecological areas in Nepal, which may create two-levelled human resources in the country. In the studies to come, it would be interesting to see whether COVID-19 pandemic have teared more difference between the Capital Valley and the rest country.

4.3.6. Geographical diversity and achievement; Disparities between rural and urban areas

Above, the effect of the school location was handled from the school average viewpoint. Here the student dataset is focused. The terms “rural” and “urban” themselves hint at the disparities. In the context of Nepal, location is one of the important factors because, at the time of collecting the information, 83 percent of people lived in the rural areas (52 percent female and 48 percent male; CBS, 2013). From the perspectives of infrastructure development and human resource development, the technical inequalities are very wide.

The achievement difference between rural and urban is wider in the lower grades (14–15 percentage points) than in grade 8 (eight percentage points) (Table 10).

Table 10: Location-wise achievement of grade 3, 5 and 8

Location		Grade 3			Grade 5			Grade 8		
		N	Mean	SD	N	Mean	SD	N	Mean	SD
Rural	Female	6277	56	25.6	4563	49.2	22.2	6033	39	20.1
	Male	6653	57	25.6	4696	51.4	22.2	5845	43	20.7
Urban	Female	1771	71	21.4	1239	65.0	21.6	2010	47	22.4
	Male	1749	70	20.5	1300	64.8	20.6	2118	50	22.5
Total	Female	8048	59	25.5	5802	52.5	23.0	8043	41	21.0
	Male	8402	59	25.2	5996	54.3	22.5	7963	45	21.4

In the datasets, there is no gender difference in grade 3 as discussed above. GLM ANCOVA with main effects of location and gender shows statistically no difference in grade 3 ($p > 0.05$) although the difference is statistically significant in grade 5 and 8 with a negligible effect size (see Table 11). The ANCOVA model explains more variation of SES than other fixed factors (location and gender), that is, a medium effect size in grade 3 ($\eta^2 = 0.05, f = 0.20$), small in grade 5 ($\eta^2 = 0.02, f = 0.12$), and moderately high in grade 8 ($\eta^2 = 0.07, f = 0.30$).

The datasets show that both girls and boys are equally competitive in the beginning of their education (in grade 3). However, in upper grade girls perform slightly lower than boys. Statically, inequality is explained more by SES than location and gender. Based on the results by Shrestha and colleagues (2021) it is expected the COVID-19 pandemic have had exacerbated impact in education in the rural areas with low infrastructure and less use of internet than in the urban areas.

4.3.7. School type disparity and School location disparity

In the dataset, most of the community schools are situated in the rural areas (87–88 percent of the rural schools) and most of the private schools in urban areas (66–68 percent of the urban schools). It indicates unequal distribution of the education system in the country, especially when private schools usually represent high scores and SES in Nepal. The learning outcomes are significantly lower in the rural area, but the phenomenon is not clear (Table 12). Both in community and private schools for grade 8, the achievement level is somewhat higher in the rural community schools than in the urban areas if the Capital city area is included in the analysis. However, outside the Capital city areas, students from the urban areas perform, in general, higher than the students from rural areas.

Table 11: ANCOVA table of SES (covariate) and Location and Gender as (fixed variable) explaining achievement

Tests of Between-Subjects Effects								
Dependent Variable: Total score in Math								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Cohen's <i>f</i>	
3	Corrected Model	591985.053a	4	147996.3	246.62	< 0.001	0.07	
	Intercept	6220941.641	1	6220942	10366.52	< 0.001	0.44	
	SES	399888.772	1	399888.8	666.371	< 0.001	0.05	0.22
	School_location	1877.171	1	1877.171	3.128	0.08	0.00	0.00
	Gender	1149.614	1	1149.614	1.916	0.17	0.00	0.00
	Location*Gender	89.693	1	89.693	0.149	0.70	0.00	0.00
	Error	7963919.175	13271	600.099				
	Total	49597971.68	13276					
	Corrected Total	8555904.228	13275					
5	Corrected Model	202115.350b	4	50528.84	106.347	< 0.001	0.04	
	Intercept	3722891.304	1	3722891	7835.502	< 0.001	0.45	
	SES	70497.233	1	70497.23	148.374	< 0.001	0.02	0.12
	School_location	26636.956	1	26636.96	56.062	< 0.001	0.01	0.08
	Gender	4495.96	1	4495.96	9.463	< 0.001	0.00	0.03
	Location*Gender	320.104	1	320.104	0.674	0.41	0.00	0.00
	Error	4640606.504	9767	475.131				
	Total	29509357.7	9772					
	Corrected Total	4842721.854	9771					
8	Corrected Model	664709.253c	4	166177.3	452.27	< 0.001	0.16	
	Intercept	2316746.343	1	2316746	6305.288	< 0.001	0.39	
	SES	251741.23	1	251741.2	685.142	< 0.001	0.07	0.27
	School_location	98069.101	1	98069.1	266.906	< 0.001	0.03	0.17
	Gender	10737.72	1	10737.72	29.224	< 0.001	0.00	0.05
	Location*Gender	2171.925	1	2171.925	5.911	0.02	0.00	0.03
	Error	3585006.071	9757	367.429				
	Total	21371649.47	9762					
	Corrected Total	4249715.325	9761					

a R Squared = .069 (Adjusted R Squared = .069)
b R Squared = .042 (Adjusted R Squared = .041)
c R Squared = .156 (Adjusted R Squared = .156)

Table 12: Mean score of the students from rural and urban school

School type	Location	Mean with Capital city			Mean without Capital city		
		Grade 3	Grade 5	Grade 8	Grade 3	Grade 5	Grade 8
Community schools	Rural	51	50	42	54	49	39
	Urban	60	54	38	53	55	37
Private schools	Rural	71	61	68	71	62	65
	Urban	72	72	64	71	70	62
Total	Rural	53	51	45	55	50	41
	Urban	68	66	55	65	65	48
Community	difference	9	4	4	1	6	2
Institutional	difference	1	11	4	0	8	4

Previous assessments in Nepal (EDSC, 2008; FBC & CHIRAG, 2008) have indicated diverse location-wise achievement although those measurements were not based on the type of school; the achievement difference between rural and urban was not more than two percentage points. Nevertheless, the analysis in FBC and CHIRAG (2008) showed that urban school students at grade 5 were at a higher level than students from the rural schools whereas the analysis in EDSC (2008) showed that students from the rural schools outperformed the students from the urban schools.

The wide gap between the community and private schools in grade 3 is a detrimental one from the equity viewpoint. It indicates an unequal pedagogical delivery system in two different locations in community schools. In the urban areas, community schools can compete with private schools; they seem to be able to introduce better strategies in pedagogical processes in comparison with both private schools in general and community schools in the rural areas. This can be inferred from the fact that results in these highly performing community schools are at the same level as where the institutional schools (with much higher SES) are (see Figure 3 above).

5. Conclusions and discussion

The main research question in the article was how SES and other diversities affected the inequalities in mathematics achievement in Nepal just before the COVID-19 pandemic. A more focused question was how the selected diversity factors (gender, geographical zone and region, location in urban or rural area, language, caste/ethnicity, and school type) did explain equalities and inequalities in relation to SES. The results may be used later as a baseline in assessing the effect of COVID-19 on educational equality in Nepal.

Seven outcomes of the analysis are worth highlighting. First, in each grade, even in the normal situation, *population disparity* in Nepal is obvious, that is, instead of one national, normally distributed population, there are at least two to three distinct populations with deviations outcomes in mathematics. This indicates that the educational system is not able to smoothen the wide differences in the student population caused by a wide variety of factors causing inequality in education. Underlying this basic disparity, we found several factors that explain the basic disparity. Some of these factors were studied in the article.

Second, an obvious matter affecting the discrepancy in the population in pre-COVID realm was the SES or—maybe more appropriate in Nepal—economic, social, and cultural status (ESCS). The performance gap in mathematics between the highest and lowest SES groups was notable: 29, 22, and 25 percentage points in grades 3, 5, and 8, respectively. Knowing that the standard deviation of mean score in different grades are 25, 23, and 21 percentage points, the students from the lowest SES group are around one standard deviation behind those who come from the highest SES group. This difference is remarkable. In grade 3, SES alone explained over 12 percent of the variation in the student dataset and 8–9 percent in the higher grades. Twelve percent is a notable explaining power in educational settings. Hence, it seems that the educational system is not able to smoothen the disparities caused by the low education or economic standard of the parents even in the pre-COVID realm. Instead, we can detect several possible disparities in Nepal: *Parents' education disparity*, *Parents' occupation disparity*, *Home possessions-and accessories disparity* and, as whole, *Socioeconomic status disparity* (see the rationales for these in Metsämuuronen, 2019).

Third, the wide gap between community and institutional schools in grade 3 is a malign one from the equality viewpoint. This indicates a strict *School type disparity* with unequal pedagogical systems within the country. Mainly, the difference between the community and private schools is caused by rigorous selection of the students in Nepal; because the highest performing students are actively selected from the community schools to the private schools, it is difficult to show that any specific pedagogical reason would explain the differences in achievement. We also see notable *School location disparity*: in urban areas, community schools could compete with private schools; they seem to be able to introduce better strategies in pedagogical processes than the private schools (see also the discussion in Metsämuuronen & Ilic, 2018 regarding English proficiency). This can be inferred from the fact that the results in these highly performing community schools at the same level as where the institutional schools are (with much higher SES) are.

Fourth, a positive result is that we cannot detect *Gender disparity* related to achievement in mathematics in Nepal in the pre-COVID realm. There are mild differences between boys and girls when it comes to the achievement in mathematics, but the effect is reduced to almost non-existent when we add SES to the models. Specifically, there is no difference between boys and girls in grade 3 and minor differences exist at the higher grades. This indicates a positive signal towards equity. Mathematics as boys' subject is not true in the Nepalese context; it may be interesting to see what the effect of COVID-19 on this phenomenon would be.

Fifth, there were real differences in the achievement between privileged castes (Brahmin/Chhetri) and low castes (Dalit) although the magnitude is mild (7–9 percentage points, depending on the grade) in comparison with the effect of SES. Hence, there still was *Ethnicity Parity* in Nepal although ANCOVA shows that SES is a more prominent factor in explaining the inequality in achievement than caste and gender. Hence, if we know the SES of the family, caste/ethnicity does not seem an important factor in explaining the differences in mathematics achievement; this is in line with Aaslands' and Haug's (2011) results based on a household survey. A positive signal is that the distribution of Dalit students at grade 3 shows equality in being evenly distributed in the lowest and highest quartile instead of being mainly located in the lowest quartile as seen in the higher grades.

Sixth, mixed results of the effect of home language indicate complexity in the phenomenon. It is difficult to claim categorically that some language groups perform systematically lower or higher than others. However, it is safe to say that mild *Home language disparity* exists when language is categorized into two distinct groups (Nepali and non-Nepali). The gap between Nepali and other language speakers was small in grade 8 (around 2 percentage point) and slightly higher in lower grades (around 4 percentage point). Like with gender and caste, SES explains inequalities in language more clearly than the language itself. Nevertheless, there seems to be language-wise differences in mathematics achievement that cannot be explained by gender or SES. Because language reflects cultural and ethnic background of the students, this indicates a mild *Cultural and Ethnic disparity* in education in Nepal in the pre-COVID realm.

Finally, seventh, the inequalities between the geographical zones are noticeable in all grades; we observe a clear *Geographical disparity* in Nepal in the pre-COVID realm. The main difference is seen between the Capital Valley zone in comparison with the other zones in grade 3 and 5. The widest difference was in grade 3: students from the Capital Valley outperformed the students from Terai by 22 percentage points, Hill by 21 percentage points and Mountain by 16 percentage points. The reason for the higher scores in the Capital Valley may be understandable: most of the intellectual and economical resources, that is, highly educated families with decent or high incomes, can be found in the Capital city in Nepal. Students of grade 8 differ from the other grades; those from the Terai outperformed students from other zones. From the equity perspective, the zonal differences reflect wide inequalities of learning opportunities in different ecological areas in Nepal in the pre-COVID realm.

All in all, even before the COVID-19 pandemic, there were wide differences between the students in all grades studied in the article. It is no wonder why the national distribution showed several populations; there *are* several populations that perform differently when it comes to achievement in mathematics. The fact that the economic, social, and cultural status varied widely between the families, alone, causes the deviance in achievement between different populations. Also, the intensity of the intellectual and economic resources to the Capital city creates a wide difference between the geographical areas in Nepal. The results are not totally new—those who work at the national level of student assessment in Nepal know the challenges. Anyhow, it is notable how much SES affects the gender issues, caste/ethnicity issues and language issues. We cannot change that without making unethical decisions. Two obvious questions in the post-COVID realm are, first, how the pandemic have affected the already existing disparities between the different groups in Nepal and, second, what could the individuals, teachers, schools, and governments do to smoothen these discrepancies and to prevent widening of the gap between the advantageous and disadvantageous groups.

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References

- Aasland, A. & Haug, M. (2011). Perceptions of Social Change in Nepal: Are Caste, Ethnicity, and Region of Relevance? *Journal of Asian and African Studies*, 46(2), 184–201. <https://doi.org/10.1177/0021909610389133>
- Acharya, D. R., Metsämuuronen, J. & Adhikari, H. (2013). Nepali Achievement in NASA 2011. In J. Metsämuuronen & B. R. Kafle (eds). *Where Are We Now? Student achievement in Mathematics, Nepali and Social Studies in 2011* (pp. 113–170). Ministry of Education, Kathmandu, Nepal.
- Acharya, S. P., Metsämuuronen, J. & Koirala, S. (2013). Mathematics Achievement in NASA 2011. In J. Metsämuuronen & B. R. Kafle (eds). *Where Are We Now? Student achievement in Mathematics, Nepali and Social Studies in 2011* (pp. 54–112). Ministry of Education, Kathmandu, Nepal.
- Acharya, S., Shakya, S., & Metsämuuronen, J. (2013). Diversity and Educational Equity in Nepal. In J. Metsämuuronen & B. R. Kafle, *Where are we now? Student achievement in Mathematics, Nepali and Social Studies in 2011* (pp. 228–258). Ministry of Education, Kathmandu, Nepal.
- Ahearn, C., Childs-Bowen, D., Coady, M., Dickson, K., Heintz, C., Hughes, K., et al. (2002). *The diversity kit: An introductory resource for social change in education*. Brown University.
- Ahmar, F., & Anwar, E. (2013). Socio Economic Status and its Relation to Academic Achievement of Higher Secondary School Students. *IOSR Journal of Humanities and Social Science*, 13(6), 13–20. <https://doi.org/10.9790/0837-1361320>
- Altonji, J.G., & Blank, R.M. (1999). Race and gender in the labor market. In O. Ashenfelder & D. Card, *Handbook of Labor Economics*, Vol 3 (pp. 3143–3359). Elsevier Science B.V.
- APA (2007). Saegert, S. C., Adler, N. E., Bullock, H. E., Cauce, A. M., Liu, W. M., & Wyche, K. F. (2007). *Report of the APA Task Force on socioeconomic status*. The American Psychological Association.
- Aristotle, *Nicomachean Ethics*, in *The complete works of Aristotle*, ed. Jonathan Barnes. Princeton University Press.
- Aristotle, *Politics*, in *The complete works of Aristotle*, ed. Jonathan Barnes. Princeton University Press.
- Arneson, R. J. (2014). Basic Equality: Neither Rejectable nor Acceptable. In U. Steinhoff (Ed.), *Do All Persons Have Equal Moral Worth? On 'Basic Equality' and Equal Respect and Concern*, Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198719502.003.0003>
- Banks, S. (2012). *Ethics and Values in Social Work*. Practical Social Work. 4th Edition. Palgrave MacMillan.
- Blau, F. D., Ferber, M. A., & Winkler, A. E. (2010). *The Economics of Women, Men, and Work*, 6th Edition. Prentice Hall.
- Bowden, M. P., & Doughney, J. (2010). Socio-economic status, cultural diversity and the aspirations of secondary students in the Western Suburbs of Melbourne, Australia. *Higher Education*, 59, 115. <https://doi.org/10.1007/s10734-009-9238-5>
- Bradley, R. H., & Corwyn, R. F. (2002). *Socioeconomic Status and Child Development*. University of Arkansas at Little Rock.
- CBS (2012). *Nepal in figures*. Central Bureau of Statistics, Government of Nepal.
- CBS (2013). *Nepal in figures*. Central Bureau of Statistics, Government of Nepal.
- CBS (2019). *Environment Statistics of Nepal 2019*. Central Bureau of Statistics, Government of Nepal.
- CEHRD (2020), *Flash I Report 2076 (2019-20)*. Centre for Education and Human Resource Development, Government of Nepal.
- CERID (1998). *Performance Level of Grade V Students*. CERID in Association with MOE/PEDP.
- Chmielewski, A. K. (2019). The Global Increase in the Socioeconomic Achievement Gap, 1964 to 2015. *American Sociological Review*, 84(3), 517–544. <https://doi.org/10.1177/0003122419847165>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. 2nd Edition. Erlbaum.
- Crawford C. & Cribb J. (2013). *Reading and maths skills at age 10 and earnings in later life: a brief analysis using the British Cohort Study*. Centre for Analysis of Youth Transitions (CAYT) Impact Study: REP03. Institute for Fiscal Studies & CAYT.
- Dawadi, S. Giri, R. & Simkhada, P. (2020). Impact of COVID-19 on the Education Sector in Nepal. Challenges and Coping Strategies. Sage Submissions. Preprint. <https://doi.org/10.31124/advance.12344336.v1>
- DoE (2013). *Flash I report 2070 (2013-14)*. Department of Education, Government of Nepal.
- EDSC (1999). *National Assessment of Grade 5 Students*. Educational and Developmental Service Centre.
- EDSC (2008). *National Assessment of Grade 8 Students*. Educational and Developmental Service Centre
- EQUIP2 (2012). *Examining the Role of International Achievement Tests in Education Policy Reform: National Education Reform and Student Learning in Five Countries: Policy Paper*. USAID/Educational Quality Improvement Program2.

- FBC & CHIRAG (2008). *A final report on national assessment of grade-V students*. Fulbright Consultancy & Cooperative Hands in restoration (CHIRAG). Government of Nepal. Ministry of Education and Sports. Department of Education.
- Field, S., Kuczera, M., & Pont, B. (2007). *No More Failures: Ten Steps To Equity In Education*. OCED Publishing.
- FINEEC (2021). Goman, J., Huusko, M., Isoaho, K., Lehikko, A., Metsämuuronen, J., Rumpu N., Seppälä, H., Venäläinen, S., & Åkerlund, C. (2021). Impacts of the exceptional teaching arrangements on the realisation of equality and equity at different levels of education. Part III of the evaluation project: Summary and recommendations of the national evaluation. [With English Abstract] Publications 8:2021. Finnish National Education Evaluation Centre. https://karvi.fi/wp-content/uploads/2021/04/KARVI_0821.pdf
- Gurung, H. (2005). *Social exclusion and Maoist insurgency*. Paper presented at National Dialogue Conference on ILO Convention 169 on Indigenous and Tribal Peoples, Kathmandu, 19–20, January 2005.
- James, J. (2013). The Surprising Impact of High School Math on Job Market Outcomes. *Economic Commentary*, 2013–14. Federal Reserve Bank of Cleveland. URL: <https://www.clevelandfed.org/newsroom-and-events/publications/economic-commentary/2013-economic-commentaries/ec-201314-the-surprising-impact-of-high-school-math-on-job-market-outcomes.aspx>.
- Koirala, B. N. & Acharya, S. (2005). Girls in science and technology education: A study on access, participation, and performance of girls in Nepal. UNESCO.
- Levin, H. (2010). *A Guiding Framework for Measuring Educational Equity*. INES Network for the Collection and the Adjudication of System-Level Descriptive Information on Educational Structures, Policies and Practices, EDU/EDPC/INES/NESLI(2010)6, March 2010.
- Mathema, K. B., & Bista, M. B. (2005). *Study on student performance in SLC*. Ministry of Education and Sports; Education Sector Advisory Team, Nepal.
- Metsämuuronen, J. (2010). Osaamisen ja asenteiden muuttuminen perusopetuksen ensimmäisten vuosien aikana. [Changes in Mathematical achievement and attitudes during the first years in compulsory education.] In E. K. Niemi & J. Metsämuuronen (Eds.), *Miten matematiikan taidot kehittyvät? Matematiikan oppimistulokset peruskoulun viidennen vuosiluokan jälkeen vuonna 2008*. [Learning Outcomes in Mathematics after the grade 5 in 2008.] Koulutuksen seurantaraportit 2010:2. Finnish National Agency for Education. [In Finnish].
- Metsämuuronen, J. (2013). Pitkittäisaineistoon liittyviä menetelmäratkaisuja [Methodological Solutions of the Longitudinal Dataset]. In J. Metsämuuronen (Ed.), *Perusopetuksen matematiikan oppimistulosten pitkittäisarviointi vuosina 2005–2012* (pp. 31–64). [Longitudinal analysis of the Mathematical Achievement in the Compulsory Education in 2005–2012.] Koulutuksen seurantaraportit 2013:4. Finnish National Agency for Education. [In Finnish, English Abstract].
- Metsämuuronen J (2017). *Oppia ikä kaikki. Matemaattinen osaaminen toisen asteen koulutuksen lopussa 2015*. [Learning all my days. Mathematics achievement at the end of the upper secondary education 2015.] Publications 1:2017. Finnish National Education Evaluation Centre. URL: https://karvi.fi/wp-content/uploads/2017/03/KARVI_0117-1.pdf [In Finnish, English Abstract]
- Metsämuuronen, J. (2019). Educational Assessment and Some Related Indicators of Educational Equality and Equity. In: *Education Quarterly Reviews*, 2(4), 770–788. <https://doi.org/10.31014/aior.1993.02.04.105>.
- Metsämuuronen J. & Acharya S. P. (2013). Methodological Solutions in NASA 2011. In J. Metsämuuronen & B. R. Kafle (Eds). *Where Are We Now? Student achievement in Mathematics, Nepali and Social Studies in 2011* (pp. 17–52). Ministry of Education, Kathmandu, Nepal.
- Metsämuuronen, J. & Ilic, J. (2018). Why some low resourced community schools in Nepal perform well in English. In D. Hayes, (Ed.) *English Language Teaching in Nepal: Research, Reflection and Practice*. Nepal: British Council. (pp.107–132). URL: https://www.researchgate.net/publication/323759197_Why_Some_Low_Resourced_Community_Schools_in_Nepal_perform_Well_in_English.
- Metsämuuronen, J. & Kafle, B. R. (Eds) (2013). *Where Are We Now? Student achievement in Mathematics, Nepali and Social Studies in 2011*. Ministry of Education, Kathmandu, Nepal.
- Metsämuuronen, M., & Metsämuuronen J. (2013) A Comparison of Nepalese and Finnish Teachers' Perceptions of Good Teaching. *Asian Journal of Humanities and Social Sciences (AJHSS)*. 1(2), August. <http://www.ajhss.org/pdfs-1/Comparison%20of%20Nepalese%20and%20Finnish....pdf>.
- Metsämuuronen, J. & Tuohilampi, L. (2014). Changes in Achievement in and Attitude toward Mathematics of the Finnish Children from Grade 0 to 9—A Longitudinal Study. *Journal of Educational and Developmental Psychology*, 4(2), 145–169. <https://doi.org/10.5539/jedp.v4n2p145>
- MoE (2015). *National Assessment of Student Achievement 2012 (Grade 3 and 5)*. Education Review Office. Ministry of Education, Nepal.
- MoEST (2018). *Education in Figures 2017 [At a Glance]*. Ministry of Education, Science & Technology, Nepal.
- MoEST (2020a). *COVID-19 Education cluster contingency plan, 2020*. Nepal Education Cluster. <https://www.doe.gov.np/assets/uploads/files/54ba4942574885a514869a72a6b456cd.df>. (Accessed 12.9.2021).

- MoEST (2020b). *Student Learning Facilitation Guide, 2077*.
[https://moe.gov.np/assets/uploads/files/%E0%A4%B5%E0%A4%BF%E0%A4%A6%E0%A5%8D%E0%A4%AF%E0%A4%BE%E0%A4%B0%E0%A5%8D%E0%A4%A5%E0%A5%80_%E0%A4%B8%E0%A4%BF%E0%A4%95%E0%A4%BE%E0%A4%87_%E0%A4%B8%E0%A4%B9%E0%A4%9C%E0%A5%80%E0%A4%95%E0%A4%B0%E0%A4%A3_%E0%A4%A8%E0%A4%BF%E0%A4%B0%E0%A5%8D%E0%A4%A6%E0%A5%87%E0%A4%B6%E0%A4%BF%E0%A4%95%E0%A4%BE_%E0%A5%A8%E0%A5%A6%E0%A5%AD%E0%A5%AD_\(3\).pdf](https://moe.gov.np/assets/uploads/files/%E0%A4%B5%E0%A4%BF%E0%A4%A6%E0%A5%8D%E0%A4%AF%E0%A4%BE%E0%A4%B0%E0%A5%8D%E0%A4%A5%E0%A5%80_%E0%A4%B8%E0%A4%BF%E0%A4%95%E0%A4%BE%E0%A4%87_%E0%A4%B8%E0%A4%B9%E0%A4%9C%E0%A5%80%E0%A4%95%E0%A4%B0%E0%A4%A3_%E0%A4%A8%E0%A4%BF%E0%A4%B0%E0%A5%8D%E0%A4%A6%E0%A5%87%E0%A4%B6%E0%A4%BF%E0%A4%95%E0%A4%BE_%E0%A5%A8%E0%A5%A6%E0%A5%AD%E0%A5%AD_(3).pdf). (Accessed 12.9.2021). [In Nepali]
- MoEST (2020c). *In the context of COVID-19. Framework of School Reopening 2020*.
<https://www.unicef.org/nepal/media/10871/file/Government%20of%20Nepal%20School%20Reopening%20Framework%20-%20English.pdf>. (Accessed 12.9.2021).
- NIRT (2017). *Nepal Education Sector Analysis*. National Institute for Research and Training (NIRT) & American Institute of Research (AIR). Kathmandu, Nepal.
<https://www.globalpartnership.org/sites/default/files/2019-05-nepal-education-sector-analysis.pdf> (Accessed 12.9.2021).
- OECD (2011). *Strong Performers and Successful Reformers in Education: Lessons from PISA for the United States*. OECD Publishing.
- OECD (2012). *Equity and Quality in Education: Supporting Disadvantaged Students and Schools*. OECD Publishing.
- OECD (2013). *PISA 2012 Results: Excellence Through Equity: Giving Every Student the Chance to Succeed (Volume II)*. PISA, OECD Publishing.
- OECD (2017). PISA 2015 Technical report. PISA, OECD Publishing. URL: <https://www.oecd.org/pisa/data/2015-technical-report/>
- OECD (2019). PISA 2018 Results. Combined Executive Summaries. Volume I, II & III. OECD Publishing. URL: https://www.oecd.org/pisa/Combined_Executive_Summaries_PISA_2018.pdf
- Nathan, C. M. J. (2014). What is Basic Equality? In U. Steinhoff (Ed.), *Do All Persons Have Equal Moral Worth? On 'Basic Equality' and Equal Respect and Concern*. Oxford University Press.
<http://dx.doi.org/10.1093/acprof:oso/9780198719502.003.0001>.
- Rawls, J. (1999). *Theory of Justice*. Revised Edition. Oxford: Clarendon Press; and Cambridge, Massachusetts: Harvard University Press. URL: <http://www.univpgri-palembang.ac.id/perpustakaan/American%20Phylosophy/John%20Rawls%20-%20A%20Theory%20of%20Justice~%20Revised%20Edition.pdf>
- Salmela-Aro, K. & Chmielewski, A. (2019). Socioeconomic Inequality and Student Outcomes in Finnish Schools. In L. Volante, S. V. Schnepf, J. Jerrim, & D. A. Klinger, (Eds.), *Socioeconomic Inequality and Student Outcomes, Education Policy & Social Inequality 4*. https://doi.org/10.1007/978-981-13-9863-6_91
- Shakya, S. (2014), *Ethnography of Learning Diversity in Grade Eight in Nepalese Schools* (Unpublished MPhil's thesis). Kathmandu University.
- Shakya, S., Metsämuuronen, J., & Upadhaya, S. P. (2013). Achievement in Social Studies in NASA 2011. In J. Metsämuuronen & B. R. Kafle (eds). *Where Are We Now? Student achievement in Mathematics, Nepali and Social Studies in 2011*. (pp. 171–226.) Ministry of Education, Kathmandu, Nepal. URL:
- Shrestha, S., Haque, S., Dawadi, S., & Giri, R. A. (2021). Preparations for and practices of online education during the Covid-19 pandemic: A study of Bangladesh and Nepal. *Education and information technologies*, 1–23. Advance online publication. <https://doi.org/10.1007/s10639-021-10659-0>
- Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, 75(3), 417–453. <https://doi.org/10.3102/00346543075003417>.
- Ukkola, A. & Metsämuuronen, J. (2019). *Alkumittaus. Matematiikan ja äidinkielen ja kirjallisuuden osaaminen ensimmäisen luokan alussa*. [First test. Achievement of mathematics and mother language at the beginning of the first grade] Publications 17:2019. Finnish National Education Evaluation Centre. https://karvi.fi/wp-content/uploads/2019/07/KARVI_1719.pdf. [In Finnish, English Abstract]
- Ukkola, A. & Metsämuuronen, J. (2021). *Matematiikan ja äidinkielen ja kirjallisuuden osaaminen kolmannen luokan alussa*. [Achievement of mathematics and mother language at the beginning of the third grade]. Publications 20:2021. Finnish National Education Evaluation Centre. https://karvi.fi/wp-content/uploads/2021/20/KARVI_2021.pdf. [In Finnish, English Abstract]
- Ukkola, A., Metsämuuronen, J. & Paananen, M. (2020). *Alkumittauksen syventäviä kysymyksiä* [Deepening questions of zero-level measurement]. Publications 10:2020. Finnish National Education Evaluation Centre. https://karvi.fi/wp-content/uploads/2020/08/KARVI_Alkumittaus.pdf. [In Finnish, English Abstract]
- UN (2020). *Policy Brief. Education during COVID-19 and beyond*. August 2020. United Nations. https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf
- UNESCO (2011). *Systematic Monitoring of Education for All. Training Modules for Asia-Pacific*. UNESCO Bangkok. Asia and Pacific Regional Bureau for Education. Thailand. Retrieved from

- <https://uis.unesco.org/sites/default/files/documents/systematic-monitoring-of-education-for-all-training-modules-for-asia-pacific-en.pdf> (accessed Dec 05, 2019).
- UNESCO (1994). *World Declaration on Education for All and Framework for Action to Meet Basic Learning Needs. Guidelines for implementing the World Declaration on Education for All*. Third Printing. Adopted by the World Conference on Education for All Meeting Basic Learning Needs Jomtien, Thailand, 5-9 March 1990. UNESCO for the Secretariat of the International Consultative Forum on Education for All. Paris. URL: <https://unesdoc.unesco.org/ark:/48223/pf0000127583>
- Verhelst, N.D., Glas, C.A.W., Verstralen, H.H.F.M. (1995). *One-Parameter Logistic Model OPLM*. Cito, Arnhem.
- WEF (2014). *The Global Gender Gap Report 2014*. The World Economic Forum.
- WEF (2018). *The Global Gender Gap Report 2018*. The World Economic Forum.
- Willingham, D. T. (2012). Ask the cognitive scientists: Why does family wealth affect the learning? *American Educator*, 33–39. URL: <https://www.aft.org/sites/default/files/periodicals/Willingham.pdf>



The Effect of Sex Education Program on the Attitudes of the Families of Adults with Intellectual Disabilities

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Abstract

It is extremely important to provide sex education to individuals with intellectual disabilities because they do not know where, when, and in which situations their sexual behavior is appropriate or not, and because they cannot control their sexuality. This study aimed to examine the effect of the Sex Education Program for Families of Adults with Intellectual Disabilities (ZACEP) on the knowledge level of families of adults with intellectual disabilities and their attitudes towards their children's sexual development and sex education. The research adopted a single group pre-test and post-test model, one of the experimental research models. The sample consisted of nine mothers. The effectiveness data of the study were collected through the Parental Sex Education Attitude Scale. SPSS packet program was used for data analysis. The pretest and posttest items were first analyzed with descriptive statistics, then frequency, percentage, and maximum-minimum values were calculated. The t-test analysis for dependent samples is required to compare the pretest and posttest scores of a single group. However, due to the number of participants (N=9), the Wilcoxon Signed Rank Test, which is the nonparametric equivalent of t-test, was used. Research findings showed that the ZACEP did not affect the mothers' attitudes towards the sexuality of adults with intellectual disabilities. Besides, the ZACEP did not affect parents' attitudes towards sexuality at item level.

Keywords: Sex Education, Intellectual Disability, Family Education, Family Education Program, Attitude

1. Introduction

Sexuality is a crucial component of being human. Sexuality and sex drives have always taken place in human life, but when compared to the past, sexual problems and sex education have started to gain more prominence today. In particular, education has come to the fore in solving sexual problems and gaining acceptable sexual behaviors (Mermer, 1993). Psychoanalysts have studied the libido or sexual energy as the energy of all life instincts that serve the purpose of growth, development, and creativity of the individual's life (Cheauswantavee, 2002). Sexuality is still taboo today and has become a problem of fear and denial for individuals with intellectual disabilities (Earle, 2001). Numerous myths have been put forward over the centuries. Individuals with

intellectual disabilities have been claimed to be asexual, sexually fond, unable to control their sexuality, dependent, and childlike (Swango-Wilson, 2008). Even today, many individuals cannot accept sexuality regardless of all people's physical and intellectual abilities, sexual feelings, needs, and desires. However, just like individuals without disabilities, people with intellectual disabilities also have the same feelings, needs, and desires. They also have the right to receive sexual health care and sex education on sexual issues (Leutar & Mihokovic, 2007). Like adolescents, individuals with intellectual disabilities also need physical contact and touch, and they become interested in love and relationships as they grow older (Kreinin, 2001). However, a great number of young adults with disabilities do not receive sex education at home or at school. In this case, the issue of receiving sex education gains importance.

Sex education starts from childhood and continues until adulthood. It is the process of learning the physical and sexual characteristics of both the same sex and the opposite sex and acquiring the behaviors necessary for the individual to control their sexual instincts. Sex education is vital for both emotional and social harmony (Akay, 1999). The aim of sexual education is not only to ensure that the child complies with some necessary social rules, but also to enable people to develop freely in love, to regulate their sexual powers as much as possible, and to benefit from them for the happiness of themselves and others (Yurdakul, 1999).

Regarding sexual knowledge and experiences, there are some differences between children with normal development and those with intellectual disabilities. Children with normal development can share their sexual knowledge and experiences with their families, peers, and teachers, and they are socialized. The situation is different for individuals with intellectual disabilities. Therefore, sex education should be given with a professional approach in accordance with the mental development level of the individual. For individuals with intellectual disabilities to grow up mentally healthy, the more important it is to acquire sexually appropriate gender identities, the more important it is for family members to know and practice them (Murphy & Elies, 2006). Gordon (1973) acknowledges that all people have sexual needs, whether they are mentally retarded or not. The sexual needs of individuals begin in childhood and continue until later ages. Children with intellectual disabilities are generally believed to have more sexual interests and more sexually explicit behaviors than their peers. However, these children are perceived as such because they do not know where, when and in which situations sexually explicit behaviors are appropriate or not, in other words, they cannot control their sexuality (Artan, 2003). Therefore, sex education can enable individuals with intellectual disabilities to control their sexuality.

Considering the sex education of children and young adults with intellectual disabilities, the developmental levels should be considered (not their age), when examining their sexual development. This indicates that many situations that seem like problems to parents and educators are not actually problems (Çakmak, 2011). Physical intimacy formed within the framework of social relations with individuals with intellectual disabilities becomes a problem in their sexual development. Instructional staff should maintain their relationships in a friendly atmosphere according to the age and mental development of the child, but they should make maximum efforts not to exceed the socio-cultural boundaries. Statements must be concrete and clear in a way that does not cause misunderstandings and interpretations while giving sex education to individuals with intellectual disabilities who are at an educable level. What is meant to be told should be expressed briefly and clearly, and abstract, implicit or suggestive words should be avoided (Artan, 2003; Boyacıoğlu, Karaçam, & Özcan, 2018). Families are the first teachers of their children in their sex education, as in many other areas, but many families are afraid of talking about sexuality with their children, regardless of their disabilities. When talking about sexual experiences, families often fear that they do not have enough knowledge to answer questions appropriately and that their children know too much or too little about sexuality. They do not know when to start the conversation, they find themselves inadequate in discussions, and some families think that time is a problem in matters related to their children's sexuality (Krenin, 2001). The process of acquiring information about sexual matters of individuals with intellectual disabilities includes more complex processes than individuals with normal development. It is often not possible for them to obtain accurate and necessary information from their friends or books. Therefore, individuals with intellectual disabilities need sex education with the guidance of their parents and teachers (Kempton, 1975; Akdemir & Sarı, 2019; Tutar- Güven & İşler, 2015). This study is significant as it was conducted with families of adult individuals with intellectual disabilities to examine

- their perspectives on sexuality,
- their approaches to the sexuality and sexual education of adults with intellectual disabilities
- their sexual knowledge adequacy, and from whom and how they obtained this information,
- whether they consider the sexual education program necessary or not.

Besides, this study is important in terms of informing about the content of a sex education program to be organized, the method to be applied, and the tools and equipment to be used. This study aimed to examine the effect of the Sex Education Program for Families of Adults with Intellectual Disabilities (ZACEP) on the knowledge and attitudes of parents of adults with intellectual disabilities towards their children's sexual development and education. Thus, with this study, it was aimed to contribute to the knowledge level of families of adults with intellectual disabilities and their attitudes towards their children's sexual development and sex education. To achieve these goals, the following research question were prepared:

1. Does the ZACEP increase parental attitudes towards the sexuality of individuals with intellectual disabilities?

2. Method

2.1 Research Design

The research was designed with a single group pretest-posttest model, one of the experimental research models. The "Parental Sex Education Attitude Scale" was applied to the participants before and after the implementation. The independent variable of the research was the ZACEP developed by the researcher. The dependent variable was the examination of parents' knowledge levels and parental attitudes towards the sexuality of individuals with intellectual disabilities. However, during the implementation, no data on the families' knowledge level were collected due to the reasons stated earlier; only data on their attitudes towards sexuality were collected.

2.2 Participants

The study was conducted with nine participants. They were the mothers of adults with intellectual disabilities working in the İbrahim Ethem Kesikbaş Handicapped Assembly Workshop of Eskişehir Tepebaşı Municipality. Table 1 presents the characteristics of the participants.

Table 1: Demographic Characteristics of Participants

Mother's Age	Child's Age	Number of children	Social security	Level of education	Mother's Job	Father's Job	Average Monthly Income
42	21	2	SGK	Primary school	Housewife	Retired	1750 TL
55	31	2	SGK	Primary school	Housewife	Retired	1000 TL
56	25	3	SGK	Primary school	Housewife	Worker	850 TL
42	20	2	SGK	Primary school	Housewife	Worker	850 TL
46	21	2	SGK	Secondary school	Housewife	Officer	1900 TL
66	33	2	SGK	Secondary school	Housewife	Retired	2000 TL
66	34	2	SGK	Primary school	Housewife	Retired	1000 TL
68	35	5	Yok	Primary school	Housewife	Worker	900 TL
59	33	5	SGK	Primary school	Housewife	Teacher	1640 TL

2.3 Data Collection

For research effectiveness data, two tools were considered: the “Parental Sex Education Attitude Scale” (Appendix-1) and the “Information Gathering Test on Adult Sexuality for Families” (Appendix 2) developed by the researcher. However, due to the aforementioned reasons, only the Parental Sex Education Attitude Scale was applied to the participants before and after the implementation. Scales were filled in by mothers. Research effectiveness data were collected at the beginning of the first session and the end of the last session.

2.3.1 Determining the Requirement

Along with the description of subjects, give the mended size of the sample and number of individuals meant to be in each condition if separate conditions were used. State whether the achieved sample differed in known ways from the target population. Conclusions and interpretations should not go beyond what the sample would warrant.

2.3.2 Measures and Covariates

A needs analysis was conducted to create the content of the ZACEP presented to the parents. To determine the needs of the parents, the Family Needs Determination Tool (AGBA) form was applied to the participants. The AGBA used in this study is the updated version of the AGBA scale, which was adapted into Turkish by Bülbin Sucuoğlu (2005) within the scope of the project named “e-FISEP (Family Information and Support Education Program: The Effectiveness of Online Information and Support Services in the Education of Parents of Children with Intellectual Disabilities)” supported by Tubitak and Anadolu University in 2012-2013.

2.3.3 Analyzing and Prioritizing the Requirement

After collecting the scales filled in by the participants, the requirement was determined in the light of the most marked items on the scales and the common themes derived from the answers given to the question asked at the end of the scale: “If there are any other than the ones mentioned above, list the five most basic needs of your family in order of importance.” The subject of sex education, which is not included in the items in the AGBA scale, but is one of the most frequently written (4 times) answers given to open-ended questions, was determined as a requirement.

2.3.4 Introducing the Program

The ZACEP is a family education program that aims to (i) support families of adults with intellectual disabilities for the development of their children in the areas of sexual development, (ii) inform families of adults with intellectual disabilities about the issues they need to pay attention to during the sexual education process and to help them cope with the problems they encounter in this process, and (iii) inform families of adults with intellectual disabilities about sexual abuse and neglect and to assist their children in matters related to safety skills.

Main Aim

The main goal of the program is to increase the knowledge and attitudes levels of families of adults with intellectual disabilities towards the sexual development and sexual education of their children.

Sub-Aims

Parents can explain the development of their children regarding sexual development.

Parents can explain how masturbation education should be given and what should be considered during the sex education process.

Parents will explain the concept of child neglect and sexual abuse as well as the precautions to be taken. The parents will explain safety skills and how safety skills should be taught.

Content

- Part I: Sexuality and Sexual Development in Adulthood
 - What Does the Word Sexuality Mean?
 - Development Periods
 - Our Special Children in Adulthood
 - Duties of Families
 - Family-Child Communication and Problematic Behaviors
- Part II: Sex Education
 - What is Sex Education?
 - Role of Family in Sex Education
 - Masturbation Education
 - Things to Consider
 - What are the Benefits of Sex Education?
 - What do families do?
 - Solutions
- Part III: Child Neglect and Sexual Abuse
 - Child Neglect
 - Sexual Abuse
 - Difference Between Both Term
 - Types of Sexual Abuse
 - Good Touch - Bad Touch
 - Ways to Protect Children from Sexual Abuse
 - What should be done when a child is sexually abused?
 - Authorities to Apply in Case of Sexual Abuse
- Part IV: Teaching Security Skills
 - What is Security Skill?
 - Importance of Security Skills
 - Grouping of Security Skills
 - What are Kidnapping Attempts?
 - Reactions to Kidnapping Attempts
 - Social Story

Learning-Teaching Processes

The ZACEP can be considered as a family education program aimed at educating parents as parents. Regarding the goals and sub-goals determined for the ZACEP, the research was conducted in three stages. These are the preparation, implementation, and conclusion stages of the written and visual materials to be used for presenting the content of the program. The steps for each phase and the materials used in these steps were explained below.

Preparation Phase

First, the environment and participants were determined. Eskişehir Tepebaşı Municipality İbrahim Ethem Kesikbaş Assembly Workshop was set as a venue. Participants were nine mothers (of adults with intellectual disabilities) working in this workshop and continuing the MİMEP project carried out in cooperation with İŞKUR and Anadolu University. After determining the participants, to get to know the mothers, families were asked to fill in the “Family Recognition Form.” Besides, written consent was obtained from the families for the research through the “Parental Consent Form.” To develop the content of the program, family needs were identified. In this context, the AGBA was sent to the families and filled in. Before the implementation of the program, pretest

and posttest materials were prepared. The “Parental Sex Education Attitude Scale,” which was used as a pretest-posttest, and the “Information Gathering Test on Adult Sexuality for Families” were applied to the families. A poster was prepared by the researcher using the Adobe Photoshop program in order to inform the families about the place, date, and content of the program. A “certificate of attendance” was prepared by the researcher using the Adobe Photoshop program to give to families at the end of the program. Content and materials were prepared in accordance with the requirements. A fixed camera on a tripod to record all sessions, a screen and projector to reflect the presentations, and a laptop were pre-arranged to ensure that the environment is ready.

Creating Content

First, the needs of the families were determined. Then, the content was created under four different headings based on the needs and in accordance with the developmental characteristics of the participants. Reviewing the literature, the content was briefly explained in a PowerPoint presentation. The titles of the parts were as follows:

Part I: Sexuality and Sexual Development in Adulthood

The first part included sexuality, developmental periods, the characteristics of these periods and issues that may be encountered, the duties and responsibilities of families during developmental periods, problem behaviors, and family reactions.

Part II: Sex Education

The second part consisted of the definition of sex education, the importance of the family in this process and the issues that the family should consider, the benefits of sex education, the importance of masturbation education and how it should be taught, and the mistakes that families make.

Part III: Child Neglect and Sexual Abuse

This part involved detailed information about child neglect and sexual abuse, types of sexual abuse and its characteristics, ways to protect children from sexual abuse, what to do in case of sexual abuse and authorities to apply in this process.

Part IV: Teaching Security Skills

The fourth part introduced the importance and grouping of security skills, necessary security skills at home and in the community, abduction attempts and appropriate responses to these attempts, and the methods used in teaching security skills.

Implementation Process

Before the implementation, the AGBA and Family Identification Form were sent to the families, and the stage of determining the requirements and demographic characteristics of the participants was completed. A pre-test (the Parental Sex Education Attitude Scale) was administered. The content developed based on the requirements was presented to the families in four sessions. At the beginning of each session, presentation outputs related to the sessions were distributed to the families. The content of each session was introduced through a PowerPoint presentation. With the group meetings organized, families who experienced similar situations were brought together and families were allowed to chat and share during the breaks between the sessions.

Sessions

Session 1

After sending the invitations of the ZACEP family education program to the families, the first meeting took place on the predetermined date and place. Before the program, a consent form was sent to the families stating that all four sessions would be video-recorded and would not be shared with anyone, and written permission was obtained. Just before the session, verbal consent was taken from the families again. Practitioner families had to arrange the environment before the meeting and check the necessary materials for the presentation. After the families entered the hall, people greeted each other, then the practitioner introduced herself. Before the

presentation, the practitioner handed out pre-tests to families and informed them about how to fill out the pre-tests as well as the importance of these tests. Families were asked to be sincere when filling out the tests. Before filling out the tests, they were asked to take a quick look and whether they had any questions about the tests. After collecting the tests, the slide was projected on the wall with a short introductory sentence and the presentation began. Presentation printouts were distributed to families. Then, brief information was given about what the ZACEP program was, its purpose, how many sessions it would take, what they needed to do during the program, and what would happen at the end of the program. For the first session of ZACEP, a presentation on "Sexuality and Sexual Development in Adulthood" was projected on the wall. During the presentation, questions and answers were held with those who wanted to take the floor, and it was ensured that the family actively participated in the session so that they did not get bored during the presentation. The presentation was followed by a discussion section to answer the questions (if any) of the families. After the discussion section, the session came to an end, and refreshments were served. The families were thanked for their participation and reminded of the date, time, and content of the next session.

Session 2

Practitioner families organized the environment before the meeting. After the families greeted each other, the practitioner gave brief information about the second session, and a friendly conversation was made. Then, the presentation on "Sex Education" was projected on the wall. During the presentation, questions and answers were held with those who wanted to take the floor, and it was ensured that the family actively participated in the session so that they did not get bored during the presentation. The presentation was followed by a discussion section to answer the questions (if any) of the families. After the discussion section, the session came to an end, and refreshments were served. Presentation printouts were distributed to families. The families were thanked for their participation and reminded of the date, time, and content of the next session.

Session 3

Practitioner families organized the environment before the meeting. After the families greeted each other, the practitioner gave brief information about the third session, and a friendly conversation was made. Then, the presentation on "Child Neglect and Sexual Abuse" was projected on the wall. During the presentation, questions and answers were held with those who wanted to take the floor, and it was ensured that the family actively participated in the session so that they did not get bored during the presentation. The presentation was followed by a discussion section to answer the questions (if any) of the families. After the discussion section, the session came to an end, and refreshments were served. Presentation printouts were distributed to families. The families were thanked for their participation and reminded of the date, time, and content of the next session.

Session 4

Practitioner families organized the environment before the meeting. After the families greeted each other, the practitioner gave brief information about the fourth session, and a friendly conversation was made. Then, the presentation on "Teaching Security Skills" was projected on the wall. During the presentation, questions and answers were held with those who wanted to take the floor, and it was ensured that the family actively participated in the session so that they did not get bored during the presentation. The presentation was followed by a discussion section to answer the questions (if any) of the families. The questions of families were answered. After the discussion section, the presentation printouts were distributed to families. The practitioner handed out the post-tests and informed them about how to complete the post-tests and the importance of these tests. Families were requested to be sincere when filling out the tests. Before filling out the tests, they were asked to take a quick look and whether they have any questions about the tests. After collecting the tests, the families were thanked for their participation. Finally, the session came to an end, and refreshments were served.

Final Phase

Post-tests were applied at the end of the last session to measure the effectiveness of the implementation. To announce that the family education was successfully completed, a short meeting, independent of the sessions, was held. Participants were thanked and given their certificates of participation. A souvenir photo was taken with each participant, and this process was also video recorded. In the video recording, families were asked to briefly

express their opinions and suggestions about the program. At the end of the interviews, brief information was given about the use of the materials distributed and the contact information.

Evaluation

The effectiveness of the program was evaluated through the Parental Sex Education Attitude Scale applied before and after the implementation.

2.4. Data Analysis

The SPSS packet program was used to analyze the research data. The pretest and posttest items were first analyzed with descriptive statistics, then frequency, percentage, and maximum-minimum values were calculated. The t-test analysis for dependent samples is required to compare the pretest and posttest scores of a single group. However, due to the number of participants (N=9), the Wilcoxon Signed Rank Test, which is the nonparametric equivalent of T-test, was used. The Wilcoxon Signed Rank Test is used to compare the results of two different tests in which a group is evaluated at the ordinal measurement level. These two tests can be pretest and posttest given to the same people. The difference between Wilcoxon and t-test is that Wilcoxon compares the ranks of individuals instead of means (Akbulut, 2010). The Parental Sex Education Attitude Scale developed by Sari (2005) consists of 14 items. It is a 5-point Likert scale, from (strongly agree) 5 to 1 (strongly disagree). The lowest score that can be obtained from the scale is 14, and the highest score is 70.

3. Results

This part examined whether there were any changes in attitudes levels of families of adults with intellectual disabilities towards the sexual development and sex education of their children because of the ZACEP.

Table 2: Descriptive Statistics of the Parental Sex Education Attitude Scale (Pre-test)

Descriptive Statistics					
	N	Average	Standard Deviation	Minimum	Maksimum
Ö1	9	3,6667	1,65831	1,00	5,00
Ö2	9	2,5556	,88192	2,00	4,00
Ö3	9	3,4444	1,42400	1,00	5,00
Ö4	9	3,0000	1,65831	1,00	5,00
Ö5	9	2,1111	1,16667	1,00	4,00
Ö6	9	2,2222	,66667	1,00	3,00
Ö7	9	2,3333	1,73205	1,00	5,00
Ö8	9	4,4444	,52705	4,00	5,00
Ö9	9	2,7778	1,09291	1,00	5,00
Ö10	9	2,5556	1,74005	1,00	5,00
Ö11	9	3,5556	1,42400	1,00	5,00
Ö12	9	3,5556	1,74005	1,00	5,00
Ö13	9	4,2222	1,09291	2,00	5,00
Ö14	9	4,3333	,86603	3,00	5,00

Ö1: Pretest item number 1 N: The number of participants

As seen in Table 2, the lowest score given to item 1 was 1, and the highest score was 5. The mean of item 1 was 3.66, and the standard deviation was 1.65. Similarly, the descriptive statistics of other items can be found in Table 2.

Table 3: Descriptive Statistics of the Parental Sex Education Attitude Scale (Post-test)

Descriptive Statistics					
	N	Minimum	Maksimum	Average	Standard Deviation
s1	9	4,00	5,00	4,5556	,52705
s2	9	1,00	2,00	1,2222	,44096
s3	9	1,00	5,00	4,2222	1,30171

s4	9	2,00	5,00	4,1111	1,26930
s5	9	1,00	4,00	1,6667	1,00000
s6	9	4,00	5,00	4,6667	,50000
s7	9	1,00	5,00	2,7778	2,10819
s8	9	1,00	5,00	3,4444	1,87824
s9	9	1,00	5,00	2,7778	1,71594
s10	9	1,00	2,00	1,3333	,50000
s11	9	2,00	5,00	4,2222	1,09291
s12	9	2,00	5,00	4,4444	1,01379
s13	9	1,00	5,00	4,3333	1,32288
s14	9	1,00	5,00	4,3333	1,32288
Valid (listwise)	N 9				

According to Table 3, the lowest score given to item 1 was 4, and the highest score was 5. The mean of item 1 was 4.55, and the standard deviation was 0.53. Similarly, the descriptive statistics of other items can be found in Table 3.

Table 4: Comparison of Pretest-Posttest Total Scores of the Parental Sex Education Attitude Scale

Descriptive Statistics					
	N	Average	Standard Deviation	Minimum	Maksimum
Pretest	9	44,6667	4,94975	38,00	50,00
Posttest	9	48,1111	6,37268	37,00	54,00

Table 4 indicates that the average of the pretest scores of the participants was 44.66, while the average of the posttest scores increased to 48.11. While the lowest score from the pretest was 38, the highest score was 50. The lowest score obtained from the posttest was 37, and the highest score was 54.

Table 5: Comparison of the Ranks of Pretest-Posttest Results of the Parental Sex Education Attitude Scale

Wilcoxon Signed Rank Test				
		N	Average Rank	Sum of Ranks
Posttest – Pretest	Negative Rank	2 ^a	1,50	3,00
	Positive Rank	5 ^b	5,00	25,00
	Tied	2 ^c		
	Total	9		

a. Posttest < Pretest

b. Posttest > Pretest

c. Posttest = Pretest

The “Wilcoxon Signed Ranks Test” table displays the summary of score ranks. As seen in Table 5, the number of rows in which the posttest was lower than the pretest was 2 (negative rows), and the number of rows where the posttest was higher than the pretest is 5 (positive rows). The number of connected rows was 2.

Test Statistics^a	
	Posttest- Pretest
Z	-1,869 ^b
Asymp. Sig. (2-tailed)	,062

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks

Positive and negative ranks, the Z value of mean rank, and significance level are given in the “Test Statistics.” The Z value found was -1.869, and the significance level ($p > .001$) was above .001. In other words, no significant difference was found between the pre-test and post-test. The total score of the Parental Sex Education Attitude Scale reported that the ZACEP did not affect on the attitudes of the participants towards the sexuality of adults with intellectual disabilities.

Table 6: Comparison of the Pretest-Posttest Data for Each Item in the Parental Sex Education Attitude Scale

		Wilcoxon Signed Ranks Test		
		N	Mean Rank	Sum of Ranks
s1 - ö1	Negative Rank	1 ^a	2,00	2,00
	Positive Rank	4 ^b	3,25	13,00
	Tied	4 ^c		
	Total	9		
s2 - ö2	Negative Rank	9 ^d	5,00	45,00
	Positive Rank	0 ^e	,00	,00
	Tied	0 ^f		
	Total	9		
s3 - ö3	Negative Rank	0 ^g	,00	,00
	Positive Rank	5 ^h	3,00	15,00
	Tied	4 ⁱ		
	Total	9		
s4 - ö4	Negative Rank	0 ^j	,00	,00
	Positive Rank	5 ^k	3,00	15,00
	Tied	4 ^l		
	Total	9		
s5 - ö5	Negative Rank	3 ^m	2,50	7,50
	Positive Rank	1 ⁿ	2,50	2,50
	Tied	5 ^o		
	Total	9		
s6 - ö6	Negative Rank	0 ^p	,00	,00
	Positive Rank	9 ^q	5,00	45,00
	Tied	0 ^r		
	Total	9		
s7 - ö7	Negative Rank	3 ^s	3,83	11,50
	Positive Rank	4 ^t	4,13	16,50
	Tied	2 ^u		
	Total	9		
s8 - ö8	Negative Rank	4 ^v	6,00	24,00
	Positive Rank	4 ^w	3,00	12,00
	Tied	1 ^x		
	Total	9		
s9 - ö9	Negative Rank	3 ^y	4,33	13,00
	Positive Rank	4 ^z	3,75	15,00
	Tied	2 ^{aa}		
	Total	9		
s10 - ö10	Negative Rank	4 ^{ab}	2,50	10,00
	Positive Rank	0 ^{ac}	,00	,00
	Tied	5 ^{ad}		
	Total	9		
s11 - ö11	Negative Rank	1 ^{ae}	1,50	1,50
	Positive Rank	3 ^{af}	2,83	8,50
	Tied	5 ^{ag}		
	Total	9		

s12 - ö12	Negative Rank	0 ^{ah}	,00	,00
	Positive Rank	3 ^{ai}	2,00	6,00
	Tied	6 ^{aj}		
	Total	9		
s13 - ö13	Negative Rank	1 ^{ak}	1,00	1,00
	Positive Rank	1 ^{al}	2,00	2,00
	Tied	7 ^{am}		
	Total	9		
s14 - ö14	Negative Rank	1 ^{an}	4,00	4,00
	Positive Rank	3 ^{ao}	2,00	6,00
	Tied	5 ^{ap}		
	Total	9		

Considering item 1, for example, Table 6 compared the pre-test and post-test at the item level in terms of the attitude towards sex education. For example, for item 1, the number of rows in which the post-test scores were lower than the pre-test scores was 1, whereas the number of rows with post-test scores higher than the pre-test scores was 4, and the number of connected rows was 4. The other items can be interpreted similarly. Also, the posttest scores of all participants in the 1st, 3rd, 4th, 7th, 9th, 11th, 12th, and 14th items are higher than the pretest scores.

Test Statistics

	s1 - ö1	s2 - ö2	s3 - ö3	s4 - ö4	s5 - ö5	s6 - ö6	s7 - ö7
Z	-1,511 ^b	-2,807 ^c	-2,070 ^b	-2,041 ^b	-,921 ^c	-2,699 ^b	-,439 ^b
Asymp. Sig. (2-tailed)	,131	,005	,038	,041	,357	,007	,660
	s8 - ö8	s9 - ö9	s10 - ö10	s11 - ö11	s12 - ö12	s13 - ö13	
Z	-,866 ^b	-,172 ^c	-1,841 ^b	-1,289 ^b	-1,604 ^c	-,447 ^b	
Asymp. Sig. (2-tailed)	,386	,863	,066	,197	,109	,655	
				s14 - ö14			
Z				-,368 ^b			
Asymp. Sig. (2-tailed)				,713			

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks

c. The sum of negative ranks equals the sum of positive ranks

Asymp. Sig.: Significance level

“Test Statistics” of Table 6 show the Z value for each item as well as their significance level. The significance level of all items was found to be above .001 ($p > .001$). In other words, no significant difference was observed between the pre-test and post-test scores. Therefore, the ZACEP had no effect on parents' attitudes towards sexuality.

4. Discussion

This study, which examined whether there were any changes in attitudes levels of families of adults with intellectual disabilities towards the sexual development and sex education of their children because of the ZACEP, shares similar and opposite findings with the literature.

The research findings showed that the ZACEP did not affect the attitudes of adults with intellectual disabilities towards their sexuality. Çelik (2017) concluded that families did not prioritize the sexual education of their children with intellectual disabilities and were not interested in researching and learning the subject. Similarly, in this study, families did not attach importance to the sessions. This result may be because the sessions were carried out in a very short time and the participants attended another family education program on the same day. According to the research findings, the ZACEP had no effect on the attitudes of adults with intellectual disabilities towards their sexuality at the item level. Due to the families' low education level, the items might not be fully understood. It is thought that the families' negative attitudes towards the subject of sexuality might also affect the results of the research. Similarly, Sayın (2007) acknowledged that families might have negative attitudes towards sexuality by exhibiting behaviors such as ignoring or suppressing.

The present study reported families' positive attitudes towards the ZACEP. This inference could be observed in the conversations with the families after each session and the video recording of the families' thoughts on the program after the last session. The most important aspect of this study is that it brought together families who experienced similar processes and enabled them to relax, support each other and share various emotional experiences. Studies advocate that children with intellectual disabilities and their families face social pressure and exclusion problems (Brown & McCann, 2017; Perlin & Lynch, 2016; Dekker et al., 2014; Pownall et al., 2011). Çelik (2018) complained that families could not reach experts when they needed help and information. In this context, the study will serve to overcome the distant relations between the families of adults with special needs and the experts working in the field. Both the implementation process and the literature review underline the necessity of further research on the subject.

The study has various limitations.

- This research is limited to nine mothers.
- As the research was carried out in a short time, social validity data were not collected.
- Some of the participants were found to be illiterate and have a very low education level. Besides, since they participated in two different family education programs on the same day, the application of four data collection tools (two scales, two knowledge tests) was not suitable for the developmental level of the participants and took too much time; thus, the knowledge tests were not used. Therefore, mothers were only administered the "Parental Sex Education Attitude Scale," whose validity and reliability were tested for the ZACEP.
- In this case, we could not collect data on whether the ZACEP, which was developed as one of the research purposes, increased the knowledge level of mothers about the sexuality of individuals with intellectual disabilities.

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References

- Akay, H. G. (1999). Çocuk gelişimi. İstanbul: Esin Yayınevi.
- Akbulut, Y. (2010). Sosyal bilimlerde SPSS uygulamaları. İstanbul: İdeal Kültür Yayıncılık.
- Akdemir, B., & Sarı, O. T. (2019). Zihinsel Yetersizliği Olan Bireylerle Çalışan Öğretmenlerin Cinsel Eğitime Yönelik Tutumları ve Etik Durumlarının Karşılaştırılması. Eğitimde Kuram ve Uygulama, 15(3), 267-282.
- Artan, İ. (2003). Engelli çocuk ve gençlerin cinsel eğitimi. Bilim ve Aklın Aydınlığında Eğitim Dergisi, 39.

- Boyacıoğlu, N. E., Karaçam, Z. D., & Özcan, N. K. (2018). Engellere rağmen cinsellik: zihinsel yetersizliğe sahip çocuklarda cinsellik. *Sağlık Bilimleri ve Meslekleri Dergisi*, 5(2), 275-280.
- Brown, M., & McCann, E. (2017). Mediated pathways, negotiated identities: a critical phenomenological analysis of the experience of sexuality in the context of intellectual disability. *Journal of Research in Nursing*, 22(8), 615-617.
- Cheausuwantavee, T. (2002). Sexual problems and attitudes toward the sexuality of persons with and without disabilities in Thailand. *Sexuality and disability*, 20(2), 125-134.
- Çelik, Ö. (2018). *International Periodical for the Languages, Literature and History of Turkish or Turkic* Volume 12/18, p. 211-234 DOI Number: <http://dx.doi.org/10.7827/TurkishStudies.12106>.
- Çakmak, S. (2011). *Özel Eğitime İhtiyaç Duyan Çocuklarda Cinsel Eğitim Uygulamaları*. Ankara: Vize Yayıncılık.
- Dekker, A., Safi, M., Echteld, M. A., & Evenhuis, H. M. (2014). Sexuality and contraception in young people with mild intellectual disability; a qualitative study on the basis of 28 interviews. *Nederlands Tijdschrift Voor Geneeskunde*, 158, A8010-A8010.
- Earle, S. (2001). Disability, facilitated sex and the role of the nurse. *Journal of advanced nursing*, 36(3), 433-440.
- Gordon, S. (1973). *The sexual adolescent: Communicating with teenagers about sex*. Brooks/Cole.
- Kempton, W., 1975, *Sex Education for Persons with Disabilities that Hinder Learning: A teacher's guide*. Planned Parenthood of South-eastern Pennsylvania, Philadelphia.
- Kreinin, T. (2001). Sexuality education for the disabled is priority at home and school. *Siecus Report*, 29(3), 4.
- Leutar, Z., & Mihoković, M. (2007). Level of knowledge about sexuality of people with mental disabilities. *Sexuality and Disability*, 25(3), 93-109.
- Mermer, G. (1993). *Zihin Engelli Ergenlerin Cinsel Eğitim Gereksinimleri Hakkında Anne, Baba ve Eğitimci Görüşlerinin Değerlendirilmesi*. Yüksek Lisans Tezi, Eskişehir, s: 11-19.
- Murphy, N. A., & Elias, E. R. (2006). Sexuality of children and adolescents with developmental disabilities. *Pediatrics*, 118(1), 398-403.
- Perlin, M. L. & Lynch, A. J. (2016). *Sexuality, disability and the law*. New York: Palgrave MacMillian.
- Pownall, J. D., Jahoda, A., Hastings, R., & Kerr, L. (2011). Sexual understanding and development of young people with intellectual disabilities: Mothers' perspectives of within-family context. *American journal on intellectual and developmental disabilities*, 116(3), 205-219.
- Sayın, U. (2007). *Zihinsel engelli çocuğa sahip ebeveynler ile normal gelişim gösteren çocuğa sahip ebeveynlerin 7-15 yaş arası çocuklarının toplumsal cinsiyet rollerine yaklaşım ve görüşlerinin incelenmesi* (Yayınlanmamış yüksek lisans tezi). Hacettepe Üniversitesi, Ankara.
- Swango-Wilson, A. (2008). Caregiver perception of sexual behaviors of individuals with intellectual disabilities. *Sexuality and Disability*, 26(2), 75-81.
- Tutar Güven, Ş., & İşler, A. (2015). Zihinsel yetersizliği olan çocuklarda cinsel eğitim ve önemi. *Psikiyatri Hemşireliği Dergisi*, 6(3), 143-148.
- Yurdakul, A. (1999). Engelli ergenler ve cinsel eğitim. *İlkışık Dergisi*, 1, 1-4.



The Effect of Learning Methods and Cognitive Style on Student Learning Achievement

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Abstract

The purpose of this study was to examine: The effect of discussion and recitation methods on learning achievement, the effect of independent and dependent cognitive styles on learning achievement, the interaction between learning methods and cognitive style on learning achievement, whether learning achievement by using the discussion method with independent cognitive style was higher than the recitation learning method, whether learning achievement using the discussion method with a dependent cognitive style was higher than the recitation method. This research used quantitative research methods, the type of research was quasi-experimental factorial 2x2 with a population of 173 students and the sample was 61 students. The data collection technique used was a test of cognitive style and learning achievement. The analysis technique used two way ANOVA test and t-test. The results of hypothesis testing concluded: There was an influence of discussion learning methods and recitation learning methods on learning achievement, there was an influence of cognitive style on learning achievement, there was an interaction between learning methods and cognitive styles on student learning achievement, learning achievement using the discussion method of students who had independent cognitive style was higher than the dependent, learning achievement using the recitation method of students who had an independent cognitive style was not higher than the independent.

Keywords: Learning method, Cognitive Style, Learning Achievement

1. Introduction

The problems that exist in Islamic Religious Universities (PTAI) both public and private, especially IAIN Bengkulu, especially in the Tarbiyah and Tadris Faculty of Islamic Religious Education (PAI) study programs are still the low quality of learning, this causes students to be less fully involved in learning, students are not motivated to develop thinking skills, learning does not give meaning to students and the low learning achievement achieved. Effective learning prioritizes student involvement in learning so that they receive, process and store information more optimally and make learning more meaningful.

The research methodology course is a compulsory subject for students in every faculty and study program at IAIN Bengkulu, which is a provision for students to compile scientific works (thesis) in completing studies. In fact, this course does not provide students with provisions and abilities, this is because students in lectures are not maximally active (come, sit, silent), so that students' ability to understand lecture material is not maximally achieved, students think this course is not so important, low learning motivation, students lack confidence, besides that students' thinking skills in receiving, managing, and storing information are not managed properly this will have an impact on the achievements achieved by students. Learning achievement is a measure of the success of a learning process, student achievement reflects the level of mastery and ability of the material being taught. In addition to student problems, learning cannot be separated from the role of lecturers who carry out learning. The role of the lecturer or teacher is a facilitator or moderator. Its job is to stimulate, help students to want to learn on their own and formulate their knowledge. The lecturer also evaluates whether the student's ideas are in accordance with the ideas of the experts or not. While the task of students is to actively learn and digest, learning management is also very important so that the learning process runs effectively and efficiently in achieving learning objectives such as lesson planning, material mastery, accuracy in using media, strategies, models, learning methods and evaluation techniques.

From the existing problems to provide good competence for students and provide meaningful learning as well as increase student motivation and learning achievement, learning methods are needed that are relevant to the conditions, characteristics, and thinking styles of students of Islamic Religious Education (PAI) Faculty of Tarbiyah and Tadris at IAIN Bengkulu. The learning methods that are expected to overcome these problems are the discussion learning method and the recitation learning method. The discussion method is a teaching method that is closely related to learning to solve problems. The application of the discussion method aims to provide motivation and provide a stimulus to students so that students (reflective thinking). While the recitation method is basically a method in which the lecturer gives assignments so that students carry out learning activities with responsibility and discipline, in doing learning assignments can be done in the classroom or outside the classroom.

In the learning process, there are many factors that affect student performance, including the abilities of the individual. However, not all individuals have the ability to understand the same subject matter, because each student has a different way of understanding the subject matter taught by the lecturer. The difference in the way students obtains, process and process the information they get is called cognitive style. Based on the existing problems, the writer feels the need to conduct research on learning methods and cognitive styles on student achievement. This research is expected to provide an overview for lecturers in developing learning at Islamic Higher Education, especially IAIN Bengkulu, Faculty of Tarbiyah and Tadris, Islamic Religious Education (PAI) study program. The aims of this study were to: 1) examine the effect of the discussion learning method and the recitation method on learning achievement in research methodology courses, 2) examine the effect of independent and dependent cognitive styles on learning achievement in research methodology courses, 3) examine the interaction between learning methods and styles. cognitive on learning achievement of research methodology courses, 4) Testing learning achievement of research methodology courses of students who learn to use discussion learning methods that have a higher dependent cognitive style than those who have independent cognitive styles, 5) Testing of learning achievement of research methodology courses of students who learn to use the recitation learning method that has a higher independent cognitive style than those who have a dependent cognitive style.

2. Method

The research method used is experimental research with a 2×2 factorial research design. The data collection technique used is a test, which consists of a cognitive style test instrument and a learning achievement test instrument. Hypothesis 1, 2, and 3 were tested, using two-way ANOVA analysis (Two Way ANOVA), hypotheses 4 and 5 using t-test (t-test). Prior to the f-test, a prerequisite test for data analysis was carried out in the form of a homogeneity test and a normality test. The subjects of this study were students who took the research methodology course of the Islamic Religious Education (PAI) study program which consisted of 6 (six) classes with a population of 173 students. The population was given a cognitive style test (to determine the

dependent or independent cognitive style), and homogeneity test through an independent sample t test (to measure the same or equivalent ability). A class is said to be homogeneous if the significance value is > 0.05 and a class is said to have a difference if the significance value is < 0.05 . Based on the calculation results, two (2) classes have the same or equivalent abilities, namely: class A and class C, with a significance value of $0.282 > 0.05$ (homogeneity test) and $0.046 < 0.05$ (t-test). The class that was used as the research sample was class A (31 students) and class C (30 students) with a total sample of 61 students. To determine the discussion class and recitation class by means of an intact group by drawing the two classes, the results of the draw were obtained for class A (discussion method) and class B (recitation method).

3. Results and Discussion

After carrying out various tests required of the data obtained from the field, the next step is to test the hypothesis. The hypothesis test conducted is the influence of the independent variable on the dependent variable. The method of the influence of independent variables on the dependent variable was analyzed based on an understanding of theoretical concepts. The results of the calculation of the hypothesis test if the significance value is 0.05 , then H_0 is declared rejected and H_a is declared accepted. The results of hypothesis testing 1, 2, 3, and 4, obtained a significant value < 0.05 . From this statement, H_0 is declared rejected and H_a is declared accepted. While in hypothesis 5 the results of the calculation of the hypothesis test obtained a significant value of $0.228 > 0.05$ then H_a is rejected and H_0 is accepted.

The results of this study were concluded: (1) There are differences in learning achievement between students who study the discussion learning method and the recitation learning method, (2) There are differences in learning achievement between students who have dependent and independent cognitive styles in research methodology courses, (3) There is an interaction between learning methods and cognitive styles on learning achievement in research methodology courses, (4) learning achievement in research methodology subjects for students who learn to use discussion learning methods with independent cognitive styles is higher than the dependent cognitive style, (5) learning achievement in methodological subjects research on students who learn to use the recitation learning method with dependent cognitive style there is no difference with independent cognitive style.

4. Conclusion

The results of research and data analysis that have been carried out at the Islamic Religious Education Study Program (PAI) Faculty of Tarbiyah and Tadris concluded: (1) There is an influence of learning methods on learning achievement of research methodology, (2) There is an influence of dependent and independent cognitive style on learning achievement methodology research, (3) There is an interaction between learning methods and cognitive style on learning achievement of research methodology, (4) Learning achievement of research methodology students who learn to use discussion learning methods that have an independent cognitive style is higher than dependent, (5) Methodological learning achievement research on students who learn to use the recitation learning method that has a dependent cognitive style is not higher than the independent cognitive style.

References

- Abdul, M. 2013. Strategi Pembelajaran. Bandung: Pt Remaja Rosdakarya.
- Ahmad, W. 1984. Pengantar Interaksi Belajar Mengajar. Bandung: Tarisa.
- Ahmadi, A. dan J.T. Prasetya. 2005. Strategi Belajar Mengajar (SBM). Bandung: Pustaka Setia.
- Alma, B. 2010. Guru Profesional Menguasai Metode dan Terampil Mengajar. Bandung: CV. Alfabeta.
- Andayani, N. P. S. Santyasa, I. W. dan Parwati, N. N. 2017. Pengaruh Model Pembelajaran Realistik Setting Kooperatif Dan Gaya Kognitif Terhadap Prestasi Belajar Matematika Siswa Kelas IX SMP Negeri 1 Bebandem. Jurnal Teknologi Pembelajaran Indonesia. 7 (3): 1—10.
- Anitah, S. 2014. Strategi Pembelajaran di SD. Tangerang Selatan: Universitas Terbuka.

- Artanayasa, I. W dan Giri, M. K. W. 2019. Learning Models and Authentic Assessment on Football Skill Learning Achievement. *International Journal of Physical Sciences and Engineering*. 3 (1): 22—31.
- Arifin, Z. 1990. *Evaluasi Instruksional*. Bandung: PT. Remaja Rosdakarya.
- Arifin, Z. 2009. *Evaluasi Pembelajaran*. Jakarta: Dirjen Pendidikan Islam, Depag RI.
- Arifin, S., A. Rahman, dan Asdar. 2015. Profil Pemecahan Masalah Matematika Siswa Ditinjau dari Gaya Kognitif dan Efikasi Diri pada Siswa Kelas VIII Unggulan SMPN 1 Watampone. *Jurnal Daya Matematis*. 3(1): 20-29.
- Arikunto, S. 1999. *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.
- Arikunto, S. 2011. *Dasar-Dasar Evaluasi Pendidikan (Edisi Revisi)*. Jakarta: Bumi Aksara.
- Arikunto, S. 2013. *Dasar-dasar Evaluasi Pendidikan edisi 2*. Jakarta: Bumi.
- Arikunto, S. 2016. *Dasar-dasar Evaluasi Pendidikan (Edisi Revisi)*. Jakarta: Bumi Aksara.
- Armai, A. 2002. *Pengantar dan Metodologi Pendidikan Islam*. Jakarta: Ciputat Perss.
- Asmuri. 2014. *Metodologi Pembelajaran PAI perspektif kontekstual*. Pekanbaru: Mutiara Pesisir Sumatera.
- Aziz, A. 2003. *Menyusun Rancangan Penelitian Kualitatif Dalam Analisis Data Penelitian Kualitatif*. Jakarta: Raja Grafindo Persada.
- Bagiyono. 2017. Analisis Tingkat Kesukaran dan Daya Pembeda Butir Soal Ujian Pelatihan Radiografi Tingkat 1. *Jurnal Widyanuklida*, Vol. 16 No. 1, Hal : 1 – 12, November 2017 tersedia Online Di http://repon-nkm.batan.go.id/140/1/05_analisis_tingkat_kesukaran.pdf.
- Borich, G. D. dan Tombari, M. L. 1995. *Educational Psychology: A Contemporary Approach*. New York: Harper Collins College Publishers.
- Brame, R. dan Wickens, C. D. 2000. *Time-sharing Revisited: Test of a Componential Model for Assesment of Individual Differences*.
- Brown, E., et al. 2006. *Reappraising Cognitive Style in Adaptive Web Applications*. www2006.org/programme/files/pdf/1043.pdf.
- Burden, P. R., dan Byrd, D. M. 2010. *Methods for effective teaching: Meeting the needs of all students (5th ed.)*. Pearson Education.
- Candiasa, I. M. 2002. Pengaruh Strategi Pembelajaran dan Gaya Kognitif terhadap Kemampuan Memogram Komputer Eksperimen pada Mahasiswa IKIP Singaraja. *Jurnal Teknologi Pendidikan Universitas Negeri Jakarta* 4 (3): 1- 36.
- Danim, S. dan Darwis. 2003. *Metode Penelitian : Prosedur, Kebijakan, dan Etik*. Jakarta : Penerbit Buku EGC.
- Darmadi. 2017. *Pengembangan Model dan Metode Pembelajaran dalam Dinamika Belajar Siswa*. Yogyakarta: Deepublish.
- Depdiknas .2003. *Undang-undang RI No.20 tahun 2003.tentang Sistem Pendidikan Nasional*.
- Desmita. 2009. *Psikologi Perkembangan Peserta Didik*. Bandung: PT Remaja Rosdakarya.
- Desmita. 2012. *Psikologi Perkembangan Peserta Didik*. Bandung: Remaja Rosda Karya.
- Desmita. 2014. *Psikologi Perkembangan Peserta Didik*. Bandung: PT Remaja Rosdakarya.
- Djamarah dan Bahri S. 2002. *Strategi Belajar Mengajar*. Jakarta: PT Rineka Cipta.
- Djamarah, S. B. 2006. *Strategi Belajar Mengajar*. Jakarta : PT Renika Cipta.
- Djamarah, S. B. dan Zain, A. 2006. *Stretategi Belajar Mengajar*. Jakarta: Renika Cipta.
- Djemari, M. 2008. *Teknik Penyusunan Instrumen Tes dan Non-tes*. Yogyakarta: Mitra Cendikia Press.
- Dimiyati dan Mudjiono. 2006. *Belajar dan Pembelajaran*. Jakarta: Rineka Cipta, cet. 3.
- Elizabert. 2014. *Collaborative Learning Techniques (teknik-teknik Pembelajaran Koraboratif)*. Bandung: Nusa Media.
- Fathurrahman, M. dan Sulistyorini. 2012. *Belajar dan Pembelajaran*. Yogyakarta: Teras.
- Fathurrohman, P. dan Sutikno, M. S. 2007. *Strategi Belajar Mengajar melalui Penanaman Konsep Umum dan Islami*. Bandung: Rafika Aditama.
- Fathurrohman, P. dan Sutikno, M. S. 2010. *Strategi Belajar Mengajar Melalui Penanaman Konsep Umum dan Konsep Islam*. Bandung: Refika Aditama.
- Ghozali, I. 2008. *Desain Penelitian Eksperimen Teori, Konsep dan Analisis Data dengan SPSS 16.0*. Semarang: Badan Penerbit Universitas Diponegoro.
- Gintings, A. 2008. *Esensi Praktis Belajar dan Pembelajaran*. Bandung: Humaniora.
- Hadi, S. 1998. *Prosedur Penelitian Pendekatan Praktek*. Jakarta: Rineka Cipta.
- Hamalik, O. 2009. *Psikologi Belajar Dan Mengajar*. Bandung: Sinar Baru Algensindo.
- Hamdayama, J. 2015. *Model dan Metode Pembelajaran Kreatif dan Berkarakter*. Bogor: Ghalia Indonesia, Bogor.
- Hansena, J. 1995. Student Cognitive Styles In Postsecondary Technology Programs. *Journal Of Technology Education*. 6(2): 19-33.
- Hassan, A. 2002. Students' Cognitive Style And Mathematics Word Problem Solving. *Journal Of The Korea Society Of Mathematical Education Series. Journal Research In Mathematical Education*. 6(2): 171–182.
- Hair, Jr et al. (2010). *Multivariate Data Analysis (7th ed)*. United States : Pearson.

- Hmelo-Silver, C. E. 2004. Problem-Based Learning: What and How Do Students Learn? *Educational Psychology Review*, 16 (3), 235-265.
- Ibrahim, M.K. 1985. *Kamus Bahasa Inggris*. Surabaya: Usaha Nasional.
- Ibrahim, M. 2000. *Pembelajaran Kooperatif*. Surabaya: Universitas Surabaya.
- Ibrahim, R. 2003. *Perencanaan Pengajaran*. Jakarta: Rineka Cipta.
- Ibrahim, R. dan Syaodih, N. 2003. *Perencanaan Pengajaran*. Jakarta: Rineka Cipta.
- Inah, E. N. 2014. Pengaruh Metode Ceramah Plus Dan Resitasi Terhadap Prestasi Belajar Statistik Pendidikan Mahasiswa Tarbiyah Stain Kendari. *Jurnal Al-Izzah*. 9 (1): 103—122.
- Indayati, R. 2008. *Psikologi Pendidikan*. Tulungagung: Center For Studying and Milieu Development(CESMID).
- Katiran. 2017. Pengaruh Penerapan Metode Diskusi Dan Penggunaan Media Pembelajaran Terhadap Prestasi Belajar Mata Pelajaran Ips Pada Siswa Sdn Pudak Wetan Kecamatan Pudak Kabupaten Ponorogo. *Jurnal Jppi*. 11 (1): 12—25.
- Kozhevnikov, M. 2007. Cognitive Styles in the Context of Modern Psychology: Toward an Integrated Framework of Cognitive Style. *Psychological Bulletin*. Volume 133 No. 3. Hal 464-481.
- Kuntjojo. 2009. *Metode Penelitian*. Kediri: Universitas Nusantara.
- Lahinda, Y., dan Jailani. 2015. Analisis Proses Pemecahan Masalah Matematika Siswa Sekolah Menengah Pertama. *Jurnal Riset Pendidikan Matematika*, 105 2(1),148—161.
- Lestari, I. A. P. S. 2018. Penerapan Metode Pembelajaran Diskusi Dan Resitasi Dalam Meningkatkan Hasil Belajar Pendidikan Agama Hindu Siswa Kelas IV SD Negeri 2 Tumbu Karangasem. *Jurnal Penjaminan Mutu Lembaga Penjaminan Mutu Institut Hindu Dharma Negeri Denpasar*. 4 (1): 58—66.
- Lin, C.H. dan Shivers, G. V. D. 1996. Effects of Linking Structure and Cognitive Style on Students' Performance and Attitude in A Computer-Based Hypertext Environment. *Journal Educational Computing Research*, Baywood Publishing Company.
- Majid, A. 2013. *Strategi Pembelajaran*. Bandung: Remaja Rosdakarya.
- Madiya, I. W. 2012. Pengaruh Model Pembelajaran Berbasis Masalah Terhadap Prestasi Belajar Kimia dan Konsep Diri Siswa SMA Ditinjau dari Gaya Kognitif. *Jurnal Pendidikan dan Pembelajaran*. 1 (1): 1—16.
- Makmur, A. J. 2011. *Tujuh Tips Aplikasi Paikem*. Jogjakarta: Diva press.
- Marlissa, I. Dan Widjajanti, D. B. 2015. Pengaruh Strategi React Ditinjau Dari Gaya Kognitif Terhadap Kemampuan Pemecahan Masalah, Prestasi Belajar Dan Apresiasi Siswa Terhadap Matematika. *Jurnal Riset Pendidikan Matematika*. 2 (2): 186—196.
- Mroska, H. P. 1988. Field-Dependent and Field-Independent Learning Teaching Style. *Contributed Papers on Improving University Teaching, Fourteenth International Conference*. Umea, Sweden.
- Mufarokah, A. 2009. *Strategi Belajar Mengajar*. Yogyakarta: Teras.
- Mulyasa. 2013. *Pengembangan dan Implementasi Kurikulum 2013*. Bandung: PT Remaja Rosdakarya Offset.
- Munjin, A. N. dan Kholidah, L.N. 2013. *Metode dan Teknik Pembelajaran Pendidikan Agama Islam*. Bandung: PT Refika Aditama.
- Nasution, S. 2000. *Berbagai Pendekatan Dalam Proses Belajar Mengajar*. Jakarta: Bumi Aksara.
- Nasution, S. 2008. *Berbagai Pendekatan dalam Proses Belajar dan Mengajar*. Cetakan kedua belas. Jakarta: Bumi Aksara.
- Ngalimun. 2018. *Evaluasi dan Penilaian Pembelajaran*. Yogyakarta: Parama Ilmu
- Ngilawajan, D. A. 2013. Proses Berpikir Siswa SMA Dalam Memecahkan Masalah Matematika Materi Turunan Ditinjau Dari Gaya Kognitif Field Independent Dan Field Dependent. *Jurnal Ilmu Pendidikan*. 2(1): 71-83.
- Nurmiyati dan Hasan, P. A. 2019. Pengaruh Penggunaan Metode Resitasi Terhadap Hasil Belajar Mahasiswa Pada Mata Kuliah Biologi Umum. *J-Hest: Journal Of Health, Education, Economics, Science, And Technology*. 2 (1): 52—57.
- Prasetyo, A. A. 2005. *Strategi Belajar Mengajar*. Bandung: Pustaka Setia.
- Purwanto, N. 2010. *Prinsip-Prinsip dan Teknik Evaluasi Pengajaran*. Bandung: PT. Remaja Rosdakarya.
- Ramayulis. 2010. *Metodologi Pengajaran Agama Islam*. Jakarta: Kalam mulia.
- Ratumanan, T. G. 2003. Pengaruh Model Pembelajaran dan Gaya Kognitif terhadap Hasil Belajar Matematika Siswa SLTP di Kota Ambon. *Jurnal Pendidikan Dasar*, Vol. 5(1), 1-10.
- Riding, R.J., Glass, A., dan Douglas, G. 1993. Individual Differences in Thinking: Cognitive and Neurophysiological Perspectives, *Special Issue: Thinking, Educational Psychology*, 13 (3 and 4), 267-279.
- Roestiyah. 1991. *Strategi Belajar Mengajar*. Jakarta: Bina Aksara.
- Roestiyah N.K, *Strategi Belajar Mengajar* (Jakarta: Rineka Cipta, 2001), hal. 132-133.
- Roestiyah, N.K. 2008. *Strategi Belajar Mengajar*. Jakarta: Rineka Cipta.
- Rofiq, Z. 2009. Pengaruh Strategi Pembelajaran dan Gaya Kognitif Terhadap Hasil Belajar Membaca Gambar Teknik Mesin. *Disertasi*. Jakarta: Universitas Negeri Jakarta.
- Rostampour dan Niroomand. 2014. Field Dependence/Independence Cognitive Styles: Are They Significant At Different Levels Of Vocabulary Knowledge?. *International Journal Of Education & Literacy Studies*. 2(1): 52-57.

- Sabri, A. 2005. Strategi Belajar Mengajar. Padang : Quantum Teaching.
- Sagala, S. 2009. Konsep dan Makna Pembelajaran. Bandung: CV. Alfa Beta.
- Salameh, E. M. 2011. A Study Of Al Balqa" Applied University Students Cognitive Style. *International Education Studies*. 4(3): 189-193.
- Samana, A. 1992. Sistem Pengajaran. Jakarta; Kanisius.
- Sanjaya, W. 2006. Strategi Pembelajaran. Jakarta: Kencana Prenada Media Group.
- Sanjaya, W. 2014. Strategi Pembelajaran, Jakarta: Kencana Prenada Media Group.
- Santrock, J. W. 2014. Psikologi Pendidikan. Jakarta: Salemba Humanika.
- Saputri, D. 2018. Pengaruh Gaya Kognitif Dan Motivasi Belajar Terhadap Prestasi Belajar Matematika Siswa. *Alfarisi: Jurnal Pendidikan MIPA*. 1 (2): 165—171.
- Seifert, K., dan Sutton, R. 2009. *Educational Psychology*. Retrieved from <http://www.saylor.org/site/wpcontent/uploads/2012/06/EducationalPsychology.pdf>.
- Slameto. 2003. Belajar dan Faktor-Faktor yang Mempengaruhinya. Jakarta. PT. Rineka Cipta.
- Slameto. 2010. Belajar Dan Faktor-Faktor Yang Mempengaruhinya. Jakarta: PT. Rineka Cipta.
- Shi, C. 2011. A Study Of The Relationship Between Cognitive Styles And Learning Strategies. *Higher Education Studies*. 1(1): 20-26.
- Srivastava, P. 1997. Cognitive Style in Educational Perspectives. Anmol Publications.
- Sri, A. W. dkk. 2012. Strategi Pembelajaran di SD. Tangerang Selatan: Universitas Terbuka.
- Sternberg, R. J., dan Williams, W. M. 2002. *Educational Psychology*. Boston: Allyn-Bacon.
- Sudjana, N. 2010. Cara Belajar Siswa Aktif dalam Proses Belajar Mengajar. Bandung: Sinar Baru Algensindo.
- Suherman, E. Dkk. 2001. Strategi Pembelajaran Kontemporer. Bandung: JICA Universitas Pendidikan Indonesia.
- Sugiyono., 2007. Metodologi Penelitian Pendidikan. Bandung: Alfabeta.
- Sugiyono. 2009. Metode penelitian kuantitatif, kualitatif, R&D. Bandung: Alfabeta.
- Sugiyono. 2013. Metode penelitian pendidikan pendekatan kuantitatif, kualitatif, R&D. Bandung: Alfabeta.
- Sudijono, A. 2009. Pengantar Evaluasi Pendidikan. Jakarta: Rajawali Pers.
- Sudjana. N. 2017. Penilaian proses hasil belajar. Bandung: Remaja Rosdakarya.
- Sudjana, N. 2005. Dasar-dasar Proses Belajar Mengajar. Bandung. Sinar Baru Algensindo.
- Sumaatmadja, N. 1984. Metodologi Pengajaran Ilmu Pengetahuan Sosial (IPS). Bandung: Alumni.
- Sundayana. 2015. Statistika Penelitian Pendidikan. Bandung : Alfabeta.
- Supriyoko dan Prihatni, Y. 2019. Pengembangan Metode Pembelajaran Resitasi Dan Metode Pembelajaran Infocus Untuk Meningkatkan Hasil Belajar Mahasiswa. *Jurnal Kebijakan Dan Pengembangan Pendidikan (JKPP)*. 1 (1): 62-65.
- Suprihatiningrum, J. 2013. Strategi Pembelajaran. Yogyakarta: Ar Ruzz Media.
- Suparta, Munzier dan Aly, H. N. 2003. Metodologi Pengajaran Agama Islam. Jakarta: Amisco.
- Suryanti. N. 2014. Pengaruh Gaya Kognitif Terhadap Hasil Belajar Akuntansi Keuangan Menengah 1. *Jurnal Ilmiah Akuntansi Dan Humanikah*. 4 (1): 1393—1406.
- Suryobroto, B. 1986. Mengenal Metode Pengajaran di Sekolah dan Pendekatan Baru dalam Proses Belajar Mengajar. Yogyakarta: Amarta Buku.
- Syah, M. 1995. Psikologi Pendidikan. Bandung: PT. Remaja Rosda Karya.
- Syah, M. 2000. Psikologi Pendidikan Dengan Pendekatan Baru. Bandung: Remaja Rosdakarya.
- Syarifuddin, A. (2011). Penerapan Model Pembelajaran Cooperative Belajar dan Faktor-Faktor yang Mempengaruhinya. *Journal Of Islamic Education*, 16 (1): 113-136.
- Tanjung, S. 2015. Pengaruh Media Pembelajaran Dan Gaya Kognitif Terhadap Hasil Belajar Sejarah. *Jurnal Paramita*. 25 (2): 261—271.
- Tirtonegoro, S. 2001. Anak Super Normal Dan Program Pendidikannya. Jakarta: Bina Aksara.
- Trianto. 2011. Model-model Pembelajaran Inovatif Berorientasi Konstruktivistik. Jakarta: Prestasi Pustaka Publisher.
- Uno, .H. B. 2006. Orientasi Baru dalam Psikologi Pembelajaran. Jakarta: PT Bumi Aksara.
- Uno, H. B. 2010. Perencanaan Pembelajaran. Jakarta: Bumi Aksara.
- Uno, H. B. dan Nurdin 2011. Belajar dengan Pendekatan PAILKEM. Jakarta: PT Bumi Aksara.
- Usman, M. B. 2002. Metodologi Pembelajaran Agama Islam. Jakarta: Ciputat Pers.
- Usodo, B. 2011. Profil intuisi mahasiswa dalam memecahkan masalah matematika ditinjau dari gaya kognitif field dependent dan field independent. *Prosiding Seminar Nasional Matematika dan Pendidikan Matematika UNS*. pp. 95-102.
- Vendiagrys, L., I. Junaedi, Dan Masrukan. 2015. Analisis Kemampuan Pemecahan Masalah Matematika Soal Setipe TIMSS Berdasarkan Gaya Kognitif Siswa Pada Pembelajaran Model Problem Based Learning. *Unnes Journal Of Mathematics Education Research*, 4(1): 34-41.

- Wibowo, D. A. 2014. The Application Of Recitation And Discussion Method To Improve Sophomore Students Achievement In Nursing Program At Galuh University. *Jurnal Pendidikan Dan Kebudayaan*. 20 (3): 328—339.
- Widoyoko, S. E. P. 2014. *Penilaian Hasil Pembelajaran Di Sekolah*. Yogyakarta: Pustaka Pelajar.
- Winarno. 2013. *Pembelajaran Pendidikan Kewarganegaraan Isi, Strategi, dan Penelitian*. Jakarta: Bumi Aksara.
- Winkel, W. S. 1996. *Psikologi Pengajaran*. Jakarta: Grasindo.
- Witkin. 1973. *The Role Of Cognitive Style In Academic Performance And In Teacher-Student Relations*. Research Bulletin. New Jersey: Educational Testing Service.
- Witkin, H.A., Oltman, P.K., Karp, S. A. 1971. *A manual for the embedded figure test*. California: Consulting Psychologists Press.
- Witkin, H.A., et al. 1977. *Field Dependent and Field-Independent Cognitive Styles and Their Educational Implications*. *Review of Educational Research*. 47 (1): 1-64.
- Yasa, A., Made, I., Sadra, I. W. Dan Gede Suweken. 2013. *Pengaruh Pendidikan Matematika Realistik Dan Gaya Kognitif Terhadap Prestasi Belajar Matematika Siswa*. *E-Journal Program Pascasarjana Universitas Pendidikan Ganesha*. 2 (1): 1—11.
- Yonny, A. dan Rahayu, S. 2011. *Begini Cara Menjadi Guru Inspiratif dan Disenangi Siswa*. Yogyakarta: Pustaka Widyatama.
- Zuhairini, dkk. 1993. *Metodik Khusus Pendidikan Agama*. Surabaya: Usaha Nasional



The Relationship Between the Digital Game Addiction Levels of Secondary and High School Students and Their Motivation for Participation in Physical Activity During the Pandemic Process

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Abstract

This study aims to determine the relationship between the digital game addiction levels of secondary and high school students and their motivation for participation in physical activity during the pandemic process. The study participants include a total of 322 students, 227 males, and 95 females, aged between 11 and 18. The game addiction scale for adolescents and the motivation scale for participation in physical activity were used as data collection tools in the study. In the statistical method of the study, descriptive statistics (frequency, arithmetic mean, standard deviation), t-test, one-way analysis of variance (ANOVA), Tukey multiple comparisons, and Pearson correlation tests were used. In the research findings, it has been determined that there is a negative and low-level significant relationship between the individual reasons and causelessness sub-dimensions of the motivation scale for participation in physical activity and digital game addiction. There was a significant difference in the game addiction scale and sub-dimensions of the motivation for participation in physical activity according to the duration of digital gaming of the students and their education levels. A significant difference was determined in the motivation scale for participation in physical activity according to the branch variable, and in the scale of game addiction according to the situation of the parents' setting limits on the duration of digital gaming. A significant difference was not found in either scale according to gender. As a result, it was observed that the more the motivation for participation in physical activity, the lower the digital game addiction.

Keywords: Digital Game Addiction, Physical Activity, Pandemic

1. Introduction

The game has been an important phenomenon in human life from infancy to old age for centuries. The game, which is a part of the life of humanity along with the flow of life, has shown differences over the centuries.

When we evaluate it today, it can emerge in many different ways. Especially with the development of technology, the change in the number and variety of games that appear on digital platforms is seen in people's lives.

Digital games, which attract great attention especially among children and young people, generally have users from all age groups, however, with the increase in the duration of playing games, the time allocated for digital games has increased even more, and addiction has begun to be mentioned (Lau et al, 2018). Video games have now become a normal part of daily life for all individuals, and they offer entertainment and social opportunities for adolescents (Anderson et al., 2010). Since mobile phones are like small computers, their use in the digital sense rather than communication, especially by young people, causes an increase in addiction (Morahan & Schumacher, 2000).

Addiction is expressed as a person's loss of control over an object they use or an application they make, and the inability to live a life without it (Kodaman & Dinç, 2016) whereas digital addiction is defined as the fact that users interact with today's digital devices a lot, focus their attention on these devices and technology as a priority and at an alarming level, and this negatively affects their well-being (Vaghela, 2016). With the advancement of technology, many complex situations arise. Internet addiction, mobile phone addiction, social media addiction, addiction to digital games negatively affect the natural life flow of children and individuals, however, limitation of movement, decrease or disappearance of the time devoted to physical activity, as well as changes in eating habits cause various physical negativities. Gülbetkin, Güven, and Tuncel (2021) stated that as a result of their research, children can be encouraged to do sports and created an appropriate environment, and attitudes and behaviors towards physical activity can be improved and the level of digital game addiction can be reduced.

It is a fact that physical activity and exercise play a very important role in weight control and thus in maintaining health (Swift et al, 2014). The coronavirus disease (COVID-19), which is accepted as a pandemic by the "World Health Organization," has adversely affected life all over the world, causing restrictions on people's movement areas and difficulties in accessing sports opportunities. Sports halls and sports fields have been closed and this has negatively affected the habit of doing sports. As a result, people started to spend more time with digital materials during their stay at home. The younger generation, who moved away from the physical activity with the pandemic, is more susceptible to digital addiction. In this context, our study aims to determine the relationship between the digital game addiction levels of secondary and high school students and their motivation for participation in physical activity during the pandemic process.

2. Method

2.1. Study Group of the Research

Study participants include a total of 322 students, 227 males, and 95 females, aged 11 to 18 years (mean age 14.45 ± 2.17), who did sports 3.72 ± 1.45 days a week and played digital games for an average of 4.14 ± 2.72 hours a day. 141 of the students participating in the research are middle school students and 181 are high school students. 221 of these students are doing team sports and 101 are individual sports. In addition, while 250 sporters participate in the competitions, 72 of them do not participate in the competitions. Of the 322 students who participated in the research, 283 stated that they had their electronic device, 147 of them stated that their parents set a limit on the time to play digital games, and 175 of them stated that no limit was set.

2.2. Data collection

The game addiction scale for adolescents and the motivation scale for participation in physical activity were used as data collection tools in the study. Participation in the study was based on volunteerism.

Motivation Scale for Participation in Physical Activity: The scale, of which validity and reliability study was conducted by Tekkurşun-Demir and Cicioğlu (2018), consists of 16 items and 3 sub-dimensions: individual causes (Cronbach Alpha .89), environmental causes (Cronbach Alpha .86) and causelessness (Cronbach Alpha

.82). In the 5-point Likert scale, 1 includes strongly disagree and 5 strongly agree. The lowest score that can be obtained from the scale is 16, and the highest score is 80. High scores obtained from the scale indicate that the motivation for participation in physical activity is positive. The scores obtained from the scale show the motivation for participation in physical activity as follows: 1-16 points are very low, 17-32 is low, 33-48 is medium, 49-64 is high, 65-80 is very high. Items 3, 9, 13, 14, 15, and 16 of the scale are reverse (Tekkurşun-Demir & Cicioğlu, 2018). In this study, Cronbach's Alpha values were determined as .76 for individual reasons, .74 for environmental reasons, and .72 for the sub-dimension of causelessness.

Game Addiction Scale for Adolescents: The validity and reliability study of the scale, which was prepared by taking into account the criteria of internet gaming addiction, was made by Anlı and Taş (2018), and it consists of a single factor and 9 items. A 5-point Likert-type grading was used to measure the items in the scale. The 5-point Likert-type ratings are "Never," "Rarely," "Sometimes," "Often" and "Always." The lowest score to be taken from the scale is 9 and the highest score is 45. The Cronbach Alpha internal consistency coefficient of the scale was found to be .81. The Cronbach Alpha value for this study was determined as .81.

2.3. Analysis of data

SPSS 20 package program was used in data analysis in the research and the Kolmogorov-Smirnov test was applied to determine the distribution of study data. The distribution of Kolmogorov-Smirnov test results was found to be by the normal distribution. In the statistical method of the research, descriptive statistics (frequency, arithmetic mean, standard deviation), t-test, one-way analysis of variance (ANOVA), Tukey multiple comparisons, and Pearson correlation tests were used.

3. Findings

The findings of this study, which was conducted to determine the relationship between the digital game addiction levels of secondary school and high school students and their motivation for participation in physical activity during the pandemic process, are as follows;

Table 1: Average Analysis Results of Game Addiction and Sub-Dimensions of the Motivation Scale for Participation in Physical Activity

		N	Avg.±Sd.
Digital game addiction		322	16,75±5,91
Motivation Scale for Participation in Physical Activity	Individual reasons	322	25,54±3,63
	Environmental reasons	322	22,87±4,33
	Causelessness	322	16,74±3,00
	Total score	322	61,53±8,07

According to the results of the analysis in Table 1, it was seen that the motivation of the students to participate in physical activity was high and their game addiction was low.

Table 2: Correlation Analysis Results of Game Addiction and Sub-Dimensions of the Motivation Scale for Participation in Physical Activity

		Motivation Scale for Participation in Physical Activity		
		Individual reasons	Environmental reasons	Causelessness
Digital game addiction	r	-,132*	,008	-,124*
	p	,018	,882	,026
	N	322	322	322

In Table 2, Pearson Moment Correlation analysis was performed to determine the relationship between game addiction and the sub-dimensions of the motivation scale for participation in Physical Activity. Accordingly, it has been determined that there is a negative and low-level significant relationship between the individual reasons

($r=-.132$; $p<0.05$) and causelessness ($r=-.124$; $p<0.05$) sub-dimensions of the motivation scale for participation in physical activity and digital game addiction.

Table 3: ANOVA Analysis Results of Game Addiction and Sub-Dimensions of the Motivation Scale for Participation in Physical Activity According to The Duration of Digital Gaming of The Students

Scales		N	Avg. \pm Sd.	F	p	Tukey	
Digital Game Addiction Scale	1-2 hours (1)	94	14,34 \pm 4,84	16,728	,000	2>1	
	3-4 hours (2)	119	16,67 \pm 5,05			3>1	
	5 hours or more (3)	109	18,93 \pm 6,76			3>2	
Motivation Scale for Participation in Physical Activity	Individual reasons	1-2 hours (1)	94	25,48 \pm 4,15	1,290	,277	
		3-4 hours (2)	119	25,93 \pm 3,61			
		5 hours or more (3)	109	25,16 \pm 3,14			
	Environmental reasons	1-2 hours (1)	94	21,80 \pm 4,89	7,035	,001	2>1
		3-4 hours (2)	119	23,95 \pm 3,59			2>3
		5 hours or more (3)	109	22,60 \pm 4,32			
	Causelessness	1-2 hours (1)	94	16,61 \pm 3,37	1,036	,356	
		3-4 hours (2)	119	17,05 \pm 2,88			
		5 hours or more (3)	109	16,51 \pm 2,80			

As a result of the analysis made in Table 3, a statistically significant difference was found in the game addiction and the sub-dimensions of the motivation scale for participation in physical activity according to the duration of digital gaming of the students ($p<0,05$).

Table 4: T-Test Analysis Results of Game Addiction and The Sub-Dimensions of Motivation Scale for Participation in Physical Activity According to Gender

Scales		Gender	N	Avg. \pm Sd.	t	p
Digital Game Addiction		Male	227	16,98 \pm 5,95	1,070	,286
		Female	95	16,21 \pm 5,79		
Motivation Scale for Participation in Physical Activity	Individual reasons	Male	227	25,41 \pm 3,58	-,964	,336
		Female	95	25,84 \pm 3,76		
	Environmental reasons	Male	227	22,92 \pm 4,28	,347	,729
		Female	95	22,74 \pm 4,46		
	Causelessness	Male	227	16,75 \pm 2,83	,090	,928
		Female	95	16,71 \pm 3,40		

As a result of the t-Test performed in Table 4, no statistically significant difference was found in the game addiction and sub-dimensions of the motivation scale for participation in physical activity according to gender ($p>0,05$).

Table 5: T-Test Analysis Results of Game Addiction and Sub-Dimensions of Motivation Scale for Participation in Physical Activity According to Branch

Scales		Branch	n	Avg. \pm Sd.	t	p
Digital Game Addiction		Team	221	16,75 \pm 5,90	-,036	,971
		Individual	101	16,77 \pm 5,95		
Motivation Scale for Participation in	Individual reasons	Team	221	25,56 \pm 3,69	,118	,906
		Individual	101	25,50 \pm 3,52		
	Environmental	Team	221	23,17 \pm 4,24	1,880	,061
		Individual	101	23,17 \pm 4,24		

Physical Activity	reasons	Individual	101	22,20±4,47	2,278	,023
	Causelessness	Team	221	16,99±2,71		
		Individual	101	16,18±3,52		

According to the results obtained from the branch variable in Table 5, there was no significant difference in the game addiction scale ($p>0.05$) whereas a statistically significant difference was found in the dimension of causelessness, one of the sub-dimensions of the motivation scale for participation in physical activity ($p<0.05$).

Table 6: T-Test Analysis Results of Game Addiction and Sub-Dimensions of Motivation Scale for Participation in Physical Activity According to Education Levels

Scales		Education Levels	n	Avg. ± Sd.	t	p
Digital Game Addiction		Secondary school	141	17,67±6,36	2,465	,014
		High school	181	16,04±5,43		
Motivation Scale for Participation in Physical Activity	Individual reasons	Secondary school	141	25,21±3,88	-1,430	,154
		High school	181	25,79±3,42		
	Environmental reasons	Secondary school	141	22,29±4,10	-2,117	,035
		High school	181	23,31±4,46		
	Causelessness	Secondary school	141	16,21±3,04	-2,802	,005
		High school	181	17,15±2,92		

As a result of the analysis made in Table 6, a statistically significant difference was found in the game addiction scale and the sub-dimensions of the motivation scale for participation in physical activity according to the education levels of the students ($p<0.05$).

Table 7: T-Test Analysis Results of Game Addiction and Sub-Dimensions of Motivation Scale for Participation in Physical Activity According to The Situation of The Parents' Setting Limits on The Duration of Digital Gaming

Scales		Do your parents set a limit?	N	Avg. ± Sd.	t	p
Digital Game Addiction		Yes	147	17,78±6,03	2,894	,004
		No	175	15,89±5,67		
Motivation Scale for Participation in Physical Activity	Individual reasons	Yes	147	25,53±3,67	-,044	,965
		No	175	25,55±3,61		
	Environmental reasons	Yes	147	22,57±4,13	-1,121	,263
		No	175	23,11±4,49		
	Causelessness	Yes	147	16,65±3,05	-,470	,639
		No	175	16,81±2,98		

In Table 7, there was a statistically significant difference in the game addiction scale ($p<0.05$) whereas there was no statistically significant difference in the sub-dimensions of the motivation scale for participation in physical activity according to the situation of the parents' setting limits on the duration of digital gaming ($p>0.05$).

4. Discussion And Conclusion

As a result of this study, which tried to determine the relationship between the digital game addiction levels of secondary and high school students during the pandemic process and their motivation for participation in physical activity, it was observed that the motivation of the students to participate in physical activity was high and their digital game addiction was low when the average scores of the scale were examined. As a result of the literature review, similar to this study, Öncel and Tekin (2015) stated that the average of computer game addiction among students is not high in general; Kılıç (2020) stated that participants' perceptions of motivation for participation in physical activity are above the moderate level; on the other hand, Tekkurşun Demir and Cicioğlu (2019) stated that their students' motivation for participation in physical activity is at a high level.

Unlike this study, as a result of the study conducted by Mutlu Bozkurt and Tamer (2020), it was determined that secondary school students' motivation for participation in physical activity was at a low level.

In this study, it was observed that there was a negative and low-level significant relationship between the individual reasons and causelessness sub-dimensions of the motivation scale for participation in physical activity and the game addiction scale. In this context, it can be said that as participation in physical activity increases, digital game addiction decreases. In other words, it is seen that the physical activity levels of the students whose digital game addiction decreases gradually increase. Similar to this study, as a result of the study conducted by Hazar et al. (2017b), it was determined that there is a highly significant negative correlation between the total scores of digital game addiction and physical activity level. As a similar result, in the study of Tekkurşun Demir and Cicioğlu (2019), as the motivation of the participants to participate in physical activity increased, it was seen that the desire of individuals to play digital games and their enjoyment of digital games decreased.

In the third finding of the study, when digital game addiction is examined according to the duration of digital gaming of the students, it was determined that the average score of the students who play digital games for 5 hours or more per day is significantly higher than the mean scores of the students who play digital games for 1-2 hours and 3-4 hours a day. As the reason for this high level, it can be said that factors such as the curfew imposed on children, restrictions on public transportation, the closure of gyms and playgrounds, the interruption of face-to-face education in schools within the scope of pandemic measures cause the decrease in the time of students' participation in physical activity and the increase in the duration of digital gaming. Similar to our research results, Gökçeşlan and Durakoğlu (2014) stated that those who play more than 3 hours a day have a higher level of game addiction than others and that there is a direct correlation between game addiction and the duration of gaming. In the study conducted by Deri and Bilge (2016), it was observed that the probability of internet addiction increased when the frequency of internet use increased. Göldağ (2018) concluded that the digital game addiction levels of students who play games for 1-2 hours and 3-4 hours a day are lower than students who play games for 5-6 hours. It was determined that there is a significant difference in the environmental reasons sub-dimension of the motivation for participation in physical activity according to the duration of digital gaming of the students, which is another finding of the research in the same table. Based on the results, it was seen that students who played digital games for 3-4 hours were more motivated by environmental reasons in participating in physical activity than those who played digital games for 1-2 hours and 5-6 hours. The fact that students, who play digital games for 3-4 hours have a high motivation for participation in physical activity, may be due to the fact that 1-2 hours of the digital game may have a low effect on addiction, or that 5-6 hours of the digital game can seriously affect the level of addiction. When the studies in the literature are examined, similar to the result of this study, in the study conducted by Tekkurşun Demir and Cicioğlu (2019), it was concluded that the motivation for participation in physical activity decreases as the duration of daily digital gaming increases. Unlike this study, in the study of Hazar et al. (2017b), it was stated that the total score of the duration of daily average digital gaming and the physical activity level did not show a statistically significant difference.

In the fourth finding of the study, no significant difference was found in digital game addiction according to the gender of the students. This finding is similar to the studies conducted by Taş, Eker and Anlı (2014) and Aydoğdu (2018), however, it differed from the studies conducted by Güvendi, Tekkurşun Demir, Keskin (2019), Derin ve Bilge (2016), Kılıç (2019), Hazar et al. (2017a), Erboy ve Akar Vural (2010), Göldağ (2018) ve Gökçeşlan ve Durakoğlu (2014) as the game addiction scores of males were higher than those of females. In his study on primary school students, Horzum (2011) concluded that male students cannot stop playing games, associate the game with their real-life, disrupt their duties due to playing the game, prefer playing games to other activities, and their total game addiction levels are quite high compared to female students. In the same table, no significant difference was found in the sub-dimensions of motivation for participation in physical activity according to gender. Similar to this finding, in the study conducted by Tekkurşun Demir and Cicioğlu (2019), it was concluded that there was no significant difference in motivation for participation in physical activity. In the study of Hazar et al. (2017b), it was also found that male and female secondary school students had similar physical activity levels. Unlike the study, Mutlu Bozkurt and Tamer (2020) concluded that the individual reasons scores of male students were significantly higher than those of females. It can be said that the lack of difference

in this study is due to the fact that both females and males spend equal time at home together with the bans implemented due to the pandemic.

In the fifth finding of the study, no significant difference was found between digital game addiction and the branch. Similar to our study, in the study conducted by Can and Tozoğlu (2019), no relationship was found between the type of participation in sports and internet addiction. In the same table, a statistically significant difference was determined in the sub-dimension of causelessness of the motivation for participation in physical activity according to the sport type variable. According to this, it was seen that the students who do team sports have a higher causelessness sub-dimension than the students who do individual sports. This difference in the causelessness sub-dimension may be due to the fact that the socialization dimension of team sports, which is inherent in it, is given importance by the families, and that students are directed to such branches against their will, and that families do not adequately explain the benefits of physical activity in terms of motivation for participation in physical activity.

In the sixth finding of the study, there was a significant difference in the digital game addiction scale according to the education levels of the students. Accordingly, the digital game addiction average scores of secondary school students are significantly higher than those of high school students. It can be said that this situation is due to the exam anxiety of high school students for the future and the fact that they spend more time preparing for the exam. In addition, it is thought that high school students have a higher social interaction time than secondary school students. This finding is consistent with the studies conducted by Horzum (2011) and Şahin and Tuğrul (2012). Similarly, Mustafaoğlu and Yasacı (2018) reported that high school students play fewer digital games than secondary school students. However, in other studies conducted in the literature, it was found that game addiction did not differ significantly according to the class of students (Keser & Esgi, 2012; Cakir, 2011; Turner & Jeffreys, 2010; Taş et al. 2018). In the same table, a significant difference was found in the environmental and causelessness sub-dimensions of the motivation scale for participation in physical activity according to the education levels of the students. According to this, it was determined that high school students use environmental and causal motivation sources more in participation in physical activity. Unlike this study, as a result of his study, Kılıç (2020) stated that the motivations for participation in physical activity did not differ significantly according to the class variable.

In another finding of the study, there was a significant difference in the digital game addiction scores of the students according to the situation of the parents' setting limits on the duration of digital gaming. In this study, it was concluded that students whose parents' set limits were more dependent. In the research, setting limits by parents can be interpreted as taking precautions against their children who play a game too much and are thought to be addicted. In the same table, there was no significant difference in the motivation of students for participation in physical activity according to the situation of limiting the duration of digital gaming.

As a result, it was observed that digital game addiction decreased as the motivation for participation in physical activity increased. The increase in the time spent in front of the computer causes the emotional gaps to be filled with games and causes anti-sociality, in addition, being inactive causes health problems to begin and increasingly aggressive attitudes. To minimize or eliminate these situations, it can be said that one of the most effective methods of coping with digital game addiction is to direct children to physical activities and their motivation for participation in physical activity should be increased to prevent students' access to digital games and addiction.

References

- Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., ... & Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review. *Psychological bulletin*, 136(2), 151.
- Aydoğdu, F. (2018). Dijital oyun oynayan çocukların dijital oyun bağımlılıklarının çeşitli değişkenler açısından incelenmesi. *Ulakbilge Sosyal Bilimler Dergisi*, 6(31), 1-18.

- Can, H. C., & Tozoğlu, E. (2019). Üniversite öğrencilerinin internet bağımlılık düzeylerinin spor ve farklı değişkenler açısından incelenmesi. *Spor Eğitim Dergisi*, 3(3), 102-118.
- Demir, G. T., & Cicioğlu, H. İ. (2019). Fiziksel aktiviteye katılım motivasyonu ile dijital oyun oynama motivasyonu arasındaki ilişkinin incelenmesi. *Sportmetre Beden Eğitimi ve Spor Bilimleri Dergisi*, 17(3), 23-34.
- Derin, S., & Bilge, F. (2016). Ergenlerde internet bağımlılığı ve öznel iyi oluş düzeyi. *Türk Psikolojik Danışma ve Rehberlik Dergisi*, 6(46), 35-51.
- Erboy, E., & Vural, R. A. (2010). İlköğretim 4 ve 5 sınıf öğrencilerinin bilgisayar oyun bağımlılığını etkileyen faktörler. *Ege Eğitim Dergisi*, 11(1), 39-58.
- Gökçearslan, Ş., & Durakoğlu, A. (2014). Ortaokul öğrencilerinin bilgisayar oyunu bağımlılık düzeylerinin çeşitli değişkenlere göre incelenmesi. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi*, 23, 419-435.
- Göldağ, B. (2018). Lise öğrencilerinin dijital oyun bağımlılık düzeylerinin demografik özelliklerine göre incelenmesi. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi*, 15(1), 1287-1315.
- Gülbetkin E. , Güven E. , Tuncel O. (2021). Adolesanların Dijital oyun bağımlılığı ile fiziksel aktivite tutum ve davranışlarını etkileyen faktörler. *Bağımlılık Dergisi*, 22(2), 148-160.
- Güvendi, B., Tekkurşun-Demir, G., & Keskin, B. (2019). Ortaokul öğrencilerinde dijital oyun bağımlılığı ve saldırganlık. *OPUS-Uluslararası Toplum Araştırmaları Dergisi*, 11(18), 1194-1217. DOI: 10.26466-/opus.547092
- Hazar, Z., Demir, G. T., Namlı, S., & Türkeli, A. (2017b). Ortaokul Öğrencilerinin dijital oyun bağımlılığı ve aktivite düzeyleri arasındaki ilişkinin incelenmesi. *Beden Eğitimi ve Spor Bilimleri Dergisi*, 11(3), 320-332.
- Hazar, Z., Hazar, K., Gökyürek, B., Hazar, M., & Çelikkilek, S. (2017a). Ortaokul öğrencilerinin oyunsallık, dijital oyun bağımlılığı ve saldırganlık düzeyleri arasındaki ilişkinin çeşitli değişkenler açısından incelenmesi. *Journal of Human Sciences*, 14(4), 4320-4332. doi:10.14687/jhs.v14i4.5035
- Horzum, M. B. (2011). İlköğretim öğrencilerinin bilgisayar oyunu bağımlılık düzeylerinin çeşitli değişkenlere göre incelenmesi. *Eğitim ve Bilim*, 36(159), 56-68
- Kılıç, K. M. (2019). Ergenlerde dijital oyun bağımlılığı, zorbalık bilişleri ve empati düzeyleri ilişkileri. *İlköğretim Online*, 18(2), 549-562
- Kodaman, U., & Dinç, M. (2016). *Teknolojiye Bağımlı Yaşama!*. İstanbul: Kültür Sanat Basımevi.
- Küçük Kılıç, S. (2020). Lise öğrencilerinde sosyal görünüş kaygısı ve fiziksel aktiviteye katılım motivasyonu ilişkisi. *International Journal of Active Learning*, 5(2), 69-85. DOI: 10.48067/ijal.827568
- Lau, C., Stewart, S. L., Sarmiento, C., Saklofske, D. H., & Tremblay, P. F. (2018). Who is at risk for problematic video gaming? Risk factors in problematic video gaming in clinically referred Canadian children and adolescents. *Multimodal Technologies and Interaction*, 2(2), 19.
- Morahan, M. J., & Schumacher, P. (2000). Incidence and correlates of pathological internet use among college students. *Computers in Human Behavior*, 16(1),13-29.
- Mustafaoğlu, R., & Yasacı, Z. (2018). Dijital oyun oynamanın çocukların ruhsal ve fiziksel sağlığı üzerine olumsuz etkileri. *Bağımlılık Dergisi*, 19(3), 51-58.
- Mutlu Bozkurt, T., & Tamer, K. (2020). Fiziksel Aktiviteye Katılım Motivasyonu Düzeyi. *Gaziantep Üniversitesi Spor Bilimleri Dergisi*, 5(3), 286-298.
- Öncel, M., & Tekin, A. (2015). Ortaokul öğrencilerinin bilgisayar oyun bağımlılığı ve yalnızlık durumlarının incelenmesi. *İnönü Üniversitesi Eğitim Bilimleri Enstitüsü Dergisi*, 2(4), 7-17.
- Swift, D. L., Johannsen, N. M., Lavie, C. J., Earnest, C. P., & Church, T. S. (2014). The role of exercise and physical activity in weight loss and maintenance. *Progress in Cardiovasc Dis*, 56(4), 441-447. doi:10.1016/j.pcad.2013.09.012
- Şahin, C., & Tuğrul, V. M. (2012). İlköğretim öğrencilerinin bilgisayar oyunu bağımlılık düzeylerinin incelenmesi. *Journal Of World Of Turks*, 4, 115-130.
- Taş, İ., Eker, H., & Anlı, G. (2014). Orta öğretim öğrencilerinin internet ve oyun bağımlılık düzeylerinin incelenmesi. *Online Journal of Technology Addiction and Cyberbullying*, 1(2), 37-57.
- Vaghela, P.S. (2016). Digital addiction: an epidemic of digital world-an article on digital addiction among generation d. *In National Conference On Managing Business Through Digital Marketing In The Globalized Era. Grajat.*



The Influence of Training Methods and Students Work Ethos on Work Competency

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Abstract

The purpose of this study was to analyze the effect of training methods and work ethic on students' work competencies. The focus of teaching implementation is observed using two training methods, namely: on the job training method using internship training and *simulasi* method using simulation. The initial work ethic of students is limited to low and high categories. This type of research is a quasi-experimental with a 2×2 factorial design. The research population is all students of class XI of the Hospitality Accommodation Department at SMK Negeri 7 Bengkulu City, totaling 123 people. The sample was selected using the intact group technique from four classes selected to be two learning classes as the experimental group. The selected class is drawn by lottery to determine the treatment of the internship training and *simulasi* methods. Each treatment group was grouped based on low work ethic and high work ethic. The research instrument is a work competency assessment sheet and student work ethic. The data analysis technique used is 2-way analysis of variance. The results of the study can be concluded that: (1) the average work competence of students using the internship training method is higher than those using the simulation method. (2) The average work competence of students who have a high work ethic is higher than students with a low work ethic. (3) There is an interaction effect between training methods and work ethic on the work competence of students. (4) Students with a high work ethic who take part in the internship training method have higher work competencies compared to the simulation method. (5) Students with a low work ethic who take part in the internship training method have lower work competencies than those using the simulation method.

Keywords: Internship Training, *Simulasi*, Work Ethic, Work Competence.

1. Introduction

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, nation and state (Act). -Law of the Republic of Indonesia Number 20 of 2003). The atmosphere and learning process is realized through education, consisting of formal,

non-formal, and informal education that complement and enrich each other. Formal education levels consist of basic education, secondary education, and higher education. Secondary education consists of general secondary education and vocational secondary education (SMK).

Vocational secondary education is secondary education that prepares students especially to work in certain fields. This is in line with the opinion of Budiyo (2008) which explains that vocational education is secondary education that prepares students to become workers and independent in certain fields. Vocational education is based on 3 (three) central philosophies, namely: (1) the reality of the competencies taught in vocational education is the same as in the business and industrial world (DUDI), (2) the truth of vocational education in schools is the same as in the business and industrial world, and (3) the value of Vocational Education in schools is the same as in the business and industrial world. Vocational education must provide experience to work effectively and efficiently, have psychomotor knowledge and skills and always keep abreast of world technology developments in the world of work.

The main problem in learning at SMKN 7 Bengkulu City consists of two things. First, the implementation of learning strategies carried out in schools does not condition the real problems that occur in the industrial world. Second, the learning strategies applied generally do not pay attention to learning needs based on the level of work ethic in students. The needs in question are the need for appropriate learning strategies and the need for job training.

Based on these two things, an effort or learning innovation strategy is needed, one of which is the application of job training through the internship training method. The advantages of internship training are believed to be able to overcome these problems, by conditioning learning in accordance with the industrial world, where students not only get real learning skills and experiences but also intellectually, emotionally and physically to be actively involved in real situations, able to think critically and able to deal with problem solving in environmental situations where students are trained to work by actively constructing their own knowledge in remembering, understanding, observing, applying and analyzing the phenomena encountered during internship training.

This internship training method sharpens the implementation of theory and practice specifically for students who receive formal education at school as a preparation stage to work in industry under the supervision of a supervisor and teacher who is competent in their field, with the implementation of a short period of time and block of time with paying attention to the psychology of students so that the internship training method is not boring for students in supporting the achievement of their work competencies.

Teachers in the learning process need to pay attention to the level of student work ethic so that teachers can make appropriate learning strategies in an effort to increase work competence. A high work ethic is needed in the world of hospitality, for that students are expected to have high discipline, be honest, diligent, responsible, able to work together and work hard.

The work ethic of students is built from motivation, because motivation is the driving force that moves someone to do something to achieve goals, this will be seen from the ethics and work perspective that is believed and realized through concrete determination and behavior in the world of work, because concrete behavior is implemented in the world of work reflects the work ethic of students who are based on work ethics and perspectives that have been believed so far. Work ethic in the world of work implies two important things, namely how a person behaves towards his work and how he does his job. For this reason, strong motivation and determination in realizing the moral values of the right work culture are very important, because generally students are motivated to behave in accordance with the moral standards of their group, simultaneously with the development of character, competence and performance so that motivation and work passion and work behavior grow. consistent in students.

Then, another supporting factor that can improve the competence of students through the job training is the role of the presenter (instructor) in delivering the material, motivating and facilitating students. The material presenter (instructor) as the spearhead in delivering material and training directly to students has a big

responsibility in motivating students to take part in the training. Starting from the description above, it is necessary to carry out further studies through research entitled the influence of the internship training method and work ethic on the work competence of students at SMKN 7 Bengkulu City. The study was conducted to test several theories in obtaining findings, including: (1) whether there are differences in work competencies between students who follow the internship training method and students who follow the simulation method, (2) whether there are differences in work competencies between students who have low and high initial work ethic, (3) is there an interaction effect between the internship training method and work ethic on the work competence of students, (4) is there a difference in the work competence of students who have a high work ethic between students who follow the internship training method and students who follow the simulation method, (5) whether there are differences in the work competencies of students who have a low work ethic between students who follow the internship training method and the simulation method.

2. Method

The research method used was a quasi-experimental design with a 2×2 factorial. The treatment variable in this study was a training method consisting of two treatments, namely: the internship training method and the simulation method. The dependent variable in this study is the work competence of students. While the attribute variable is the work ethic of students which includes a high work ethic and a low work ethic. The population in this study was class XI students in the hospitality department at SMK Negeri7 Bengkulu City, totaling 123 students. The steps of the sampling technique in this study are as follows: First, conduct an intact group selection to determine the treatment class. In this first stage, two classes were selected from the four existing classes, namely: XI PH1, XI PH2, XI PH3, and XI PH4. The four classes are not too much different in ability.

The results of the sample selection through the intact group (randomized group) were selected for two classes, namely class XI PH1 and class XI PH3 with 30 students each. Groups were selected based on the class where the researcher did not form a new group. Second, from the two selected classes, a draw was made to select the experimental class and the control class. From the results of the draw, Class XI PH2 was obtained as an experimental class using the internship training method. Then, Class XI PH1 as a control class (simulation method). Third, the third stage is to classify the level of work ethic. The value of work ethic in the form of secondary data taken from homeroom and counseling guidance teachers (BK) in each treatment group.

The work ethic value of each treatment group was grouped based on the category of high work ethic and low work ethic. The grouping based on the ranking of the work ethic values obtained from the BK teachers by taking the 50% who got the highest score were grouped in the high work ethic. Furthermore, 50% of the lowest grades of students are grouped with low work ethic. So that obtained 15 categories of low work ethic and 15 categories of high work ethic in each treatment class. The data analysis technique in this study used univariate statistical testing with the analysis of variance test (Anava).

3. Results and Discussion

The results of data analysis in this study based on each hypothesis testing can be concluded as follows. First, there are differences in work competencies between students who follow the internship training method and students who follow the simulation method in class XI of the Hospitality Accommodation Department at SMK N 7 Bengkulu City. The more effective method of influencing work competence is internship training with an effect of 65.59%. The ANOVA test results show that there is a significant difference where the significance value of the test results is $0.000 \leq \text{sig} : 0.05$. Second, there are differences in work competencies between students who have a low and high initial work ethic in class XI of the Hospitality Accommodation Department at SMK N 7 Bengkulu City. The group that has the highest influence on competence is the high work ethic group with an influence of 94.00%. The ANOVA test results have a significant difference where the significance value of the test results is $0.017 \leq \text{sig} : 0.05$. Third, there is an interaction effect between the internship training method and work ethic on the competence of students in class XI of the Hospitality Accommodation Department at SMK N 7 Bengkulu City. This is indicated by the results of the ANOVA test with a significance value of $0.010 \leq \text{sig} :$

0.05. The influence given between the training method and work ethic is 78.10% where the value of R2 on the output of the test results is 0.781.

Fourth, there are differences in the work competencies of students who have a high work ethic between students who follow the internship training method and students who follow the simulation method in class XI of the Hospitality Accommodation Department at SMK N 7 Bengkulu City. The average work competence in the high work ethic group who participated in the internship training was higher than the simulation method group. The results of the analysis of the average competency scores showed that the high work ethic group who followed the internship training method had an average of 78.80 while the simulation method group got an average score of 71.57. ANOVA test results obtained a significance value of $0.00 < 0.05$. This means that statistically there is a significant difference between the work competencies of students who have a high initial work ethic and the treatment of the internship training method and the simulation method.

Fifth, there are differences in the work competencies of students who have a low work ethic between students who follow the internship training method and the simulation method in class XI of the Hospitality Accommodation Department at SMK N 7 Bengkulu City. The average work competence in the low work ethic group who participated in the internship training was higher than the group with the simulation method. The results of the analysis of the average competency value showed that the group with low work ethic who followed the internship training method had an average of 84.10 while the simulation method group obtained an average value of 73.14. ANOVA test results obtained a significance value of $0.000 < 0.05$. This means that there is a statistically significant difference between the work competencies of students who have a low initial work ethic and the treatment of internship training and simulation methods.

4. Conclusion

Based on processing, data analysis, hypothesis testing, and discussion of research findings, it can be concluded as follows. 1) There is a difference in work competence between students who follow the internship training method and students who follow the simulation method in class XI of the Hospitality Accommodation Department at SMK N 7 Bengkulu City. A more effective method of influencing competence is the internship training method. 2) There is a difference in work competence between students who have a low and high initial work ethic in class XI of the Hospitality Accommodation Department at SMK N 7 Bengkulu City. The group that has the highest influence on work competence is the high work ethic group. 3) There is an interaction effect between the internship training method and work ethic on the work competence of students in class XI of the Hospitality Accommodation Department at SMK N 7 Bengkulu City. 4) There are differences in the work competencies of students who have a high work ethic between students who follow the internship training method and students who follow the simulation method in class XI of the Hospitality Accommodation Department at SMK N 7 Bengkulu City. The average work competence in the high work ethic group who participated in the internship training was higher than the simulation group. 5) There are differences in the work competencies of students who have low work ethic between students who follow the internship training method and the simulation method in class XI of the Hospitality Accommodation Department at SMK N 7 Bengkulu City. The average work competence in the low work ethic group who followed the simulation method was higher than the internship training group.

References

- Abbott, L., Parker, S. and Peters, M. 2003. Audit Committee Characteristics and Restatements. *Auditing: A Journal of Practice & Theory*. Vol. 23 (1), pp.69- 87.
- Ahyakudin, M., Ainun Najib, & Haryadi, D. 2019. Peran Pelatihan dengan Metode On the Job Training dan Metode Apprenticeship untuk meningkatkan kinerja karyawan pada perusahaan Labbaik Chicken Kota Semarang. *Journal of Islamic Economics, Finance and Banking*. Vol.3(2), hlm. 20-36.
- Al Yahya, M. S., & Norsiah, B. M. (2013). Evaluation of Effectiveness of Training and Development: The Kirkpatrick model. *Asian Journal of Business and Management Sciences*. Vol. 2.
- Allen, Louis. 1958. *A Management and Organization*. New York: McGraw-Hill Book Company.

- Andi, Ahmad Ridha, Andi Ahmad. 2015. Efektivitas Pelatihan Komunikasi untuk Meningkatkan Keterampilan Komunikasi siswa Kejuruan Jurusan Akomodasi Perhotelan. *Analitika*, Vol. 10 (1), ISSN 2085-6601.
- Arikunto, S. 2006. *Prosedur Penelitian (Suatu Pendekatan Praktek)*. Jakarta: Rineka Cipta.
- Arikunto, Suharsimi. 1995. *Dasar-dasar Evaluasi Pendidikan*. Yogyakarta. Bumi Aksara.
- Asifudin, A., J. 2004. *Etos Kerja Islami*. Surakarta: Muhammadiyah University Press.
- Asikin. 2002. *Strategi Belajar dan Pembelajaran*. Jakarta: Erlangga.
- Bernadin and Russel. 1993. *Human resource management*. New Jersey: International editions upper saddle river, Prentice Hall.
- Brewer, Ernest W., Burgess, & David N. 2005. Professor's Role in Motivating Students to Attend Class. *DLA Ejournal*. Volume 42, (3), pp.23-47.
- Budiyono, 2008. *Kriya Tekstil untuk SMK Jilid 2*. Jakarta : Direktorat Pembinaan Sekolah Menengah Kejuruan.
- Cherrington, D. J. (1995). *The Management of Human Resources (4th edition)*. New Jersey: Prentice Hall Inc.
- Cherrington, David J, 1995. *The Management of Human Resources (4th Edition)*. New Jersey: Prentice Hall Inc.
- Crone dan Hunter. 1980. *From the Field-Tested Participatory Activities for Trainers*. New York: World Education.
- Danim, Sudarwan. 2011. *Pengembangan Profesi Guru*. Bandung: Alfabeta.
- Davies, K. 2005. *Manajemen Sumber Daya Manusia*. Buku 1 edisi 5 diterjemahkan oleh Erly Suandy, Penerbit Salemba Empat.
- Depdiknas. 2003. *Undang-undang RI No.20 tahun 2003. Tentang Sistem Pendidikan Nasional*.
- Depdiknas. 2004. *Kurikulum 2004 Standar Kompetensi Mata Pelajaran Matematika Sekolah Menengah Pertama dan Madrasah Tsanawiyah*. Jakarta: Depdiknas.
- Depdiknas. 2008. *Kurikulum Tingkat Satuan Pendidikan*. Jakarta: Dikmenum Depdiknas.
- Dessler, Gary, 2011. *Manajemen sumber daya manusia*. Penerbit Indeks, Jakarta.
- Dewi, Lathifa Rosiana, & Kartowagiran, Badrun. 2018. An evaluation of internship program by using Kirkpatrick evaluation model. *Jurnal Research and Evaluation in Education*. Vol. 4(2), pp.155-163.
- Dharma, Surya. 2013. *Manajemen Kinerja: Falsafah Teori dan Penerapannya*. Yogyakarta: Pustaka Pelajar.
- Eagly, A. H. & Chaiken, S. 1993. *The Psychology of Attitudes*. Fort Worth, TX: Harcourt Brace Jovanovitch.
- Eldyani, P. & Wardoyo, P. 2018. Upaya Peningkatan Kompetensi: dampak pelatihan Bersubsidi serta peran instruktur. *Artikel publikasi Program Magister Manajemen, Universitas Semarang*. ISSN (2580-845).
- Elfrianto. 2016. *Manajemen Pelatihan Sumber Daya Manusia dalam Meningkatkan Mutu Lulusan*. *Jurnal EduTech*. Vol.2(2), hlm.46-58.
- Fitriyanto, A. 2006. *Ketidakpastian Memasuki Dunia Kerja Karena Pendidikan*. Jakarta: Rineka Cipta.
- Fujiastuti, Rohaeni, N, dan Jubaedah, Y. 2015. Pendapat siswa Tentang Pelaksanaan Praktek Room Section dengan Pendekatan Pelatihan Berbasis Kompetensi di SMK. *Jurnal Family Edu*. Vol 1 (2), hlm. 159-168.
- Ginting, Desmon. 2016. *Etos Kerja: Panduan Menjadi Karyawan Cerdas*. Jakarta: PT Gramedia.
- Graha, Andi Nu. 2005. Pengaruh Pelatihan Terhadap Kemampuan Karyawan dan Dampaknya Terhadap Kinerja (Studi Pada Karyawan PT. Gatra Mapan Malang). *Jurnal Ekonomi Modernisasi*. Vol. 1, (2), hlm. 75-93.
- Hamalik, Oemar. 2001. *Proses Belajar Mengajar*. Jakarta: Bumi Aksara. Hamalik, Oemar. 2010. *Proses Belajar Mengajar*. Jakarta: PT Bumi Aksara. Hamzah, Uno, B. 2008. *Teori Motivasi dan Pengukurannya*, Jakarta: Bumi. Aksara.
- Hidayati, Abna. 2014. *Desain Kurikulum Pendidikan Karakter*. In: *Desain Kurikulum Pendidikan Karakter*. Artikel Publikasi: repository.unp.ac.id. Hlm.1-153.
- Hutapea dan Thoha. 2008. *Kompetensi Plus*. Jakarta: Gramedia Pustaka Utama. Iswanti, Sri. 2015. *Faktor-faktor Yang Mempengaruhi Kualitas Lulusan SMK*
- Agropeternakan Nurul Huda Panumbangan-Ciamis-Jawa barat. Artikel publikasi: eprints.uny.ac.id.
- Jubaedah, Y., Rohaeni, N. & Tati. *Model Link And Match Dengan Pendekatan Competency Based Training Pada Pembelajaran Tata Graha Di Sekolah Menengah Kejuruan*. Artikel publikasi Universitas Pendidikan Indonesia: ISSN 1412-565.
- Kamarubiani, Nike. 2012. *Pelatihan Berbasis Kompetensi sebagai Program Pengembangan Sumber Daya Manusia: Studi Kasus Pelatihan Pegawai Hotel Nalendra Bandung*. *Jurnal Pendidikan Luar*. Vol. 8 (1), hlm. 1-8.
- Kamil, Mustofa. 2003. *Model-Model Petatihan*. Universitas Pendidikan Indonesia.
- Kamil, Mustofa. 2010. *Model Pendidikan dan Pelatihan (konsep dan aplikasi)*. Bandung: Penerbit Alfabeta.
- Kamus Besar Bahasa Indonesia. 2005. Jakarta: PT Penerbitan dan Percetakan. Kandou, E. 2013. *Pengaruh Pelatihan dan Pengembangan Karyawan terhadap Produktivitas Kerja Karyawan PT. Air Manado*. *Jurnal Manajemen*. Vol 2, (3), hlm.1-12.

- Kusdamayanti, P., Tati Abas, T., & Jubaedah, Y. 2015. Pengaruh Pendekatan Pelatihan Berbasis Kompetensi Terhadap Kemampuan Praktek Making Bed dalam Pembelajaran Room Section di SMK Akomodasi Perhotelan. *Jurnal Pendidikan Kesejahteraan Keluarga*. Vol 1 (2), hlm. 91-98.
- Lunarny, Eny. 2011. Penerapan Metode Tutor Sebaya Berbantuan Media Video Untuk Meningkatkan Kompetensi Menyiapkan Kamar Untuk Tamu. *Fakultas keguruan dan Ilmu Pendidikan. Universitas Bengkulu*.
- Margono, S. 2009. *Metodologi Penelitian Pendidikan*. Jakarta :Rineka Cipta.
- Mariah, Siti & Sugandi, Machmud. 2010. Kesenjangan Soft Skill Lulusan SMK dengan Kebutuhan Tenaga Kerja di Industri. *Jurnal Inovasi dan Perakayasa Pendidikan*. Vol. 2(2). Hlm. 1-22.
- Mulyasa. E. 2003, *Kurikulum Berbasis Kompetensi; Konsep, Karakteristik dan Implementasi*, (Bandung: PT Remaja Rosda Karya).
- Nolker, H. dan Schoenfeldt, E. 1998. *Pendidikan Kejuruan*. Jakarta: Gramedia Nyoman Sukardewi, et. All.
2015. *Kontribusi Adversity Quotient (AQ) Etos Kerja dan Budaya Organisasi terhadap Kinerja Guru SMA Negeri di Kota*
- Amlapura. *Jurnal Akuntansi Pascasarjana Universitas Syiah Kuala*, Vol. 4(2), hal.1-12.
- Octhanantha, Archie, dkk. 2017. Pengaruh Pelatihan Berbasis Kompetensi Terhadap Kinerja. *Jurnal Administrasi Bisnis (JAB) Universitas Brawijaya*. Vol. 5 (2), hlm. 126-134.
- Pedazhur, E. J. 1997. *Multiple Regression in Behavioral Research*. Wadsworth: Thomson Learning.
- Pratama, Ida Bagus Winastya dan Anak Agung Ayu Sriathi. 2015. Pengaruh stress kerja dan pemberdayaan terhadap kepuasan kerja karyawan di Prama Hotel *Jurnal Manajemen Unad*. Vol 4 (11).
- Pribadi, Benny A. 2014. *Desain dan Pengembangan Program Pelatihan Berbasis Kompetensi: Implementasi Model ADDIE*. Jakarta: Prenada Media Grupa.
- Pribadi, M. L., dan Herlena, B. 2008. Peran Budaya Organisasi terhadap Disiplin Kerja Karyawan Direktorat Produksi PT Krakatau Steel (Persero) Tbk Cilegon. *Jurnal Ilmiah Psikologi*. Vol 3(2). hlm. 225-234.
- Rachmawati, A. dan Triatmoko, H. 2007. Analisis Faktor-Faktor yang Mempengaruhi Kualitas Laba dan Nilai Perusahaan. *Simposium Nasional Akuntansi X Makassar*, 26-28 Juli 2007.
- Rachmawati, Watie. 2016, Pengaruh Pelatihan dan Motivasi Kerja Terhadap Kinerja Karyawan PT Bank BJB Kantor Cabang Suci Bandung, *Journal*. Vol.9 (2), hlm.1-16.
- Reksohadiprodjo, S., dan Handoko, H. 1996. *Organisasi Perusahaan: Teori, Struktur dan Perilaku*. Yogyakarta: BPFE.
- Rivai, Veithzal, 2006. *Manajemen Sumber Daya Manusia untuk Perusahaan: dari Teori Ke Praktik*, Edisi Pertama. Jakarta: Raja Grafindo Persada.
- Rolnicki, E, dkk. 2008. *Pengantar Dasar Jurnalistik (Scholastic Journalism)*. Jakarta: Prenada Media Group.
- Rosyada, D. 2004. *Paradigma Pendidikan Demokratis*. Jakarta: Kencana.
- Rumekso, S. 2009. *Housekeeping Hotel Floor Section*. Yogyakarta: Andi.
- Samar N., Mohammed, K. A., Gamal S., Nabil A. Ali. 2016. Impact of Effective Training on Employee Performance in Hotel Establishments. *Journal of Faculty of Tourism and Hotels, Fayoum University*. Vol. (10), No. (1/2), pp. 92-109.
- Santoso, Singgih. 2014. *Statistik Non Parametrik Edisi Revisi*. Jakarta: PT. Elex Media Komputindo.
- Sardiman. 1986. *Interaksi dan Motivasi Belajar dan Mengajar*. Jakarta: Raja. Grafindo Persada.
- Schipper, U., dan Patriana, D.M. 1994. *Pendidikan Kejuruan di Indonesia*. Bandung: Angkasa.
- Simamora, H. 1997. *Manajemen Sumber Daya Manusia, Edisi 2*. Yogyakarta: STIE YKPN.
- Simamora, H. 2006. *Manajemen Sumberdaya Manusia*. Yogyakarta: Sekolah. Tinggi Ilmu Ekonomi YKPN
- Sinamo, Jansen H. 2002. *Etos Kerja Professional di Era Digital*. Jakarta: Institut Darma Mahardika.
- Sinamo, Jansen H. 2011. *Etos Kerja Profesional Navigator Anda Menuju Sukses*. Jakarta: Spirit Mahardika.
- SMKN 7. 2018. *Struktur Kurikulum 2013 SMKN 7 Bengkulu tahun 2017-2018*. Bengkulu: SMKN7.
- Spencer, Lyle & Signe M. Spencer. 1993. *Competence at Work, Models For Superior Performance*. Canada : John Wiley & Sons, Inc.
- Sudira, Putu, MP. (2009). *Pendidikan Vokasi Suatu Pilihan*. [Online]. Tersedia: <http://blog.uny.ac.id/putupanji/2009/03/17/pendidikan-vokasi-suatu-pilihan/>
- Sudjana, N. 1989. *Dasar-dasar Proses Belajar Mengajar*. Bandung: Sinarbaru.
- Sudjana. 2007. *Media Pengajaran*. Jakarta: Sinar Baru Algesindo.
- Sugiyono. 2011. *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: Afabeta.
- Suherman, Erman dkk. 2003. *Strategi Pembelajaran Matematika Kontemporer*. Bandung: PT Remaja Rosdakarya.
- Sujiono, Y.N, dkk. 2008. *Metode Pengembangan Koqnitif*. Jakarta: Universitas Terbuka.
- Sukaswanto, 1998, *Peran Latihan Kerja dalam Meningkatkan Ekspektasi Kerja*, *Jurnal Pendidikan*, No. 2 Tahun XXVII.
- Sukmadinata, N. S. 2010. *Metode Penelitian Pendidikan*. Bandung: PT Remaja Rosdakarya.
- Sulastiyono, A. 2006. *Manajemen Penyelenggaraan Hotel*. Bandung: Alfabeta.
- Sumarsih. 2019. *Peningkatan Hasil Belajar Peserta didik pada Muatan Pelajaran*

- Matematika kelas 4 melalui metode pembelajaran tutor sebaya di MIN 1 Yogyakarta. *Jurnal Pendidikan Madrasah*. Vol.4, (1). Hlm. 87-96.
- Suparlan. 2008. *Menjadi Guru Efektif*, Jakarta: Hikayat Publishing.
- Suprijono, Agus. 2009. *Cooperative Learning: Teori dan Aplikasi PAIKEM*. Yogyakarta: Pustaka Pelajar.
- Suryo dan Amin. 1984. *Pengajaran Remedial untuk SPG*. Jakarta: Depdikbud.
- Susanto, A. 2011. *Perkembangan Anak Usia Dini*. Jakarta: Kencana Prenada. Media Group.
- Undang-Undang Nomor 13 Tahun 2003 Tentang Ketenagakerjaan. Pemerintah Republik Indonesia.
- Usman, H. & Darmono. 2016. *Pendidikan kejuruan Masa depan*. Pusat Kurikulum dan Perbukuan. Badan Penelitian dan Pengembangan Kementerian Pendidikan dan Kebudayaan.
- Wardiman Djojonegoro. (1998). *Pengembangan Sumber Daya Manusia Melalui SMK*. Jakarta: Jayakarta Agung Offset.
- Weather, William, and Keith Davis. 2006. *Human Resource and Personnel Management*. Boston: McGraw-Hill.
- Weber, Max. 1914. *Economy and Society: An Outline of Interpretive Sociology*. Edited by Guenther Roth and Claus Wittich. University of California Press: Berkeley, Los Angeles, London.
- Widoyoko, E.P. 2012. *Teknik Penyusunan Instrumen Penelitian*. Yogyakarta : Pustaka Pelajar.
- Yamin, Martinis,. 2007. *Profesionalisasi Guru & Implementasi KTSP*. Jakarta: Gaung. Persada Press.
- Yuliani, Fahria & Herlina, Lina. 2015. *Pengembangan Buku Saku Materi Pemanasan Global Untuk SMP*. *Unnes Journal of Biology Education*, Vol. 4 (1), Hlm. 104-110.
- Zahro, S., & Wu, M. (2016). *Implementing of the employees training evaluation using Kirkpatrick's model in tourism industry - A case study*. *International Journal of Innovation*



Impact of Field Visits on Students' Knowledge Towards Rural Development: An Empirical Study on Brac University

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Abstract

The education system of the 21st century mainly accentuates on pragmatic and collaborative learning where field trip is one of the most prominent methods of learning. Considering this, Brac University arranges a lot of experiential learning activities. Visiting different programs of BRAC is one of them where every student of the university is taken to observe the development trends in rural areas of Bangladesh. This study explores the impact of those visits. The methodology of this research includes both qualitative and quantitative approaches. A survey was conducted where 200 students were selected who visited programs of BRAC. Subsequently, a focus group discussion was arranged where 40 students had taken part. The study shows that this field visit helps students becoming more attached to villages, and it inhibits a sense of responsibility among many of them. This research may help policy makers to design their curriculum more effectively in the future.

Keywords: Field Visit, Experiential Learning, NGO, Rural Development, Learning Outcome

1. Introduction

As a teacher of the Bangladesh Studies course (currently renamed as the Emergence of Bangladesh) at Brac University, we have noticed that a good number of students coming from urban backgrounds are quite ignorant about rural development. It is also evident from different reports that young people living in urban areas express a less positive opinion on the quality of life in rural areas (European Survey, 2012). However, the contribution of agriculture to the GDP growth of Bangladesh is 14.10 percent (Dhaka Tribune, 2018). Therefore, it is assumed that knowledge about rural development can inspire young people both from urban and rural to contribute to the development of the country.

Through this research, we have tried to explore the impact of field visits, which is a part of the Bangladesh Studies course, on the students and how they learn about rural Bangladesh from this visit. Dillon et al. (2006) finds that the evidence from research carried out around the world is that fieldwork can have a range of

beneficial impacts on participants. Research by Dierking and Falk (1997) also found that 96 percent of a group (128 children and adults) could recall field trips taken during their early years at school. The BRAC program visit, which is a field visit, is designed to help students to learn about the rural development of Bangladesh.

The methodology of this research includes both qualitative and quantitative approaches. In the first phase, a survey was conducted where 200 students were selected who visited different programs of BRAC viz., microfinance, education, and health. Most of the structured questions were close-ended and others required respondents to give opinions. The second phase involves a focus group discussion where 40 students who visited those programs, based on random sampling, have taken part. During the focus group discussion, half of the students were taken from the group who visited once, and others were taken from the group who visited twice. Focus group discussion has allowed us to ask further questions and learn in detail about their impressions.

This research may direct future studies on the impact of other BRAC programs on students. It will also help policymakers to design the curriculum more effectively to make patriotic and responsible citizens, which is an aim of the Bangladesh Studies course.

1.2. Research area

To create a functional leader in society, Brac University Residential Semester has pioneered many activities which will help students to become an ideal citizens dedicated to his/her own country. This research aims to show how one of such activities e.g. BRAC visits having an impact on the students learning about rural development. Their understanding and motivation to work for rural development will be an important aspect of this research as well.

1.3. Literature review

The main chore of an academic institute is to create active learners who tend to take initiatives for the development of knowledge and human civilization. Keeping this in front, Brac University was established to produce the future leaders through creating a sense of responsibility among students so that they feel motivated to take initiatives for further development of the country. To achieve this goal and better learning outcomes, it arranges a lot of experiential learning activities along with classroom teaching. BRAC visit or trip is one of them where students are taken to different BRAC programs to observe and interact with all the stakeholders including service providers and beneficiaries. Before discussing the effectiveness of BRAC visits or trips, it may be relevant to focus a little on the effectiveness of field trips as a whole to make a better premise for an argument. A field trip is an academic visit to a designated place out of class to supplement classroom learning and cognitive sense of learners. Krepel and Duvall (1981) define a field trip as “a trip arranged by the academic institute and undertaken for educational purposes.” Krakowka (2012, p. 236) defined field trip as any learning experience that occurs outside a classroom. Sorrentino and Bell (1970, p. 233) tried to characterize field trips as a journey taken under the patronage of the academic institute for educational purposes. The main purpose of a field trip is to ensure better learning outcomes by arranging programs and activities for the students which allow them to be active learners instead of passive learners (Yusuf, 2006, p.7). Therefore, field trip has a huge role in student engagement and participatory learning.

However, field trip or visit has been used as a method of experiential learning at educational institutes for centuries. Even though this has always been taken as an integral way of learning, but there has not been initiated that much research to assess the effectiveness of field trips from an academic perspective. This trend of assessment on field trips mainly became popular in the 20th century. A considerable number of research on field trips have come into view over the past 50 years. Most of those researches have attempted to see whether and to what degree field trips contribute to learning, the factors that may contribute to such learning and the learning outcomes that can result from these experiences of visits. Much field trip related research in the 1970s, 1980s, and 1990s focused on the learning potential of informal learning environments like museums, zoos, planetarium or outdoor settings along with indoor teaching and learning (DeWitt & Storksdieck, 2008). Most of this research focused on cognitive or conceptual outcomes of field trips as a supplementary activity along with classroom

learning. The general consensus that emerged from this line of research was that under certain favorable circumstances, field trips might lead to somewhat better learning outcomes than classroom-based instruction (DeWitt & Storksdieck, 2008).

Field visit is an important way of learning where theoretical knowledge embraces practical knowledge and facilitate to develop learners' understanding of the particular field. Research indicates that field trips help students to sharpen their skills of observation and perception by utilizing all their senses (Nabors, Edwards, & Murray, 2009, p. 661). Students in field trips usually develop a positive attitude for learning through establishing connections between the theoretical concepts in the classroom and experiences from the visit (Hudak, 2003, p. 220). It also helps the learners to understand the past and present and influences them to take initiative in the future based on their experiences. Thus, learning from a field trip is not considered as merely an extension of classroom teaching, but as a valuable supplement to classroom instruction which also works as an effective way to prepare students for future learning. (Hofstein & Rosenfeld, 1996; Orion & Hofstein, 1994).

Brac University, along with its many other experiential learning activities, gives more importance on academic visits, viz. Liberation War Museum, Lalbagh Fort and Museum, BRAC program and many more. From a study on 100 students, these visits have been found effective in terms of achieving learning outcomes and cognitive changes in the mind of students. Especially, BRAC visit was identified by students as an effective way of knowing about the rural development of Bangladesh which motivates students to take initiatives in the future. In that study, around 82% of students who were taken to observe different BRAC programs showed a clear interest in working for the rural development of Bangladesh in their future careers. Most importantly, in the same study, a focus group discussion with current students and alumni was also carried out where many were found engaged in similar activities which they observed during their BRAC program visits. In that study, a clear and visible impact of BRAC visits was found among the students which also helped them in their academic and professional careers. Justin Dillon et al., (2006) reviewed many research into outdoor learning published between 1993 and 2003, and summarized that fieldwork, properly conceived, adequately planned, well taught and effectively followed up, offers learners opportunities to develop learner's knowledge and skills in ways that add value to their everyday experiences in the classroom. Therefore, a field trip is considered as a very effective way of learning.

1.4. Research question

The following questions had been considered by the researchers, regarding the impact of BRAC visits on the students.

- a) Does field visit to village (BRAC program visit) enhance students understanding about rural development?
- b) Does field visit to village (BRAC program visit) help to inhibit a sense of attachment to village?
- c) Does field visit to village (BRAC program visit) create enthusiasm among students to contribute to the rural development in the future?

1.5. Research hypothesis

Two hypotheses have been considered by the authors. These are:

- a) Students gather knowledge about rural development by interacting with the villagers and observing different activities of the programs during their field visits.
- b) A significant and positive impact is noticed on the students after the field visit.

2. Methodology

To conduct the research and to have the necessary understanding of the impact of field visit the authors had selected the BRAC program visit. They went through possible methods and techniques to collect data. By nature, the study focused on both qualitative (documents review and Focus Group Discussion) and quantitative (survey) approaches.

2.1. Sampling

In this study, for collecting data from students, 200 students were randomly selected who visited different programs of BRAC (microfinance, education, and health). Later, we conducted two focus group discussions where 40 students were randomly selected, and half of them were taken from the group who visited the program twice to compare between a single visit and visiting twice. The sample size of the research was 200.

2.2. Data collection tools

Survey by questionnaire. The researchers followed a questionnaire for collecting data where the participants were the students of fall 2016, Brac University. Altogether 200 students took part in the survey during the semester. The questionnaire had 12 questions *in combination of multiple choices, open-ended and positive to negative value-based questions.* *Before the students took part in the survey, they were well informed about the process. To ensure fairness, the participants were instructed not to write their names and identification number anywhere in the form.*

Focus Group Discussion. Two focus group discussions were arranged where 40 pupils were randomly selected who visited those programs, based on random sampling. Half of the students participated after one visit whereas the rest of them took part after the second visit. Focus group discussions allowed us to ask further questions and learn in detail about their impressions. It also helped us to compare the impact of field visits on those two groups of students.

2.3. Data analysis techniques

Microsoft Office Excel 2007 was applied to evaluate and interpret the data.

3. Findings and discussions

The analysis has been divided into two major segments. Firstly, quantitative analysis will be placed under the Survey Findings section. Secondly, qualitative analysis will be placed under the Focus Group Discussion section.

3.1. Survey findings

To inhibit a sense of attachment and responsibility to the country, all the students of Brac University are taken to observe different programs of BRAC, the largest NGO in the world (the daily star, 2018). as part of the Bangladesh Studies Course, all the students of fall 2016 visited different programs of BRAC and around 200 of them were randomly selected who visited BRAC Microfinance, Education, and Health program for this research. Besides, a group of students was also taken to visit those programs twice to identify the impact of visiting more than once. This research intended to check whether the visit experience influences students to be more attached to the village and rural development of Bangladesh or not. After the visit, they were asked to take part in a survey, and attend in a focus group discussion where they shared their experiences from the visit. From the study, it has been found that visit to different programs of BRAC enriches students' knowledge about rural development of Bangladesh in many ways. As it has been shown in the table 1, 38% of students did not even try to know about the rural development of Bangladesh before attending the BRAC visit. it indicates that a large number of students did not have any prior idea about the village areas of Bangladesh. After attending the visit, 81.5% confirmed that the visit helped them to know about the development trend in Bangladesh, especially in rural areas. A similar result was also found in another survey conducted at Brac university in 2017 where 100 participants were asked whether they had any prior idea about the rural development of Bangladesh or not. In that survey, 50% of students responded that they never tried to learn about the development of villages before going to the BRAC program visit. Interestingly, 44% of them were from urban areas (Shamsuddoha et al., 2018). It illustrates that urban students have even less idea about the rural life of Bangladesh. But it is really important to involve every citizen in the development process of a country irrespective to their origin.

Table 1: Students' idea about rural development

Questions	Response (%)			
	Yes	To some extent	No	No response
1. Did you ever try to learn about the development of villages before going on the BRAC visit?	24	37.5	38	0.5
2. Do you think the BRAC visit helped you to get some idea about the development of villages in Bangladesh?	81.5	16	1	1.5

Furthermore, students were able to observe the development trend in different sectors of village people during their visit which created a positive image of the village and its people in the mind of students. It has been reflected in the response of the students during the survey (see table 2) where 65% of participants affirmed that the rural people are aware of the advantage of sending their children to school. 45.5% of students thought people of the visited villages were aware of health issues and hygiene but 25.5% said they were not. After visiting the microfinance program of BRAC, 52% of students shared that vulnerable people of the village are getting microfinance facilities, and only 11% responded negative to this statement. Students were also asked a question about the economic condition of rural people where 86% of students denoted that they think the economic condition of rural people is improving.

Table 2: Students' idea about rural development in different sectors

Questions	Response after the visit (%)			
	Yes	Not sure	No	No response
1. Do you think rural people are aware of the advantages of sending their children to school?	65	21	13	1
2. Do you think rural people are aware of diseases and treatment for maternal health, tuberculosis, and eyesight problems?	45.5	28.5	25.5	0.5
3. Are vulnerable people getting the microfinance facilities?	52	34.5	11	2.5
4. Do you think that the economic condition of rural people is improving?	86	7	6	1

Bangladesh is a newborn country which does not even exceed half of a century but has successfully created an example in social development. Most notable achievements have been in the health and education sectors. Development in the health sector of Bangladesh has been stated as one of the great mysteries of global health (Riaz, 2016, p. 528). This social development especially in villages, has greatly contributed to change the economy of Bangladesh over the past five decades. As students observed the socio-economic condition of rural people, they were asked about the actor/s who helped to ensure development in the village. In response to this statement (Figure-1), 71% of students said both government and NGOs have ensured socio-economic development in villages whereas 26% confirmed that NGOs have contributed more to this process. This indicates that the BRAC visit helped students to know more about the development process of the country.

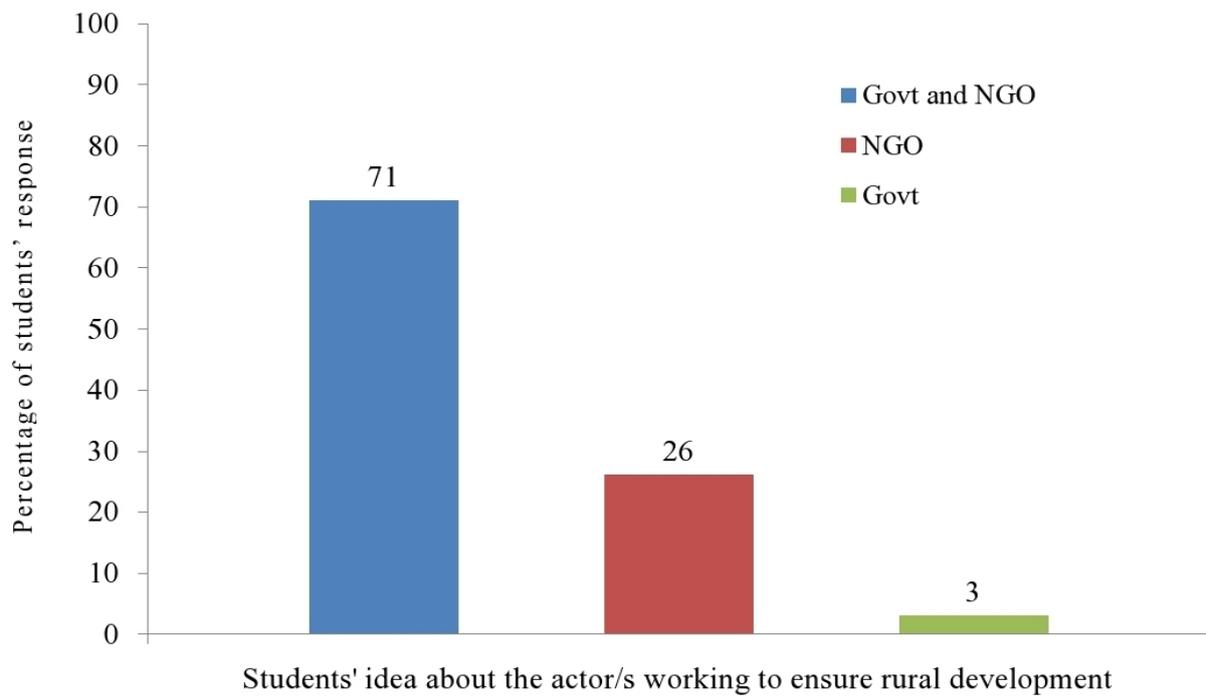


Figure 1: Actor/s working to ensure rural development

As it has been already described under the methodology, some students were taken to visit BRAC programs once and some were taken twice. During the survey both the groups were asked whether a single visit is enough or it requires more visits to BRAC programs to understand rural development. In response to this issue (Figure-2), 97% of students affirmed that a single visit is not enough to understand the rural development of Bangladesh, rather it requires more.

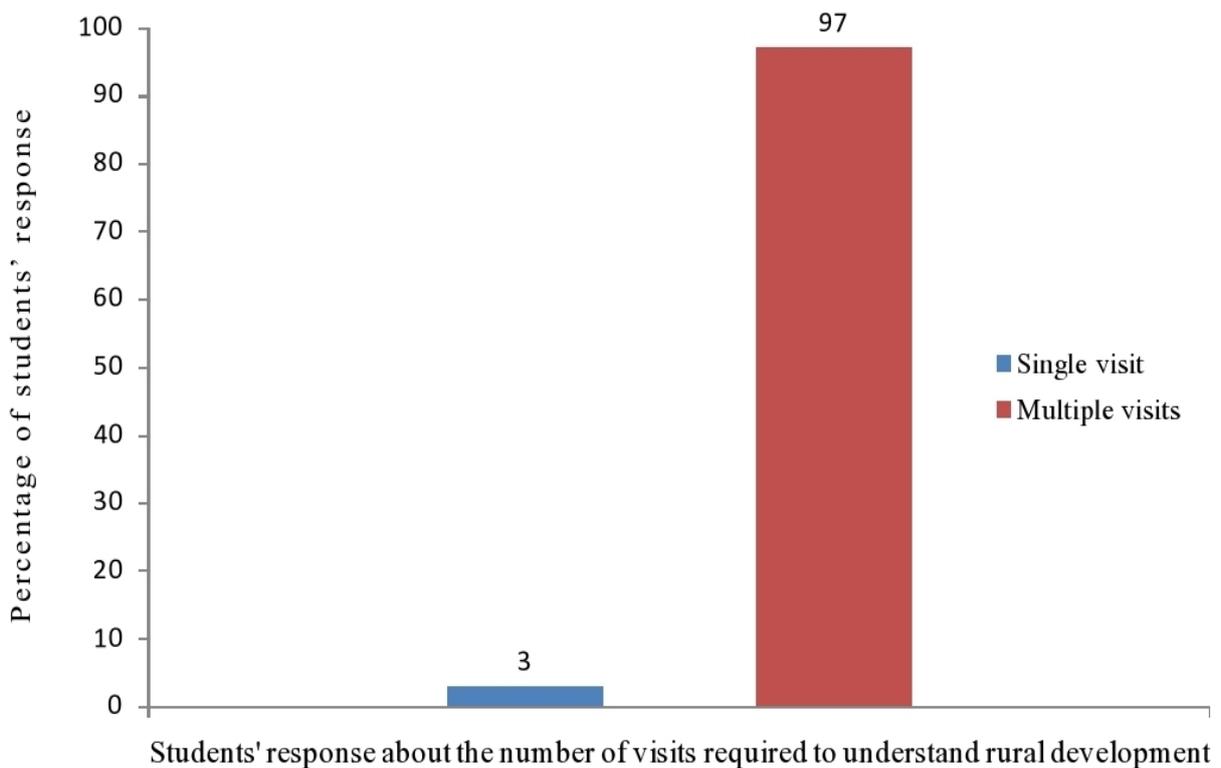


Figure 2: Number of visits required to understand rural development

From the survey, it has been found that most of the students got a clear idea about the rural condition of Bangladesh. Thus, they have been motivated to get involved in the development process of the country especially in rural areas. In a question during the survey, students were asked whether they felt interested in working for the rural development of Bangladesh in the future or not. In response to this question (Figure-3), 66% of them were found positive, 29% showed the possibility, and only 3-5% said they were not interested in working for the rural development. Hence, it has been found from the survey that the BRAC visit has successfully ignited the interest in the mind of most of the students to work for the rural development of Bangladesh in their future careers.

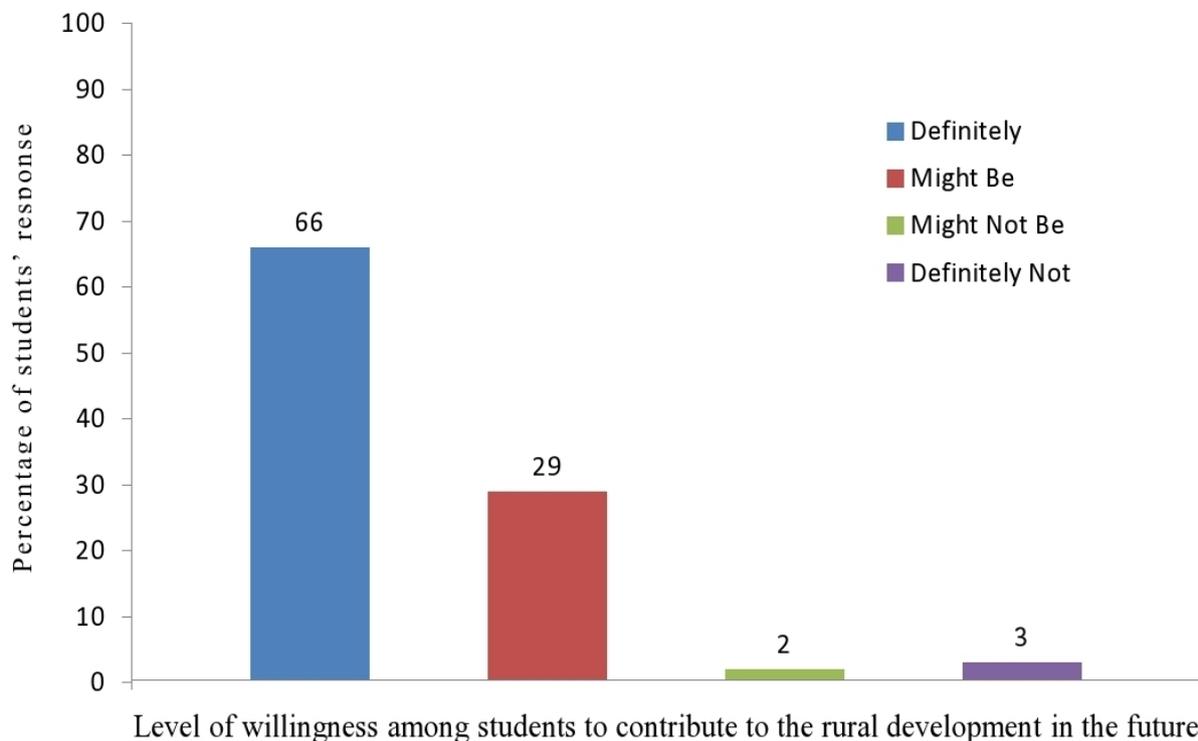


Figure 3: Willingness of students to contribute to the rural development

In each semester, Brac University Residential campus also conducts a campus-wide survey where all students are asked to evaluate the quality and effectiveness of different programs they have undergone. In that campus-wide survey (Campus Evaluation, 2016), 86.52% of students affirmed that the BRAC visit was a very effective way for them to explore the rural development in Bangladesh. This knowledge helps them to feel more attached to the rural areas and marginalized communities.

The study shows that BRAC visit enhances students learning about rural development of Bangladesh through motivation and effective engagement. It also helps them to find out the scope of their contribution to the country in the future. This is how visits or field trips create scope of cognitive understanding with long term effects.

3.2. Focus group discussion

As it has been already mentioned under methodology, 40 students were randomly selected for the focus group discussion from those 200 participants who took part in the survey. Out of that 40 people, 20 were taken for a follow-up (second time) visit to understand their depth of knowledge compared to them who visited once.

During the focus group discussion, we have found that a very few numbers of students (20%) had previous experience of visiting rural areas 7/8 years back to experience rural development in Bangladesh. They could easily compare the situation between now and then after the BRAC visit. Remarkable improvements in the standard of living, health, and education of the villagers were pointed out in their discussion. The followings are the program-wise findings from the discussion.

Education program. BRAC visit helped the students to understand the value of BRAC education program on the villagers which is significantly different than the formal primary schools in the country. The unique method of teaching through extra-curricular activities helps the village kids to understand the significance of teamwork, taking responsibilities for each other at this very young age that they learned at the university level. They appreciated the friendly environment and motivating mothers in the monthly meeting to keep the attendance rate higher in BRAC schools which is around 100%. Besides, considering the educational background of the parent's no new work is given to the kids at home. Students think that BRAC schools are also successful in PSC and supervising their students until the SSC level. BRAC's one teacher policy, flexible school timing and parents-teacher meeting ensure an effective academic relationship between the teacher and students. Moreover, basic foundation training has made the BRAC school teachers more capable than others. Students also pointed out that the student-friendly strategies of teaching have made the learning at BRAC School a lifetime experience for these first-generation learners. The students of BRAC School often take part in singing or dancing, recitation of rhymes and poems, storytelling, etc. that creates enthusiasm among them about learning new things. These village kids are more disciplined and cooperative with each other which they learn from different activities in the classroom. Students think that the focus on practical learning rather than bookish knowledge is one of the reasons behind this enthusiastic learning environment for which BRAC kids are even ready to sacrifice physical comfort. Comparing to other mainstream formal primary schools in the rural areas BRAC is successful in guiding its students along with setting a lifetime goal for them. Students believe that development is taking place in rural areas through this kind of creative education system. They further added that the leadership skill that the village kids are developing at this young age would help them to subsequently lead their area and country. Students also suggested that providing electricity in those schools would ensure a better environment.

Microfinance program. Students visited the microfinance program of BRAC with a stereotyped notion about the villagers, especially the women. But the visit helped them to understand the changes taking place in rural areas. They were surprised to see the village women under the microfinance program confident, responsible and independent. This program is empowering them, and women are getting most out of it. Since on many occasions, women become the source of money for the family, therefore they earn respect and become a part of the decision-making process in the family which was quite impossible before. Students found that the microfinance program helped to create female entrepreneurs in society. It has some social impact as well e.g. the number of divorces and domestic violence decreased a lot. Besides, students had found the village women more conscious about their health, children's education, the standard of living and future-plan like many educated families in urban areas. The program has brought changes in their perspective and now they work as a change maker. Customer-friendly strategies, flexibility, availability have made the system convenient for both the rural men and women. The villagers found the system simple, transparent and better than other organizations. Students feel that this program is thus contributing to the overall development of the country. Apart from this, students think that the loan range might be higher for Dabi along with extended time duration for payment.

Health program. Students were unaware of the development of the health sector in the rural areas since health is the least prioritized area in the village life. They appreciated the concept of health workers very much who have become successful to make the village women talk about their health issues. Now village women are getting services at their doorstep and conscious about nutrition, diet, and other health issues. BRAC's provision of low-cost basic healthcare, maternal health, nutrition program, tuberculosis program, eye care, etc. is contributing to the overall development of the country.

The students think that these kinds of initiatives in the rural areas are necessary to have proper maintenance of manpower in the country. To ensure sustainable development we need to focus on the rural areas and proper decentralization is important. Thus, we can ensure social, economic and political sustainability in the country and lessen the burden on the capital. A number of them also felt encouraged to work for the rural areas in the future after the visit.

To make the BRAC visit more effective students suggested that all students need to visit all the programs. If it's not possible then at least visiting three of the programs i.e. Microfinance, education, and health is important. Because these three programs of BRAC are connected and bring changes in a holistic approach.

A day-long visit and face to face interaction with the villagers can play a major role in the learning of the students. It is better to have a surprise visit to the villages to see how different components of the programs are working.

This scope of learning rural Bangladesh should not be limited to Residential Semester only; initiatives must be there to continue at the main campus in Mohakhali (urban campus). There might be a club at the main campus for the interested students to contribute to the well-being of the rural people. Even students can have research on rural areas and make documentaries in every two semesters. Students can also be encouraged to take projects on rural development under other courses and go for publication. Those who are interested must be given a guideline to move forward.

Through focus group discussion with the students, it was understood that being a part of the urban community they were very much unaware about the overall development taking place in the rural areas. They had stereotyped ideas which were changed after interacting with the villagers. The visit was successful to make some of them interested to work in this field in the future. Another major finding is that after one visit though 97% students felt that two days visit is important but those who (20 students) visited twice found that one-day-long visit is enough to get an idea about the programs. Nevertheless, it has been clear from this study that field visit has a very positive impact, and it creates scope of cognitive understanding with long term effects on the mind of students.

4. Conclusion

The modern education system emphasizes on visualization and practical learning which can be achieved through field visit. In a field trip, students learn from their own observation and motivation which can achieve more learning outcomes. Keeping this in mind, Brac University arranges a lot of field visits and experiential learning activities along with classroom teaching. BRAC program visit is one of them, which tries to create a sense of belongingness and responsibility among the next generation. The present study mainly tried to analyze whether BRAC visit leaves a positive impact on students' attitude towards the development of rural areas of Bangladesh or not. It has been found that BRAC visit helps to create a sense of attachment and responsibility to the socio-economic development of the country as a large number of students shared that they want to contribute for the rural development of Bangladesh in future. The study also shows that learning from field visit is very long-lasting with far-reaching effects.

References

- Campus Evaluation. (2016). Unpublished raw data, Brac University residential campus, Bangladesh.
- Dillon, J., Rickinson, M., Teamey, K., Morris, M., Choi, M. Y., Sanders, D., & Benefield, P. (2006). The value of outdoor learning, *School Science Review*, 87(320), 106-112.
- Hofstein, A., & Rosenfeld, S. (1996). Bridging the gap between formal and informal science learning. *Studies in Science Education*, 28, 87-112.
- Hudak, P. (2003). Campus field exercises for introductory geoscience courses. *Journal of Geography*, 102(5), 220-225.
- Jennifer DeWitt & Martin Storksdieck (2008): A Short Review of School Field Trips: Key Findings from the Past and Implications for the Future, *Visitor Studies*, 11:2, 181-197. <http://dx.doi.org/10.1080/10645570802355562>
- Krakowka, A. R. (2012). Field trips as valuable learning experiences in geography courses. *Journal of Geography*, 111(6), 236-244.
- Krepel, W. J., & Duvall, C. R. (1981). "Field trips: A guide for planning and conducting educational experiences," Washington, DC: National Education Association.
- Nabors, M.L., Edwards, L.C., & Murray, R.K. (2009). Making the case for field trips: What research tells us and what site coordinators have to say. *Education* 129(4), 661-667.
- Orion, N., & Hofstein, A. (1994). Factors that influence learning during a scientific field trip in a natural environment. *Journal of Research in Science Teaching*, 31, 1097-1119.

- Shamsuddoha, M., Jahan, R., Molla, I. H., Zamila, S. F. (2018) The Effectiveness of Bangladesh Studies Course in Developing Concerned Citizen: A Study on Brac University Residential Semester. Unpublished Manuscript, Brac University, Bangladesh.
- Sorrentino, A. V., & Bell, P. E. (1970). A comparison of attributed values with empirically determined values of secondary school science field trips. *Science Education*, 54(3), 233-236.
- The Daily Star. (2018). BRAC ranked top global NGO for 3rd consecutive year. Retrieved from <https://www.thedailystar.net/country/brac-ranked-top-global-non-government-organisation-ngo-3rd-year-in-row-2018-bangladesh-bd-1553701>.
- Riaz, A. (2016). *Bangladesh: A Political History Since Independence*, I.B Tauris & Co. Ltd, London, 2016, 528-529.



Context Analysis of Non-intellective Correlates affecting Future Educators' Sociolinguistic Competence

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Abstract

The study investigated the non-intellective correlates affecting the sociolinguistic competence of teacher education students, with a focus on the analysis of their contexts relative to social experiences, language attitude, and use of linguistic forms in different situations. It also determined the common difficulties they experience in the use of English in both oral and written forms. Descriptive mixed methods were utilized, with a validated questionnaire serving as primary instrument to gather relevant data from 331 teacher education students from different fields of specialization. Focus group discussions were conducted to activate the students' awareness of non-intellective correlates and extract emerging issues in language use. The analysis of the quantitative data together with the coded and categorized transcriptions revealed that while the students generally have a positive attitude towards the use of the English language, they rarely use varied linguistic forms adaptive to different social contexts, implying the need to work on their adaptive capacities in using English for various purposes. Most of the issues they encounter are psychological and socio-physical in nature, while limited vocabulary, over-consciousness in grammar use, and lack of confidence affect their skills most. It was recommended that contextualized activities be developed for integration in the communication courses to highlight the authentic use of language in different social contexts.

Keywords: Non-Intellective Correlates, Sociolinguistic Competence, Context Analysis, Language Attitude

1. Introduction

Sociolinguistic competence, or the knowledge of social and cultural factors that influence or are expressed via linguistic choices, is one of the four dimensions of communicative competence, which is based on the complex interaction of grammatical, sociolinguistic, psycholinguistic, and probabilistic systems of thought (Wagner, 2005; Canale, 1983). This means that social interaction is inevitably incorporated into linguistic structures. Hence, as people acquire a language, starting from the sounds and word formations, they also connect these sounds and words to particular forms of usage in their immediate social environment.

In the process of linguistic development, people acquire foundation knowledge on when to speak, what words to use, what to talk about with whom, where, when, and in what manner. In short, they begin to accomplish a repertoire of speech acts, to take part in communicative situations, and evaluate their overall communicative performance.

However, occasional shifts in the type of communication one uses are expected, which require both speaker and listener to adjust the strategies they use in the middle of a communicative exchange. In addition, other participants may enter an ongoing exchange, and communicators ideally resort to their adapted language to be able to ensure the success of the communication process.

Adapted language is used when people vary their choice of words and expressions depending on the contexts of the communicative participants (Rimondini, 2010). This means that speakers are expected to consider age, status, gender, ethnic origin, and other factors in communicating, all of which may be considered as non-intellective correlates that influence one's sociolinguistic competence. Non-intellective correlates such as attitudes and social experiences necessarily influence a person's aptitude in language use in various social situations (Kaufhold & Johnson, 2005).

This is one important development that has taken place within theoretical linguistics, which has given emphasis on understanding the functions of language in a variety of social contexts (Duff, 2014). It includes analyzing the kinds of adaptations speakers know how to make when speaking formally versus informally, when talking about academic topics versus everyday subjects, and when interpreting others' speech and writing, among other facets of sociolinguistics.

Sociolinguistic competence is hence integral with people's language attitudes, their values and motivations concerning language, including its features and variety of uses. It also covers their knowledge on sociocultural rules of use, which involve the combination and interaction of social and cultural elements. Learning how to be sociolinguistically competent concerns a person's ability to handle different settings, topics, and communicative functions in different sociolinguistic contexts.

This means that individuals who are sociolinguistically competent are those who have an awareness of the social use of language such as formality, politeness, and directness (Garrets, 2010). They are also knowledgeable and sensitive to the use of nonverbal behaviors and cultural references, which help them in connecting ideas. For instance, highly educated professionals should not speak to uneducated maintenance personnel using jargon or technical language, because this opens a lot of possible instances for communication breakdown. They must adjust their speech and adapt their language to the context of the supposed recipient of the information being conveyed.

This relates to the concept of Bachman (2005) that emphasizes both language competence and knowledge of appropriate language use, which points to the balance in the correct and proper use of language. While it does not diminish the importance of learning grammar and other conventions, it highlights sociocultural rules surrounding language. The appropriateness depends on the setting of the communication, the topic, and the relationships among the people engaged in the communicative situation.

Hence, the correlates influencing the relationships between language and society must be explored, as sociolinguistic competence is necessary to allow people to act appropriately and successfully in a variety of speaking situations (Nordquist, 2010). One important aspect of sociolinguistic competence in language attitude, which undoubtedly permeates people's daily lives. Some are not publicly articulated and hence are not always conscious of the words they use or of the way they communicate with others. There are times when people use language that seems inappropriate in a particular social context, primarily because of their detachment from the established and accepted social rules of language use.

This is one primary reason why this study was conducted, especially in light of the omnipresence of social media, which serves as the predominant platform used by the youth in communicating to the world. As a faculty handling teacher education students, the researcher has noticed the seeming unfamiliarity – sometimes even ignorance – of some students to social variations in communication. While most of them remain active on social media, very few engage in real conversations using the second language.

Hence, determining the students' contexts relative to their social experiences, language attitude, and use of linguistic forms may provide insights on how to improve their sociolinguistic knowledge and apply this properly in the real world. As future educators, the teacher education students are expected to communicate in English almost on a daily basis, as this is their main tool in ensuring the effective delivery of instruction. It is therefore imperative that their contexts relative to non-intellective correlates affecting sociolinguistic competence be assessed in order to purposively address their perceived weaknesses and eventually enhance their sociolinguistic skills.

In relation to the teaching profession, context analysis involves the process of identifying the social and institutional factors that may have an impact on decisions, such as materials development, syllabus preparation or curriculum development (Nation & Macalister, 2010; Richards, 2001). It includes identifying constraints that will have an impact on any course and making decisions about how to account for factors that are particularly challenging.

This study considered the students' social environment, social context, and sociocultural contexts, which refer to the immediate physical and social setting in which they live and where language use is expected to be enhanced. These include the environment where the individual lives in, and the people and institution with whom they interact (Barnett and Casper, 2001).

This study has direct academic implications for Teacher Education faculty and students. For the teachers, this will serve as input in managing and understanding the students' language attitude and unique ways of learning. This can serve as a guide in the design of appropriate methods, strategies, and instructional materials in the teaching of communication courses.

For students, especially those who will use English as primary medium of instruction when they enter the world of work, this study will increase their awareness of sociolinguistics and its implications to their use of language in various social contexts, which will hopefully improve their ability to communicate in a manner that is culturally and socially sensitive. In addition, the study opens a lot of avenues for further research in the field of sociolinguistics and the teaching of English in teacher education institutions.

2. Objectives

The study investigated the non-intellective correlates affecting the sociolinguistic competence of teacher education students from Batangas State University, a Center of Development in Teacher Education recognized by the Philippines' Commission on Higher Education.

The focus was on the analysis of the students' contexts relative to social experiences, language attitude, and the use of linguistic forms in different situations. It also identified the common difficulties they experience in the use of English in both oral and written forms. Further, the study determined if there were significant differences in the responses when grouped according to the respondents' profile variables.

3. Methodology

This study utilized descriptive mixed methods, which entailed the collection of both quantitative and qualitative data for in-depth analysis. A total of 331 teacher education students with different fields of specialization during the academic year 2019-2020 served as the study's respondents.

Direct data survey was conducted to collect quantitative data through a validated, two-part questionnaire. The first part consists of the student-respondents' profile, while the second part consists of descriptive statements related to their contexts anchored on non-intellective factors affecting sociolinguistic competence. Ten items are allotted for each of the identified variables: social experiences, language attitude, and use of linguistic forms in different contexts.

Table 1 shows the distribution of respondents by field of specialization. To determine the sample size, Raosoft statistical software was used with one-way Anova as tool. It was based on a priori power analysis with the effect size of 0.21 and 0.95 confidence levels. Simple random sampling technique was used to identify the individual members of every sample.

Table 1: Distribution of Respondents by Field of Specialization

Field of Specialization	Population Frame	Percentage
English	35	10.6
Filipino	18	5.4
Science	25	7.6
Mathematics	18	5.4
Technology & Livelihood Education	37	11.2
Music, Arts, PE, and Health	37	11.2
Social Science	15	4.5
General Education	146	44.1
Total	331	100

A four-point scale was used for the scoring of responses, specifically on the frequency of utilization of the English language in various situations and for various purposes:

Scale	Range	Verbal Interpretation
4	3.26 – 4.00	Always
3	2.51 – 3.25	Most of the Time
2	1.76 – 2.50	Sometimes
1	1.00 – 1.75	Never

Focus group discussions (FGDs) were also conducted to activate the students' awareness of non-intellective correlates and extract the problems they encounter in their use of the English language. Two groups of eight participants each, representing all fields of specialization offered in the university, were gathered on two separate occasions. Their responses were transcribed and categorized to extract emerging themes as regards their difficulties in language use.

For statistical analysis, weighted mean and t-test were utilized, the latter to test the null hypothesis that there are no significant differences in the responses when grouped according to the respondents' profile variables. For ethical considerations, the researcher acquired informed consent not only from the parents of the students but also from their respective class advisers prior to the questionnaire distribution and FGD.

4. Results and Discussion

After statistical treatment and data extraction from the filled out questionnaires and transcriptions, the researcher analyzed and interpreted the gathered information.

As regards the respondents' profile, 57.4 percent of the respondents were between 16-18 years old, while 36.9 percent were between 19-21 years old. The remaining 5.7 percent were 22 years or older. These figures are consistent with the results in terms of year level, since 61.6 percent of the respondents were either first year or second year college students (some were irregular students), while only 23.9 percent and 14.5 percent were in their third and fourth year in college, respectively. Overall, 80.7 percent of the respondents are female, and only 19.3 are male. These data will be relevant in a later discussion, when the responses are grouped according to the respondents' profile variables.

The primary focus of the study is the analysis of the students' contexts relative to non-intellective correlates in terms of their social experience, language attitude, and use of linguistic forms in different contexts.

In this study, social experiences refer to the actual experiences of the students in using the English language, which may provide important insights on how such experiences help shape their language attitude. The results on this area are presented in Table 2.

Table 2: Students' Context in English Language Use relative to their Social Experience

Descriptive Statements	Weighted Mean	Frequency
Use of English at/in... a. home	2.16	Sometimes
b. school	2.74	Most of the
c. restaurants	1.98	Sometimes
d. malls	1.96	Sometimes
e. public vehicles	1.79	Sometimes
f. other public places	1.95	Sometimes
Use of English when... a. talking with relatives	1.98	Sometimes
b. talking with classmates	2.45	Sometimes
c. talking with school officials	2.78	Most of the Time
d. talking with friends (other than classmates)	2.17	Sometimes
Attending seminars where English is used as medium	2.68	Most of the Time
Watching foreign movies and/or TV programs	2.71	Most of the Time
Easily adapting one's language to audience	2.50	Sometimes
Following the English-speaking policy of the department	2.89	Most of the Time
Hanging out with classmates who speak good English	2.28	Sometimes
Having ease in communicating in English to a foreigner	2.28	Sometimes
Communicating easily with people of a different dialect	2.21	Sometimes
Preferring reading instead of conversing in English	2.33	Sometimes
Composite Mean	2.32	Sometimes

The results clearly show that students use English mostly in school, with a weighted mean of 2.74. They only use English sometimes at home, in restaurants, malls, public vehicles and other public places. This coincides with the finding that they also use English mostly when they speak with professors and school officials, with a weighted mean of 2.78, which suggests that they use English most of the time only when they feel like the situation calls for it. These social situations take place mostly in schools and in the presence of school authorities.

Therefore, in the presence of friends and relatives and at the confines of their own home, they rarely use English, primarily because no one uses English there as well, as revealed in the FGD. This is consistent with all their responses in speaking in English in public spaces, with public vehicles receiving the lowest weighted mean of 1.79. This highlights the social nature of language; since very few, if anyone at all, speak in English in these social spaces, they would rather not use it in communicating.

The students who took part in the focus group discussion (FGD) supported these results. They claimed that they speak in English only in school since they are required to do so, especially when speaking with school authorities. At home and in public places, they use their native language almost all the time, suggesting that their only opportunity to use the English language on a consistent basis is within the university, specifically when communicating with authorities.

The results echo the findings of Blanco, et al. (2005) who studied the factors that affect the students' performance in relation to language learning, with a specific focus on oral communication. The findings revealed that while students have a moderately positive attitude towards learning English as a second language, the application of linguistic knowledge is significantly affected by their teachers, parents, peers, and the time they spend in using the language outside the classroom. This suggests that because of the very limited exposure to and use of the English language outside the classroom, language learners find it relatively difficult to associate language rules to real-life, social situations.

This implies the need for English language and communication teachers to conceptualize and develop activities and materials that would bridge the gap between the classroom and the real world. This can be done by designing authentic tasks that address both the learning outcome for language use and the students' contexts on actual use of the language outside the classroom.

Despite this, it is a source of relief that the students still follow the English-speaking policy of the department most of the time, with a weighted mean of 2.89, the highest among the descriptive statements. This means that they try to use the second language in designated English-speaking zones in the college premises and during college-wide events. Watching foreign movies or TV programs most of the time, with a weighted mean of 2.71, presumably help them, at least in exposing them to the English language.

Further, the results revealed that students have a relatively difficult time adjusting or adapting their language use depending on whom they talk to, and have difficulty in communicating to people with a language other than their own. This entails proper, strategic interventions so that this aspect of their journey to mastering English as a second language is applied in their different social experiences.

The composite mean of 2.32 suggests that the students sometimes use English in the different social experiences they have. This may be insufficient if they are to really acquire the language and be able to use it well on a daily basis. The results show that they need more experience with the use of the language so they can apply their linguistic knowledge in various social situations. This is especially important when they become professional teachers, especially for those who use English in the delivery of instruction.

On the other hand, language attitude refers to the manner by which the students perceive the English language and English language use. It covers the way they react in different situations that require the use of the English language. The results are shown in Table 3.

Table 3: Students' Context in English Language Use relative to their Language Attitude

Descriptive Statements	Weighted Mean	Frequency
Using standard, formal English when speaking to professors and school officials	2.63	Most of the Time
Using English when the other person also speaks in English	2.73	Most of the Time

Having confidence in speaking with professors and school officials	2.36	Sometimes
Not feeling pressure to commit grammatical mistakes when conversing with friends	2.60	Most of the Time
Enjoying the use of English when talking to professors and/or school officials	2.48	Sometimes
Enjoying conversing with other friends who use English well	2.55	Most of the Time
Having confidence when speaking in English casually	2.38	Sometimes
Preferring the use of English in a formal context even when one can be understood better if Filipino is used	2.35	Sometimes
Preferring to speak in Filipino in off-school contexts because it takes a lot of effort and time to express myself in English	2.60	Most of the Time
Speaking in English or when required by professors or any school authority.	2.87	Most of the Time
Composite Mean	2.56	Most of the Time

The results show that most of the time, students speak in English if they are required by school authorities, with a weighted mean of 2.87. This is parallel with the initial results that reveal how students would only use English as a matter of adherence to school policies. Most of the time, they also speak English only when the other person speaks in English as well, suggesting the reciprocal nature of language use.

Consistent with their other responses, the students revealed that even when they feel like committing grammatical mistakes when using English in communicating can be taken lightly, they feel this only when they speak in front of friends, with a weighted mean of 2.60. On the other hand, they would also rather speak in Filipino because most of the time, it takes a lot of effort and time for them to express themselves in English, with a weighted mean of 2.60. It was clarified, however, that this happens mostly in out-of-school contexts, suggesting that they still use English in formal situations in school. There are also times when they do not want to express themselves in English, especially if they feel like using Filipino is more convenient and effective in sending their message across.

The students' level of confidence when speaking in English or speaking with someone who is fluent in the language is also a matter worth looking into. While this is highly a psychological rather than an intellectual factor, it is also worth noting that some students simply have trouble in language use because of lack of self-confidence, as revealed in the FGD which will be discussed in the later part of this research. Two descriptive statements received the same weighted mean of 2.36: they sometimes feel confident when speaking with their professors and school authorities, and they feel confident whenever they speak with someone in English.

Both statements received the second lowest weighted mean, which implies that students have difficulty expressing themselves in English in the instances when they are required to do so. It is worth noting that the previous table revealed how students would use English mostly when speaking with professors and school authorities, and the current table revealed that they lack confidence when speaking with professors. This means that the students need to gain more confidence in speaking, especially when communicating with authorities or other professionals with good command of the language.

In light of the apparent intricacies of the social aspect of language use, language learners inevitably experience challenges and difficulties. Some of them address these issues directly, while some seemingly ignore these despite their effects to their ability to use language properly. According to Walt and Schilling (2015), some language learners simply lack the motivation or have the don't-care-attitude. They lack interest, focus and engagement, which eventually lead to poor enthusiasm and passion to improve. While this is not necessarily the case for majority of the teacher education students in this study, it is still necessary for language teachers to address these first and pique their interest before they can address the learners' linguistic skills.

Confidence is an attribute that is not taught but is rather built up internally, so it is imperative for language instructors to strategize and design activities that would enhance the students' confidence in using the English language. The first step would always be to provide an atmosphere that is not punitive but is rather formative in nature, so that the students will not fear using the language. This is true especially since the study also revealed that most of the time, they enjoy speaking with friends who are good in English, which suggests that they are willing to learn and apply their knowledge of the language. The composite mean also shows that most of the time, students have a positive attitude towards the use of the English language.

One factor that makes sociolinguistic competence so hard to acquire is the large amount of variance in cultural rules of speaking; in other words, what is appropriate to say in one culture may be completely inappropriate in another culture, even though the situation in which it is said is the same. The learner is often unaware of these differences, and uses the rules of speaking of his or her native culture when communicating in the second or foreign language.

Therefore, the third variable explored in this study is the use of linguistic forms in different contexts. This is the heart of sociolinguistic competence, as it covers how and how often students use variations in language amidst varying social contexts. The results are shown in Table 4.

Table 4: Students' Context in English Language Use relative to their Use of Linguistic Forms in Different Contexts

Descriptive Statements	Weighted Mean	Frequency
Using colloquial English language in casual, everyday conversations	2.55	Most of the Time
Using intimate language when talking with a significant other, or with any close acquaintance	2.27	Sometimes
Using different language/ words when speaking with friends compared to when speaking with professors.	2.39	Sometimes
Speaking differently when speaking with parents than speaking with a stranger	2.50	Most of the Time
Using English words in updating one's Facebook or Twitter account, or any social media account	2.56	Most of the Time
Writing differently when emailing/ texting a friend than when emailing/ texting a professor	2.57	Most of the Time
Being conscious of one's grammar when writing any article/written output for school	2.76	Most of the Time
Using literary words in writing literary pieces	2.50	Sometimes
Using slang (e.g. jeje) words in texting or chatting with classmates online	1.82	Sometimes
Using formal language when writing and presenting one's report	2.83	Most of the Time
Composite Mean	2.48	Sometimes

It can be gleaned from the table that the two statements with the highest weighted means are school-related in nature, which implies that students use English mostly in the academic contexts. These are using formal language when writing and presenting reports (2.83) and being conscious of grammar when preparing written academic outputs (2.76).

The results are still consistent with the previous data that revealed how students use English mostly in school and for academic purposes. This highlights how they rarely use the language outside of the school, and how they seemingly remain indifferent in using it in their daily life.

It is quite contradictory, however, that the results reveal how the students claim to use colloquial English language most of the time in daily conversations, with a weighted mean of 2.55. This was clarified during the

FGD, wherein the students consider ‘daily conversations’ as those they engage in inside the classroom on a daily basis. This confirms earlier findings of massive English language use in the school setting, but very little use outside of it.

The results also reveal how students do not vary their language and word use in different situations all the time. With a weighted mean of 2.39, they sometimes use different words when speaking with friends compared to when they speak with persons of authority, such as their professors. While it is expected that they should communicate to authorities with much more formality and respect compared to speaking with friends, results reveal that they do not do it all the time. This can mean two things: either they do not know how to adjust their language based on context, or they simply treat their professors the same way they treat their friends, with the latter being ‘acceptable’ in modern society. Despite this, the students should still learn how to adjust their language not only based on context but on the people with whom they are communicating.

As Mizne (1997) claimed, one important contributing factor for incompetence in the second language is that the speaker does not know which utterances are appropriate in the social situation in which he or she is speaking. This ability to adjust one's speech to fit the situation is important for without this ability, even the most perfectly grammatical utterances can convey a meaning entirely different from that which the speaker intended.

Another relatively surprising finding is that students do not use slang in texting or chatting with friends all the time. They do this sometimes, with a weighted mean of 1.82. The conventional response would be that they use slang most of the time, if not all the time, when they are communicating with friends in a non-restrictive environment such as the social media. The positive result is that while they use slang in informal communicative situations, they still use formal language in formal communication as revealed in the previous data.

It is also worth noting that the students adapt their language to the situation in written discourse more than they do in oral discourse. This suggests that the activities to be designed to address the students’ contexts relative to their sociolinguistic competence may focus more on oral communicative tasks rather than on written tasks. If ever written activities are to be prepared, this may focus on the use of literary terms when drafting literary pieces, since this is the only written task that seemed problematic.

The composite mean of 2.48 means that students sometimes use varied linguistic forms adaptive to different social contexts, suggesting they still need to work on their adaptive capacities in using the English language for various purposes, in different instances, and with different people.

The study also determined if there were significant differences in the responses as regards social experiences, language attitude, and use of linguistic forms in different contexts when these are grouped according to the respondents’ profile variable. The data are presented in Tables 5 – 7.

Table 5: Difference on Respondents’ Social Experiences when grouped according to Profile Variables

Profile	t-value	p-value	Decision	VI
Age	-2.681	0.036	Reject Ho	S
Sex	0.456	0.643	Fail to reject Ho	NS
Field of Specialization	-1.380	0.187	Fail to reject Ho	NS
Year Level	1.708	0.092	Fail to reject Ho	NS

S – Significant Difference; NS – No Significant Difference

Table 6: Difference on Respondents' Language Attitude when grouped according to Profile Variables

Profile	t-value	p-value	Decision	VI
Age	-1.120	0.310	Fail to reject Ho	NS
Sex	0.167	0.868	Fail to reject Ho	NS
Field of Specialization	-1.588	0.132	Fail to reject Ho	NS
Year Level	2.788	0.007	Reject Ho	S

S – Significant Difference; NS – No Significant Difference

Table 7: Difference on Respondents' Use of Linguistic Forms in Difference Contexts when grouped according to Profile Variables

Profile	t-value	p-value	Decision	VI
Age	-0.739	0.492	Fail to reject Ho	NS
Sex	0.324	0.747	Fail to reject Ho	NS
Field of Specialization	-0.701	0.494	Fail to reject Ho	NS
Year Level	1.708	0.092	Fail to reject Ho	NS

NS – No Significant Difference

The data show that the respondents' age is the only variable where a significant difference in the responses as regards social experiences were found, while a significant difference in the responses as regards language attitude was found only in the respondents' year level, which is also indicative of their age.

This implies that the students' age is a factor in determining their social experiences and attitude relative to language use. This is consistent with research findings that with age comes social roles and a variety of activities and experiences that go with such roles, which contribute to the development of certain expertise (Lodi-Smith & Roberts, 2010; Hess, Osowski & Leclerc, 2005). Such expertise may include the use of language, suggesting that as students develop and move to higher year levels, they are exposed to more social experiences requiring the use of English, which eventually enhance their attitude towards the language. The null hypothesis that there are no significant differences in the responses when grouped according to profile variables is therefore accepted, except for the two variables discussed herein.

The study took a qualitative approach using thematic analysis in determining the common problems and difficulties encountered by the students in the use of language. Through two sets of FGD, with each group comprised of students representing all fields of specialization, the researcher was able to extract themes as emerging issues in English language use.

The ten most common problems revealed by students during the FGD are ranked and are shown in Table 8.

Table 8: Common Problems and Difficulties of Students in English Language Use

Items	Rank
Limited vocabulary and vocabulary skills	1
Over consciousness in use of grammar	2
Lack of confidence	3
Easily intimidated by fluent English speakers	4
Too much exposure to gadgets, affecting one's language skills	5
Lack of motivation, both internal and external	6
Limited knowledge in proper pronunciation	7
Lack of exposure to English-speaking environments	8
Low comprehension level	9
Lack of proper training and practice	10

Topping the list is the limited vocabulary and vocabulary skills, which means that students do not vary the language they use despite variations in communicative contexts because they struggle for words due to poor vocabulary. This is followed by over consciousness in the use of grammar, as they fear committing grammatical mistakes which would eventually be a cause of humiliation if and when they are mocked or laughed at due to lapses in grammar.

The third and fourth most common difficulties are somehow related, since the students claimed that they lack confidence in using the second language especially when the person they would speak with is a fluent speaker of English. Again, there is an apparent psychological issue of fear of second language use because of possible humiliation, bullying or ostracism. The fifth top factor is too much exposure to gadgets, thus affecting one's language skills because of the apparent freedom and non-restrictive nature of language use in gadgets.

The sixth to tenth factors that affect their socio-linguistic competence are a mix of intellectual and socio-physical reasons, with lack of proper training and practice being the tenth most common issue according to the students. This highlights the role of teachers in addressing sociolinguistic competence through in-class activities that would expose students to various speaking situations in different communicative contexts.

The results are consistent with the findings of Acuna and Cantos (2000), who delved on the linguistic performance of students and their ability to adapt in new language learning environments. The study revealed that the students' lack of confidence in speaking is rooted on their lack of linguistic knowledge for self-expression. Further, the students refrain from engaging in social communication using the second language as a result of this low level of confidence.

Generally, the most common difficulties affecting the students' sociolinguistic competence can be categorized into psychological, intellectual, and socio-physical in nature. Items 2, 3 and 4 can be categorized under the psychological aspect, while items 1, 7 and 9 can be under the intellectual aspect. On the other hand, items 5, 6, 8, and 10 can be categorized under the socio-physical aspect relative to their specific contexts. Hence, 70 percent of the problems are non-intellective in nature, which highlights the importance of addressing the non-intellective correlates that affect students' socio-linguistic competence.

Anchored on the data gathered from the questionnaire and the results of the FGD, several courses of action were conceptualized to address the problems commonly encountered by students in relation to the non-intellective correlates affecting their sociolinguistic competence. First is the formalization of a focused set of activities for sociolinguistic exposure. This is intended to develop a dynamic list of contextualized, communicative activities that can be used in teaching the use of the English language under different social circumstances. This list should be comprehensive and should appeal to various audiences; categorized by social contexts; varied in speaking environments and levels of formality; and focused on vocabulary complexity. In addition, all learning materials should be carefully chosen in harmony with the students' ability, and activities should become increasingly more complex as they progress.

The second entails a restructuring of the syllabi of communication courses, especially with the offering of a new general education course starting the academic year 2018-2019, Purposive Communication. All syllabi of courses related to communication and the teaching English as a second language should be restructured by providing a good balance of conventional and authentic tasks, all geared towards greater student engagement in enhancing their sociolinguistic competence. This may include political analysis paper, literary criticism, book or movie reviews, concept paper, and position paper for writing tasks; and mock debates, interviews, multimodal presentations, or invitation to cause-oriented events for speaking tasks. In addition, language and communication instructors are also expected to extend their repertoire of teaching strategies and other related activities to raise students' linguistic capabilities in using language in various contexts.

The proposed courses of action should be initiated by English language teachers, in coordination with the program chair and the college administration, as some activities may require revision of the curriculum or procurement of other resources and instructional materials.

Conclusions

After careful interpretation and analysis, the study found conclusive data that the teacher education students need more experience and exposure in using the English language, and more opportunities for the application of their linguistic knowledge in various social situations. Most of the time, they have a positive attitude towards the use of the English language, but they rarely use varied linguistic forms adaptive to different social contexts outside the classroom, which suggests that they still need to work on their adaptive capacities in using the English language for various purposes, in different instances, and with different people.

The students' age was found to be the only factor affecting their language use vis-à-vis their social experiences, while their response on language attitude differs only when grouped per year level.

The data further revealed that students use English mostly in informal school situations, especially when communicating with their professors and with school authorities. However, it is also in these situations when they lack confidence and feel intimidated the most, suggesting the effect of psychological factors in using the English language.

The most common problems and difficulties affecting the teacher education students' use of the English language can be categorized into two: psychological and socio-physical in nature, both being non-intellective correlates affecting their sociolinguistic competence. Thematic analysis revealed three most common difficulties: limited vocabulary and vocabulary skills, over-consciousness in the use of grammar, and lack of confidence in the use of the English language.

Recommendations

Since the results of the study would serve as valuable input to the enhancement of communication courses, especially in Purposive Communication, the researcher recommends that teachers formalize a focused set of activities centered on sociolinguistic exposure, and restructure the syllabi of all communication courses to

highlight the authentic use of language in different social contexts. In addition, more authentic, contextualized, student-centered approaches and activities should be developed and implemented to enhance the teacher education students' sociolinguistic competence.

References

- Acuna, C.A. and Cantos, J. (2000). Linguistic Performance of Selected Elementary School Pupils in the Division of Batangas City. Master's Thesis, Batangas State University, Philippines.
- Bachman, S. (2005). *What is the matter with communicative competence? An Analysis to Encourage Teachers of English to Assess the Basis of their Teaching*. LIT Verlag Munster.
- Barnett, E. and Casper, M. (2001). A definition of social environment. *American Journal of Public Health*, 91 (3):465. Retrieved on October 2017 at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1446600/pdf/11249033.pdf>
- Blanco, J., Castillo, R. and Hernandez, J. (2005). Factors that Affect Students' Performance towards Language Learning. Master's Thesis, Batangas State University, Philippines.
- Canale, M. (1983). From communicative competence to communicative language pedagogy. In J. Richards and R. Schmidt (Eds.), *Language and Communication*. London, UK: Longman.
- Duff, P. (2014). Communicative Language Teaching. In Celce-Murcia, M., Brinton D., Snow, M.A., (Eds.), *Teaching English as a Second or Foreign Language*, 4th Edition. Boston: Heinle Cengage Learning.
- Garrets, P. (2010). *Attitude to Language*. Cambridge: Cambridge University Press.
- Hess, T., Osowski, N. and Leclerc, C. (2005). Age and experience influences on the complexity of social inferences. *Psychology and Aging*. Vol. 20, No. 3, 447-459.
- Kaufhold, J.A. and Johnson, L.R. (2005). The analysis of emotional intelligence skills and potential problem areas of elementary educators. Education 2005. Retrieved on October 2017 at www.go.galegroup.com.
- Lodi-Smith, J. and Roberts, B. (2010). Getting to know me: Social role experiences and age differences in self-concept clarity during adulthood. *Journal of Personality*, Wiley Periodicals. Accessed on October 2017 at <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-6494.2010.0065.x>.
- Mizne, C.A. (1997). Teaching Sociolinguistic Competence in the ESL Classroom. Retrieved on October 2017 at http://trace.tennessee.edu/utk_interstp2/20
- Nation, I.S.P. and Macalister, J. (2010). *Language Curriculum Design*. London, UK: Routledge.
- Nordquist, R. (2012). *English Historical Linguistics*, Vol. 2. Cambridge: Cambridge University Press.
- Richards, J. (2001). *Curriculum development in language teaching*. New York, NY: Cambridge University Press.
- Rimondini, M. (2010). *Communication in Cognitive Behavioral Theory*. Springer Science and Business Media.
- Wagner, P. (2005). *Teaching American English Pronunciation*. Oxford University Press.
- Walt, W.A and Schilling, N. (2015). *American English: Dialects and Variations*. Wiley, J. & Sons.



Preschool Teachers' Views on Guidance and Psychological Counseling Services in Early Childhood Education*

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Abstract

This study aims to examine the opinions of preschool teachers on guidance and psychological counseling services. The method of the study is qualitative research design. The research data were collected via the interviews with the preschool teachers. The study group of the research consists of 24 preschool teachers working in Yozgat city in Turkey. Content analysis was made use of while forming the finding part. The results of the study display that the preschool teachers perceive guidance and psychological counseling services as "guiding," "informing," "assistance" and "cooperation" services. Also, parents and teachers also need the guidance teacher mostly in situations related to behavioral problems, special needs students, adaptation problems, and family-related problems. It was observed that preschool teachers perceived that guidance and psychological counseling services should be in preschool education institutions but that the guidance services they received were not sufficient.

Keywords: Preschool Education, Guidance Services, Psychological Counselor and Guidance Teacher

1. Introduction

The education that will be given to the children being between 0-8 ages is extremely important to support their cognitive, physical, social and emotional development (Altınkaynak & Yanıklar, 2014). The education given at early age provides certain opportunities for the individuals to have qualified lives in the future (Tan, 1992). The academic skills of the children are also supported by preschool education (Güler & Çapri, 2019). It is extremely important for individuals to recognize their talents at an early age and reveal their potential (Altınkaynak & Yanıklar, 2014). Education in the early childhood years is recognized as one of the important factors behind academic success (Lee & Burka, 2002). While the cognitive and social aspects of children develop during the preschool education period, their missing aspects are also supported (Budak, 2016). A healthy childhood period

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enables children to develop their life skills (Lamy, 2013). Some problems that develop during the pre-school education period can cause some problems in the lives of individuals in the future when support is not received. For this reason, the ability of children to receive help and support in the areas they need in this critical period has a very important effect on their being at peace with themselves, discovering their potential, recognizing their strengths and weaknesses, and understanding themselves and their environment (Baş, 2019).

Guidance and psychological counseling services provide support services to children and families at schools in areas they may need. Guidance and psychological counseling services support individuals to make the right choices in their lives and adapt to the environment they live in (Binbaşıoğlu, 1986 cited in Hatunoğlu and Hatunoğlu, 2006). The basis of these services provided in schools is the self-realization of the individual (Yeşilyaprak, 2015). Guidance and psychological counseling services enable students to perform their developmental tasks successfully and help them in solving their problems (Yeşilyaprak, 2003). Guidance and psychological counseling services in the preschool education period are carried out within the scope of educational, vocational and personal/social guidance services, including the socialization of the child, preparation for primary school, self-expression, positive self-perception, positive attitudes towards professions and family guidance (MEB, 2017).

Preschool education period is a very important period in terms of affecting the future academic life of children and the first attitudes they will develop towards learning (Akgün, 2010). Preschool education also plays an important role as its effects are permanent (Dye, 1984). Guidance and psychological counseling services provided in this period also meet the educational needs of children, support their development and provide support for them to become individuals who develop positive attitudes and skills towards their education life in the future (Yeşilyaprak, 2015).

In order for the guidance and psychological counseling services in schools to be effective, the function and harmony of preschool teachers are important (Özgüven, 2001). Teachers can also play an important role in better understanding children with skills such as effective listening (Kottler 2007). Also, for the guidance and psychological counseling services in preschool education to be more qualified, preschool teachers should be informed about this field (Akgün, 2010). It is very important to increase the awareness of preschool teachers about guidance and psychological counseling services.

Considering that the education given at an early age is very important for the development of children, the guidance and psychological counseling services to be provided in this period have an important role in reaching the desired goal of the education offered at this level. When the researches in the literature regarding the guidance and psychological counseling services provided in the preschool education period are examined, it is thought that this research will contribute to the field in terms of determining the situation regarding the guidance and psychological counseling services in the preschool education and developing these services.

As a result, every study on the fields of guidance and psychological counseling services in the preschool education period contributes to the development of these fields. Due to the previously mentioned reasons above, it is possible to claim that examining the opinions of preschool teachers about guidance and psychological counseling services is significant and vital.

1.1. Guidance and Psychological Counseling Services

Guidance services and psychological counseling services in schools complement each other and are seen as integrated services (Taylı, 2016). Although these terms are often used interchangeably in the literature, they differ in meaning. However, these concepts are related to each other. According to Kepçeoğlu (2010), psychological counseling services are at the center of guidance services; however, guidance services include psychological counseling services. He also stresses guidance services as a broader field than psychological counseling and a more comprehensive field that also includes psychological counseling. When the relevant

literature is examined, it has been stated that guidance services cover psychological counseling services as well as being included (Kuzgun, 2000; Yeşilyaprak, 2015).

It is understood from these statements that guidance services and psychological counseling services evoke each other that the concepts of 'guidance' and 'psychological counseling' are interrelated and are carried out in schools as a whole. In the light of this information, guidance services and psychological counseling services were evaluated as a whole in this study. Persons responsible for planning and executing these services in schools are referred to as 'guidance teachers' or 'psychological counselors.' However, as it is more general and inclusive, it is expressed as 'guide teacher' in this research.

Specialists in schools have three duties as psychological counseling, consultation and coordination (Myrick, 1997). Other duties are expressed as group counseling, classroom guidance, and peer assistance. Guidance and psychological counseling services are the services offered to the student at the point of getting to know himself, being aware of the opportunities around him, making the right decisions for his life, improving himself, problem solving and adapting (Güven, 2009). With these services, it is aimed for the person to know and understand himself, to develop his capacity and as a result, to realize himself (Kepçeoğlu, 2010). For the realization of these services in schools, it is necessary to have guidance teachers (Gordon, 1957).

1.2. Guidance and Psychological Counseling Services in Preschool Education Period

The development and change of individuals continue throughout life. People need support and help at every stage of their lives as they continue to develop and change all the time. Psychological counseling services personally, educationally and professionally support individuals. Guidance and psychological counseling services with this specialty should be a service offered to individuals at every stage of life (Kuzgun, 1992).

The school life that children experience during the preschool education period and the attitudes they develop towards learning affect their academic lives (Tan, 1992). Hence, it is aimed that children develop positive attitudes towards learning, adapt to the school environment, reveal their talents, and develop in all aspects thanks to the guidance and psychological counseling services carried out during this education period (Özabacı, 2010).

With the guidance and psychological counseling services provided in preschool education institutions, it is ensured that children become individuals with advanced social and emotional skills in their later lives (Hoffman, 1991). This situation affects the development of individuals in their later lives and benefits them (Hoffman, 1991). In general, the personal, professional and educational needs of children are supported by the counseling services in this period (Dilekmen, 2014). As a result, it can be said that the guidance and psychological counseling services should start from the preschool education period and continue throughout life (İlgar, 2010).

2. Method

The study aims at examining the preschool teacher's perspectives of the guidance and psychological counseling services in the preschool education period. The study is a qualitative interpretive investigation with human understanding (Denzin & Lincoln, 2017). The reason why the preschool teachers are preferred is because of the fact that they particularly reflect to what extends the guidance and psychological counseling services are needed. Also they are the right people as they observe the need of these services impartially due to being the active actors of this educational period.

2.1. Participants

The study group of the research consists of preschool teachers working in Yozgat city in Turkey. The purposive sampling method is used to determine the study group. Purposeful sampling allows for in-depth study of situations that are thought to have rich information (Patton, 2015). 24 preschool teachers participated in the research. They are referred as P1, P2, etc. for the privacy of their personal information. They were randomly

coded with participant numbers. All of those who participated in the research were women. The age ranges of them are 24-40. The terms of their seniorities are in the range of 1-16 years. Their term of office at their school is at least one; at most 11 years. 23 out of 24 preschool teachers have undergraduate degrees; one person has a master's degree. There are guidance teachers in 12 teachers' schools; the other 12 teachers do not have a counselor in their school.

2.2. Data Collection Tool

The data of the research were obtained through interviews conducted using semi-structured interview questions. Interview questions were prepared by the researcher scanning the relevant literature. The prepared interview questions were presented to the opinion of two experts and their approvals were obtained. The interview form was finalized as a result of the preliminary interviews with the teachers. In addition, a personal information form was used to collect some personal information of the participants in the study. In this form, the researcher's age, gender, seniority, tenure in the institution and educational status were requested.

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2.4. Data Collection Process

At the beginning of the research, research permission was obtained from Yozgat Bozok University Ethics Committee and Yozgat Provincial Directorate of National Education in Turkey. During the period when education was suspended or distance education was started, teachers were contacted via telephone. Participants were determined to collect research data by informing the teachers about the study. In the preliminary interviews, pre-school teachers were informed about the subject of the study and the meeting schedule was created. As part of the Covid-19 measures, interviews with the participants were planned online. Interviews were held online with each participant in different time periods and on specified dates in May and October 2020. Questions were asked to the participants in order to learn their views on guidance and psychological counseling services, and the issues they wanted to point out about this field were discussed. The questions in the semi-structured interview form prepared by the researcher were not given to the teachers beforehand. In this direction, the data of the research were collected through the interview questions prepared by the researcher during the interviews with the participants. Interviews with a total of 24 teachers were completed. A total of 390 minutes of interview recording was obtained. Then, the recorded interviews were transcribed. As a result of detailed reading of the interview notes, which were transcribed, themes related to the subject were formed. These themes were explained in the findings section of the research as a result of repeated and detailed examinations.

2.5. Analysis of Data

The data collected in this study were analyzed by descriptive analysis method. For this reason, direct quotations are frequently included in the analysis of the data of this study. In line with the analysis of the data obtained from the interviews with the participants, themes were created and these themes were explained. In the analysis process, concepts and themes were determined at the end of detailed readings. The main purpose of this type of analysis is to present the findings to the reader by summarizing and interpreting (Özdemir, 2010).

3. Results and Discussion

3.1. Meanings Attributed to Psychological Counseling and Guidance Services

According to the findings, teachers' PCG services are mostly "guidance" and "help"; it has been determined that some consider it as an "information" and "cooperation" service. Sample participant statements on the subject are as follows:

"It is guiding, helping in matters that you do not know, and getting ideas. I think that the guidance services help the teacher when he/she is insufficient with regard to students and parents, increases the relationship between parents and teachers, and communicates with students more easily" (P10).

"If the students, teachers and parents need help, the guidance service is the guidance service" (P1).

"The information given to people, families, children, is guiding and guiding" (P20).

When the relevant literature was examined, it was seen in Öztapak's (2018) study that guidance teachers were perceived as problem solvers, assistants, supporters and guides by preschool teachers. It was stated in Öztapak's research that school counselors are perceived as the first person to be contacted in case of any problem in schools, and that they have an important role in the creation of a safe school environment and in preventive studies. In the study of Aliyev et al. (2012), the responsibilities of guidance teachers were determined by pre-school teachers; guidance, being a source of information and collaborating. The role of counselors working in pre-school institutions in maintaining the balance and cooperation between parents, teachers and administrators in coping with the problems encountered in schools was emphasized in the study of Aliyev et al. (2012). PCG services are an aid process based on cooperation and common understanding (Siyez, 2019). According to the American School Psychological Counselors Association, the duties of guidance teachers are; psychological counseling, group guidance, consultation and coordination (Radd, 1998; Myrick, 2003; Montgomery Village Middle School Counseling Department cited in: Siyez., 2019, p.304). Counseling service counselors cooperate with teachers, administrators and parents about the student; coordination service should lead the guidance teacher in the planning and implementation of activities in order to carry out PCG services in schools; psychological counseling service provides students with psychological help to cope with their problems; Group guidance refers to the activities that guidance teachers do in small groups at schools to support the development of students (Siyez, 2019).

3.2.The Function of Guidance Teacher in Necessary Situations

Seven out of 12 pre-school teachers who have a guidance counselor in their school evaluated the guidance teacher as sufficient when they needed it. The other five teachers stated that the guidance teacher was insufficient. Sample participant statements on the subject are as follows:

"The guidance teacher looks at it from a different perspective and makes explanations about the source of the problems. It illuminates me and the parent at points that I cannot see." (P11)

"The opinions of the guidance teacher are effective for the parents. Therefore, I find it useful." (P12)

"When I want to get professional help, the guidance counselor usually cannot solve the problems, even if he is solution-oriented about the family and the child. The guidance counselor I work with treats the child like a baby. I think you missed that moment. Maybe he acts like that because he has no professional experience. The fact that there is a guidance service in our school does not comfort me." (P6)

When similar studies are examined, it was emphasized in Akgün's (2010) study that the participants were satisfied with the PDR service they received and they did not have any other expectations from PDR services. In the study of Aliyev et al. (2012), it was stated that school psychological counselors who will work in pre-school education institutions should receive more detailed training.

Nine out of 12 pre-school teachers who do not have a guidance teacher in their school stated that they try to cope with the situations they need a guidance teacher. 4 people stated that they consulted the guidance teachers in other schools or referred the parents to a specialist. Sample participant statements on the subject are as follows:

"I meet with students and parents. If my student has violent behavior, I apply techniques such as ignoring, taking breaks, speaking, and being warm. Then I contact his family" (P15).

"I consult guidance services in other institutions" (P21)

"If I cannot overcome and cope in any way, I want them to apply to a specialist" (P20)

In Tekin's (2012) study, it was seen that communicating with families is the most preferred method as a method of solving the problems faced by teachers. In Bilgin's (2017) study, it was stated that the problems remained unresolved because there were no guidance teachers in schools, and teachers who had the opportunity to work with counselors faced fewer problems.

3.3. The Situations of Parents Need Counseling Teachers According to Preschool Teachers

According to the pre-school teachers, it was seen that the situations that parents need guidance teachers are mostly behavioral problems, family-related problems, students with special needs and adaptation problems. Sexual identity development, general information activities, privacy education and health education are among the other conditions mentioned. Sample participant statements on the subject are as follows:

"They need issues such as behavioral disorder" (P20).

"They apply to the guidance service on issues related to parental attitudes and special education" (P1).

"Parents of my special education students need more" (P24)

"They go to school on issues such as adaptation problems and unwillingness to attend school" (P6).

"They need privacy education, family communication and child education" (P23).

In Bilgin's (2017) study, it was stated that families have expectations from schools for professional and personal guidance. In the study of Konca (2020), parents support the emotional, moral and social development of children from preschool education; develop skills such as speaking, learning, socializing and adapting to the environment; It was emphasized that they expected it to have a positive effect on peer interaction and preparation for primary school. In Akgün's (2010) study, it was stated that guidance teachers should organize parent trainings for parents in pre-school education period. In the related literature, it has been stated by studies that family education to be given in the preschool education period is extremely important within the scope of preventive studies (Aliyev et al., 2012; Gençoğlu et al., 2019). Families also need guidance and psychological counseling services in order to monitor the development of their children and to support them personally and emotionally. These services also include family trainings that provide information about the child's characteristics, disability, reasons and various development areas within the scope of family counseling service (Özgüven, 1999, as cited in Yüksel, 2019).

3.4. The Findings on Vocational Guidance

When the findings related to vocational guidance are examined, it is seen that the majority of the teachers do not need the work of the guidance teacher in the pre-school education period; and some of them have the perception that there is no need for vocational guidance in this period. An example participant statement is:

"Guidance service in the field of vocational guidance will be useful, but I think that the education we provide in the pre-school period is sufficient. Since they have more abstract ideas about vocational guidance, their thoughts in this period are in a way that comes and goes." (P13)

When the relevant literature was examined, it was stated in Kılıçoğlu's (2013) study that guidance teachers found pre-school teachers inadequate in the field of vocational guidance and that teachers should receive in-service training in the field of PCR. The rapidity of values, attitudes, perceptions and personality development, especially during childhood, affects the professional development of children and their choice of profession in the future (Yeşilyaprak, 2015).

3.5. The Findings on Educational Guidance

When the findings related to educational guidance were examined, it was concluded that the majority of preschool teachers needed guidance teachers for students with special needs. It was determined that some of the teachers stated that the development of social skills through activities such as games and drama was more important than school success in this period, except for students with special needs. The participant opinions on the subject are as follows:

“I have inclusion students. So, I need guidance on how to treat them and how to prepare individual training program documents” (P2).

“Since it is a small level in terms of age group, there is not much need in terms of education such as study programs. Students in this group are not preparing for an exam or their learning experiences are usually in the classroom. In addition, since the guidance teachers know the characteristics of this period to a certain extent, we handle such matters ourselves. If there is a lot of learning disability or giftedness, we share with the counselor in these areas” (P3)

In Bilgin's (2017) study, it was stated that pre-school education teachers needed support to provide necessary guidance to students and parents with special educational needs. In Türkeç's (2012) study, it was stated that preschool teachers consider themselves highly competent in taking into account the individual differences of children, supporting the effort of the child's academic development, and collaborating with relevant experts and families in order to determine the developmental level and learning style of children with learning needs are being done.

3.6. The Findings on Personal Guidance

When the findings related to personal guidance were examined, it was determined that preschool teachers needed guidance teachers for behavioral problems, adaptation problems, family-related problems, values education, sexual identity development, privacy education, addiction, abuse and health education. The majority of preschool teachers stated that they needed the support of the guidance teacher in the field of personal guidance. Sample statements of the participants are as follows:

“I need issues such as violence, slang, behavioral disorder” (P23).

“I also go to the guidance service for my students who have problems in adapting to school” (P6).

“I need help and developing empathy skills” (P20).

“I did not apply to the guidance service on any subject in the individual field. I didn't need much. I tried to fix the problems myself.” (P6).

When the relevant literature was examined, it was stated in Kılıçoğlu's (2013) study that guidance teachers found pre-school teachers inadequate in the fields of personal guidance, behavior management and child psychology and that preschool teachers should receive in-service training in the field of PCR. In Tekin's (2012) study, the situations in which a counselor is needed in the preschool education period include unauthorized use of objects, behavioral disorders, communication problems with children, distraction, reluctance, sexual behaviors and masturbation, sleep disorders, grief process, parental guidance and appropriate guidance. It has been seen that there are situations that fall within the scope of personal guidance, such as Preschool education period is a period when counseling services are important in terms of laying the foundations of children's personalities, shaping their behaviors, exhibiting many positive or negative behaviors, and adapting to a new environment (Baş, 2019).

3.7. The Necessity of PCG Services in Pre-school Education Period

When the findings regarding the necessity of PCG services in the pre-school education period are examined, it is seen that the preschool teachers say, *“I find the counseling service very necessary in the pre-school period. And they are enough for us. Working with the younger age group is very different. They cannot express everything verbally. Problems arise with more behavioral changes. I think that the guidance teacher can understand and solve these better.” (P5)*, it was seen that all of them found PCG services necessary. When the relevant literature is examined, it is seen that there are studies that PCG services are necessary in the pre-school education period in

terms of reaching the child, healthy development, and revealing the capacity and abilities of the student (Gençoğlu et al. 2019; Kanak et al. 2018; Yerlikaya et al., 2014).

4. Conclusion

As a result, when these research findings are evaluated, for possible future research; it can be suggested to expand the scope of the research by including parents and guidance teachers in research, and by observing the classroom environment or students. It can be considered to increase the norms of guidance counselors in pre-school education institutions for practice, to increase the equipment of guidance and psychological counselor candidates in the undergraduate education period, to inform pre-school teachers about special education and guidance areas and pre-school education guidance programs.

References

- Akgün, E. (2010). The evaluation of school guidance services from the perspective of preschool teachers. *Elementary Online*, 9(2), 474-482.
- Aliyev, R., Erguner-Tekinalp, B., Ulker, R., & Shine-Edizer, F. (2012). The perceptions of school counselors and principals towards new psychological counseling and guidance services in early childhood education in Turkey. *Educational Sciences: Theory and Practice*, 12(4), 3083-3098.
- Altınkaynak, Ş. Ö., & Yanıklar, C. (2014). The expectations of parents from preschool education regarding their children's development. *Mehmet Akif Ersoy University Journal of Education Faculty*, 1(30), 56-72.
- Baş U., A. (2019). *Types of services in counseling*. B. Aydın (Ed.). Counseling (8. Baskı, pp. 82-113). Pegem Akademi.
- Bilgin, H. (2017). Development of a preschool teacher's guidance qualifications scale and its psychometric properties. *Journal of Education and Training Studies*, 5(9), 83-93.
- Budak Ü., A.M., (2016). *Guidance and psychological counseling in preschool: a perspective on developmental processes and attachment theory*. H. Uşaklı (Ed). Lifelong Comprehensive Guidance and Psychological Counseling. (1.Press, pp.123-141). Pegem Akademi.
- Denzin, N.K. & Lincoln, Y. (2017). *The Sage handbook of qualitative research*. Sage.
- Dilekmen, M. (2014). *The main types of guidance*. G. Can (Ed.), Psychological advice and guidance (15. press.) (pp 31-52). Ankara: Pegem Akademi.
- Dye, J. (1984). Early Education Matters. *Educational Research*, 26,2:95-105.
- Gencoglu, C., Demirtas-Zorbaz, S., Demircioglu, H., & Ekin, S. (2019). Psychological counseling and guidance services in early childhood education. *Educational Policy Analysis and Strategic Research*, 14(1), 6-23.
- Gordon, I. J. (1957). The role of the teacher in the guidance program. *The School Counselor*, 4(3), 43-53.
- Güler, M., & Çapri, B. (2019). Teachers' Opinions on the Pre-School Counselling Program. *Pegem Journal of Education and Instruction*, 9(3), 521-546
- Güven, M. (2009). Opinions of Ministry of National Education inspectors on school guidance services and supervision. *Journal of International Social Research*, 2(9). 171-179.
- Hatunoğlu, A., & Hatunoğlu, Y. (2006). Problem areas of guidance services given in schools. *Journal of Kastamonu Education*, 14(1), 333-338.
- Hoffman, L. R. (1991). Developmental counseling for prekindergarten children: A preventive approach. *Elementary School Guidance & Counseling*, 26 (1), 56-66
- Ilgar, L. (2010). *Service areas in guidance: Guidance for teachers and teacher candidates*. Ankara: Pegem Akademi Editors: Esra İşmen Gazioğlu, Şengül Mertol Ilgar
- Kanak, M., Ersoy, M., & Yerliyurt, N. S. (2018). Evaluation of the necessity of pre-school counseling services in line with the opinions of counselors, *Ekev Akademi Dergisi*, 0(76),187-208.
- Kepçeoğlu, M. (2010). *Psychological advice and guidance*. İstanbul: Alkım Yayınları.
- Kılıçoğlu, E. A., (2013). *Determining the educational needs of preschool teachers in the realization of effective guidance practices*. Unpublished doctoral thesis, Selcuk University, Konya.
- Konca, A. S. (2020) Examination of parents' views on pre-school education. *Ahi Evran University Journal of Social Sciences Institute*, 6(3), 892-902.
- Kottler, J. A., & Kottler, E. (2007). *Counseling skills for teachers*. Corwin Press.
- Kuzgun, Y. (1992). *Psychological advice and guidance*. Ankara, OSYM Press.
- Lamy, C. E. (2013). How preschool fights poverty. *Educational Leadership*, 70(8), 32-36.
- Lee, V. E., & Burkam, D. T. (2002). *Inequality at the starting gate: Social background differences in achievement as children begin school*. Washington, DC: Economic Policy Institute.

- Ministry of National Education (2017). *Guidance Services Regulation*. Access address: <https://www.resmigazete.gov.tr/eskiler/2017/11/201711110-2.htm>
- Myrick, R. D. (1997), *Developmental guidance and counseling: A practical approach*, Third edition, Minneapolis: Educational Media Corporation.
- Oktay, A. (2004). *Magic years of life: Preschool period*. İstanbul: Epsilon press
- Özabacı, N. (2010). *Types of services in guidance: guidance for teachers and teacher candidates*. Ankara: Pegem Akademi Editors: Esra İşmen Gazioğlu, Şengül Mertol Ilgar
- Özdemir, M. (2010). Qualitative Data Analysis: A Study on the Methodological Problem in Social Sciences. *Eskişehir Osmangazi University Journal of Social Sciences*, 11(1): 323-343.
- Özgüven, İ. E. (2001). *Psychological counseling and guidance in contemporary education*. Ankara: PEGEM press.
- Öztabak, M. Ü. (2018). Examination of the Perceptions on the View of Preschool Teachers about School Counselor. *Journal of Education and Training Studies*, 6(6), 13-24.
- Patton, M. (2015). *Qualitative research and evaluation methods* (4th ed.). Sage.
- Siyez, M.D., (2019). *Planning, monitoring and evaluation of annual counseling activities*. B. Aydın (Editör). Counseling. (8. Press, ss.279-327). Pegem Akademi.
- Tan, H. (1992). *Counseling and guidance: Theory and practice*. İstanbul: Alkım press.
- Taylı, A. (2016). *Main types of services in psychological counseling and guidance*. Güven, M. (Ed.), Psychological advice and guidance (8. press.) Ankara: Anı Press.
- Tekin, G. "Counseling and Guidance Services in Early Childhood Education: The Case of Public Preschools in Malatya, Turkey." *US-China Education Review*. 10(2012), 875-880. From: <https://files.eric.ed.gov/fulltext/ED537999.pdf>
- Terzi, Ş., Tekinalp, B. E., & Leuwerke, W. (2011). Evaluation of the comprehensive psychological counseling and guidance program developed based on the school psychological counseling and guidance services model by psychological counselors. *Pegem Education and Training Journal*, 1(1), 51-60.
- Türkeç Aktaş, Y. (2012). *Competence levels of preschool teachers*. Unpublished Master's thesis, Adnan Menderes University, Social Sciences Institute.
- Yavuzer, Haluk. (1996). *Child psychology*. İstanbul: Remzi Press.
- Yavuzer, H. (2001). *Child education handbook*. Remzi Yayınevi, Ankara.
- Yerlikaya, İ., Sak, R., & Şahin Sak, İ. T. (2014). Psychological counseling and guidance services in pre-school education: opinions of pre-school teacher candidates and psychological counselor candidates. *Uşak University Journal of Social Sciences*, 7(2), 286-299.
- Yeşilyaprak, B. (2003). *Guidance Services in Education*. Ankara: Nobel Press.
- Yeşilyaprak, B. (2015). *Guidance services in education in the 21st century: Developmental approach* (24. press) Ankara: Nobel Press
- Yıldırım, A. & Şimşek, H., (2013). *Qualitative Research Methods in the Social Sciences* (9th Edition). Seçkin Press.
- Yüksel Y., M. (2019). *Special education and guidance*. B. Aydın (Editor). Rehberlik (8. Press, pp.254-278). Pegem Academy Press.



The Awareness of Social Studies Pre-Service Teachers About the Concept of Environmental Waste Recycling and Acrostics

Trials

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Abstract

Due to globalization and the impact of industrialization and urbanization, natural resources are wasted, and popular consumption leads to environmental waste. The problem of waste that deteriorates individual and social life is a prominent current issue. Recycling, described as the remanufacturing, production and employment of collected material, is an important solution to that problem. The present study aimed to determine the awareness of pre-service social studies teachers about the concept of environmental waste recycling and to analyze acrostic poems written by the participants. The study findings included the views of the pre-service social studies teachers. A semi-structured interview form was developed by the authors under expert supervision and employed to collect the views of the pre-service teachers. The pre-service teachers included in the study sample were assigned with simple random sampling technique and the study group included 162 pre-service social studies teachers. The descriptive survey model was employed in the study, the data were analyzed with content and descriptive analysis techniques to determine thematic codes. Furthermore, an acrostic poem authoring activity on the concept of recycling was conducted with the participants. The poems authored by the participants are presented as a category in a table in the findings section. The study findings revealed significant results on the recycling concept and processes. It was determined that the views of the participating pre-service social studies teachers reflected a high level of awareness on the concept of recycling and exhibited various perspectives on the implementation.

Keywords: Recycling, Social Studies, Activity, Pre-Service Teachers, Acrostics

1. Introduction

Recycling entails the collection, remanufacturing and reproduction and employment of previously used material (Schultz, Oskamp & Mainieri, 1995). In other words, recycling, which is the next option when the material cannot be reduced and reused, entails the transformation of waste material into new products (Harman & Yenikalaycı, 2020). Mankind has always used natural sources for survival during its existence. In time, rapid urbanization, population growth, technological advances and industrialization have rapidly increased the anthropogenic pressures on the environment. Thus, the development in production and marketing activities

required more intensive employment of natural resources, and the quantity and harmful quality of the waste generated by the ever-increasing consumption trends became a threat to the environment and human health (Kaçtıoğlu & Şengül, 2010).

Waste is classified based on various factors such as chemical and physical properties and consumption and production mechanisms. Thus, waste is classified as solid waste, liquid and gas waste and packaging waste (Gündüzalp & Güven, 2016). The limited regeneration capacity of natural resources emphasizes resource recovery and the social, ecological and economic impact of recovered resources in waste management based on the sustainable development approach (Ak & Genç, 2018). The fulfillment of the responsibilities of the individuals who are active in environmental problems to find solutions to these problems is only possible through qualified environmental education (Altın, Bacanlı & Yıldız, 2002).

Schools play an important role in the acquisition of environmental preservation topics such as the use of recycled products (Çimen & Yılmaz, 2012). It was reported that it is extremely important for teachers who would play an active role in quality environmental education to develop student sensitivity on the protection of nature, to improve student knowledge on environmental issues, to improve their attitudes and behavior due to their role in fostering positive behavioral change (Kahyaoğlu & Kaya, 2012).

Literature review revealed several studies conducted with pre-service and active teachers on recycling, environmental awareness and environmental pollution. Pre-service chemistry teachers are reported to state that recyclable materials should be used by the society and the industry (Yücel & Morgil, 1998), it was reported that the environmental awareness of the pre-service teachers was "moderate" about organic waste and packaging issues, and "good" about recycling and waste reduction (Cici et al., 2005), pre-service geography teachers stated that recycling should be included among the measures against environmental problems, used items, paper and garbage should be disposed to recycling bins, and recycling was a universal activity (Kocalar & Balcı, 2013), the attitudes of the pre-service science, classroom and social studies teachers were positive towards solid waste and recycling (Kışoğlu & Yıldırım, 2015), and the awareness of the pre-service science teachers was low awareness towards the meaning and necessity of recycling and the types of recyclable waste (Harman & Çeliker, 2016).

Adults mostly obtain information on recycling from TV shows, municipal posters/brochures and the internet, females mostly get their information from TV shows and males mostly get their information from the internet (Gürer & Sakız, 2018). Studies conducted with college students reported that students who attended environmental courses had better knowledge on solid waste pollution and management when compared to those who did not take these courses, and the courses had no positive effect on student attitudes and behavior on issues such as disposal of the garbage to the environment or employment of recycling bins (Akanyeti & Kazımoğlu, 2019). It was reported that vocational school students knew the effects of plastic waste and recycling on the environment better; however, their behavior did not reflect this knowledge level (Taş Divrik, Karakaş & Divrik, 2018).

In general, it is important to inform and raise awareness of the society on recycling for the sustainability of both ecological balance and economic resources. In a study, Ak and Genç (2018) determined that individuals should have a high awareness towards recycling and participate in recycling for the benefits of environmental waste recycling. The influence of teachers is very important in the development and sustenance of recycling. It is important to know whether social studies teachers who would instruct environmental education in middle schools possess the required awareness and knowledge. Thus, the present study aimed to determine the awareness of the pre-service social studies teachers about recycling and to analyze the examples of acrostic poems that the participants authored on the recycling concept.

1.1. The Aim of the Study

In the present study, conducted to measure the awareness of pre-service social studies teachers about the concept of recycling of environmental waste and to analyze acrostic poems they wrote on the topic, the following research problems were determined:

- ✓ What does recycle mean?
- ✓ In which educational level you heard the concept of recycling for the first time?
- ✓ Do you thing recycling is necessary? If yes, why?
- ✓ How could awareness about recycling be improved?
- ✓ What are the goals of recycling?

2. Method

The methodology section included a number of subtitles. These subtitles are detailed in the methodology section based on the study topic.

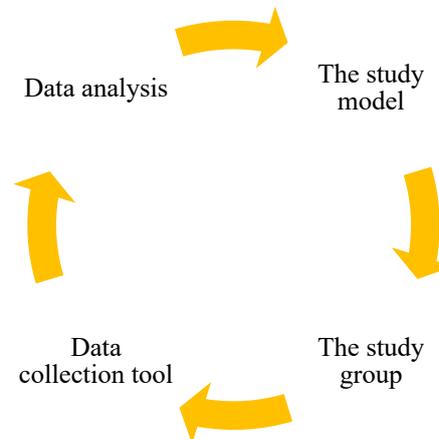


Figure 1: Methodological stages

2.1. The research model

The survey model, a descriptive study method, was employed in the present study that aimed to measure the awareness of pre-service social studies teachers about environmental waste recycling and to analyze acrostic poems written by the participants. Survey model is a popular study method employed in social sciences, and it aims to describe a past or present case as is. The current status of the study subject event, individual or object is described as is. No effort is spent to change or affect the variables in any way (Karasar, 2012).

2.2. The study group

The study data included the views of pre-service teachers. The study group was assigned with simple random sampling method. In simple random sampling, all members of the population have an equal and independent chance for selection. Random sampling methods provide higher representation of the population when compared to other sampling methods (Özen & Gül, 2007). Thus, 162 pre-service social studies teachers attending Artvin Çoruh University, Faculty of Education, Department of Social Studies Education were assigned to the study group.

2.3. Data collection instrument

The study data were collected with a semi-structured interview form developed by the authors. The interview form included 5 open-ended questions. Detailed information on the theoretical framework and the studies available in the literature was provided to ensure the content validity that reflects the reliability representability of the data collection instrument. Furthermore, expert views were obtained to determine whether the data collection instrument items were sufficient to determine the pre-service teachers' awareness about the topic, and whether there were any comprehensibility problems and editing or exclusion requirements. The interview form items were developed using a clear and comprehensible language. The items were filtered and items that relied

on assumptions were excluded. Questions that required excessive knowledge were avoided and the items were developed with an impartial approach.

2.4. Data analysis

In data analysis, for each semi-structured interview form item, pre-service teacher data were enumerated, and the collected raw data were recorded. The raw data were analyzed with the content analysis method. A framework was developed for use in data analysis based on the interview form dimensions and the conceptual study framework. The themes developed based on the data were determined within this framework. The data were read based on the predetermined framework and described with a meaningful and rational approach. The described data were explained, correlated and presented in a meaningful design (Yıldırım & Şimşek, 2011). Tables and graphs were developed to include the data frequencies and percentages based on the content analysis. The tables and graphics were interpreted. The validity and reliability data were analyzed separately by the two authors. Then, the authors combined and compared the analysis results and organized these findings based on the consensus. The data are presented by organizing the data under concepts and themes and direct quotes by pre-service teachers are presented to describe the findings in detail (Yıldırım & Şimşek, 2011). Similar views were combined under common themes and grouped as G.1, G.2.... The quotations are presented with participant codes.

3. Findings

3.1. The meaning of the recycling concept

The responses of the study group members to the semi-structured interview form question "What does recycle mean?" were analyzed with content analysis and the results are presented in Table 1.

Table 1: The perceptions of pre-service social studies teachers about the meaning of the recycling concept

<i>Theme</i>	<i>f</i>	<i>%</i>
<i>G.1.Revaluation</i>	70	43
<i>G.2.Conversion of the waste into raw material</i>	46	29
<i>G.3.A system that extends the life of the world</i>	26	16
<i>G.4.Saving the nature</i>	20	12
Total	162	100

As seen in Table 1, pre-service social studies teachers, who constituted the study group that was used to collect the study data, stated various thematic concepts on the meaning of recycling. However, it could be suggested that the themes that pre-service teachers emphasized included revaluation and change. It could be observed in Table 1 that the distribution of the themes stated by the pre-service teachers included revaluation (43%), conversion of waste into raw material (29%), a system that extends the life of the world (16%), and saving the nature (12%). The views of certain pre-service teachers are presented below:

"I think it would be insufficient to explain the meaning of the concept of recycling with just one concept. Therefore, I want to use a general expression. In my opinion, recycling is the transfer of yesterday to tomorrow. How? By reorganizing the material used yesterday based on the needs of tomorrow and using it again." (Participant 58)

"The concept of recycling is, in my opinion, a concept that the whole world should focus on and think about for several days. I think the world still does not fully understand the concept. If they understood it, we would not witness news reports every other day in the print and visual media that the extinction of the world accelerates every day due to anthropogenic factors. I think you know what I mean." (Participant 22)

3.2. The educational level that the students first heard about recycling

The responses of the pre-service social studies teachers in the study group to the semi-structured interview form question "In which educational level did you first hear about the concept of recycling?" were analyzed with the content analysis technique and the findings are presented in the form of themes. The theme frequencies and percentages are presented in Table 2. As seen in Table 2, it could be suggested that the pre-service social studies teachers had different perceptions about the topic.

Table 2: The perceptions of the study group members about the environment they acquired the concept of recycling

	Theme	f	%
G.1.Teacher	<i>Preschool</i>	7	4
	<i>Primary school</i>	67	42
	<i>Middle school</i>	46	28
G.2.Parents		35	22
G.3.TV		7	4
Total		162	100

The review of the Table 2 demonstrated that significant findings were obtained on the question developed based on the study topic. It could be argued that factors pertaining to the environment, educational institution, the development level of the family, the culture, etc played a role in this finding. It was observed that more than half of the pre-service social studies teachers in the study group first heard about the concept of recycling from teachers (4% from kindergarten teachers, 52% from primary school teachers and 41% from middle school teachers). As seen in Table 2, certain pre-service teachers heard it from their parents (21%) and television (4%). This could be explained by socio-economic, cultural, and education quality factors. The views of certain pre-service teachers are presented below:

"As a pre-service teacher who clearly acquired environmental awareness in the 7th grade, I first heard about the concept of recycling from my teacher who instructed the social studies course in middle school. I do not know whether it was my fault or my parents' fault, but I think that it is not important when we heard about it but whether we internalized it and adapted it practically in life." (Participant 7)

"I never heard of the concept of recycling from any teacher. I learned this concept in a television show. This shows that the education provided at all educational levels was not the same in educational institutions and learning environments." (Participant 42)

3.3. The necessity of recycling

The responses of the pre-service social studies teachers in the study group to the semi-structured interview form question "Do you think recycling is necessary, and if yes why?" were analyzed with the content analysis technique and the findings are presented in the form of themes in Table 3. The analysis of the participant responses demonstrated a significant finding that all deemed recycling necessary.

Table 3. The perceptions of the study group members about the necessity of recycling

	Theme	f	%
YES	<i>G.1.The future of the earth and health of future generations</i>	46	28
	<i>G.2.Preservation of nature</i>	35	23
	<i>G.3. Preservation of natural resources</i>	25	15
	<i>G.4.Conversion of waste into raw material</i>	25	15
	<i>G.5.Economic benefits</i>	16	10
	<i>G.6. Preservation of forests</i>	15	9
Total		162	100

Based on the Table 3, it could be suggested that the awareness of all participating pre-service social studies teachers about the concept of recycling was positive. Based on the thematic findings, the study group members stated the following reasons for the necessity of the concept of recycling: "For the future of the earth and the health of future generations" (28%), preservation of nature (23%), preservation of natural resources (15%), conversion of waste into raw material (15%), economic benefits (10%) and preservation of forests (9%) (Table 2). The views of certain pre-service teachers are presented below:

"I think the concept of recycling is the most important factor in the preservation of the nature of the earth. I think this concept touches every aspect of our lives. Therefore, I think that this concept is very important and necessary for our world, our country, us and our future. The main reason for this is the fact that recycling provides the opportunity to live in an environment that does not harm our organic structure. In other words, I think it contributes to preservation of our environment." (Participant 32)

"As one of the future teachers of social studies, which is one of the fields that investigates the formation of the elements that make up the natural life and their contribution to the environment through the disciplines it includes, I think that the concept of recycling is very important and necessary for our lives. I can argue several points as the reason for this. However, the most important of these reasons, in my opinion, is the positive effect of this concept on economy." (Participant 17)

3.4. Raising recycling awareness

In this section on the measures to implement to raise individual and social awareness on the concept of recycling, the responses of the pre-service social studies teachers in the study group to the semi-structured interview form question "What do you think should be done to raise awareness about recycling?" were analyzed with the content analysis technique and the findings are presented in the form of themes in Table 4. Based on the Table 4, it could be suggested that the study group members had different perceptions about raising awareness about the concept of recycling.

Table 4: The perceptions of the study group members about raising awareness about recycling

Theme	f	%
<i>G.1.Exemplary projects</i>	35	21.5
<i>G.2.Employment of interesting tools and material</i>	23	14.5
<i>G.3.TV shows</i>	13	8
<i>G.4.Advertising</i>	20	12
<i>G.5.Exemplary video presentations</i>	13	8
<i>G.6.Thematic conferences and workshops</i>	35	21.5
<i>G.7.Rewarding activities</i>	23	14.5
Total	162	100

The review of the Table 4, where the findings on the measures that should be implemented to raise awareness about the concept of recycling are presented, demonstrated that the pre-service social studies teachers proposed several recommendations to raise awareness. The themes included exemplary projects (21.5%), employment of interesting tools and materials (14.5%), TV shows (8%), advertising (12%), exemplary video presentations (8%), thematic conferences and workshops. (21.5%) and rewarding activities (14.5%). It was observed that the most interesting of these themes were exemplary projects and meetings on recycling. It could be suggested that these two themes revealed the importance of scientific studies in raising awareness about recycling. The views of certain pre-service teachers are presented below:

"I want to answer this question as an ordinary citizen, not a pre-service teacher. Unfortunately, more than half of our society watches the visual media, especially television, and utilizes it as the most important learning tool. Thus, I say, wouldn't it be better if shows on recycling or other essential topics were included instead of one of these primetime shows or some meaningless series that are broadcasted every night? I think it would. However, these programs should be presented in Yeşilçam style. Otherwise, I think the ratings will be very low." (Participant 76)

"I consider myself as a future teacher in Turkey, and I would like you to answer this question as follows: I ask what should I do. When I will be a teacher, I will have my students watch exemplary videos

on bulletin boards on the internet to raise awareness about this concept. After watching these, I will exchange views with my students about their comprehension and assess the importance of the topic. Therefore, we should ask ourselves what we do about recycling and first we should do what needs to be done. You will see it spread like a virus after a certain period. I do not know how the awareness could be better raised than this." (Participant 79)

3.5. The goals of recycling

The responses of the pre-service social studies teachers in the study group to the semi-structured interview form question "What are the goals of recycling?" were analyzed with the content analysis technique and the findings are presented in the form of themes in Table 5. Based on the Table 5, it could be suggested that according to the pre-service social studies teachers, recycling has significant goals.

Table 5: The perceptions of the study group members about the goals of recycling

<i>Theme</i>	<i>f</i>	<i>%</i>
<i>G.1. Promotion of informed resource utilization</i>	56	35
<i>G.2. Concerns for a safe future</i>	34	20
<i>G.3. Awareness about savings</i>	25	15
<i>G.4. A habitable environment</i>	22	14
<i>G.5. Waste reduction</i>	16	10
<i>G.6. Contribution to national economy</i>	9	6
Total	162	100

It was observed that the pre-service social studies teachers, the views of whom were the basis of the study findings, stated various goals for recycling (Table 5). The related themes included the promotion of the informed utilization of resources (35%), concerns for a safe future (20%), awareness about savings (15%), habitable environment (14%), waste reduction (10%), and contribution to the national economy (6%). Although each of these thematic findings was significant, it could be suggested that most pre-service teachers suggested the promotion of informed use of resources and concerns for a safe future. The views of certain pre-service teachers are presented below:

"I do not think that the concept of recycling is considered sufficiently in Turkey. However, we, as a society, express the inadequacy in recycling as a national policy due to low awareness on this issue. A high level of awareness could not be expected from a society that throws the cigarette butts on the ground without hesitation to separate the waste into recycling bins, the different colors of which represent different materials. Thus, I can state that the main goal of recycling should be to raise the individual and social awareness about the utilization of resources." (Participant 92)

"I think your question should be answered with an inclusive approach since the recycling activities are conducted for several purposes. I can state that the implementation of recycling is associated with social development. As recycling plays a very important role in education in developed societies, it plays an opposite role in undeveloped societies. Thus, regardless of the social development level, I think that recycling activities should be prioritized to create a habitable environment in the geography of all people." (Participant 29)

3.6. Acrostic poems on the concept of recycling

One of the interesting dimensions of the study was the poems authored by the pre-service social studies teachers who participated in the study, on recycling using acrostic technique. The acrostic technique entails creating a meaningful word with the first letters of the verses in a poem. The concepts and frequencies of these concepts employed in the poems written by the pre-service teachers in the study are presented in Figure 2.

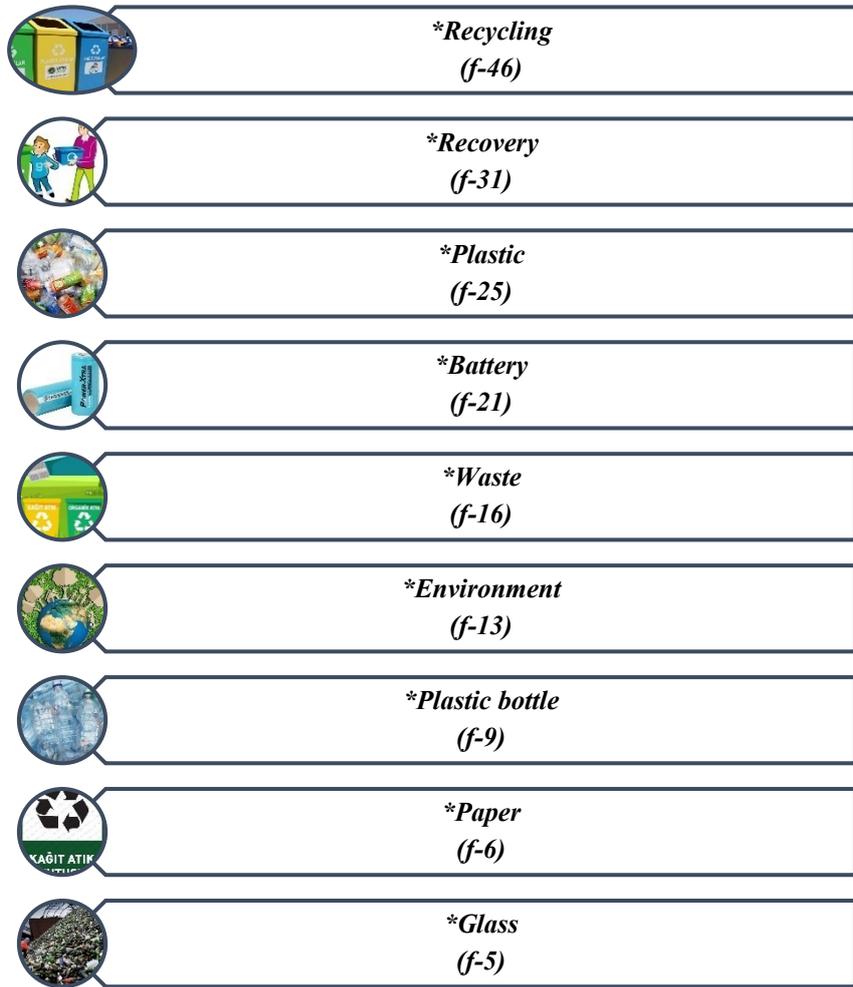


Figure 2: Concepts and frequencies of these concepts employed in the acrostic poetry authored by the study group members

It could be suggested that the fact that pre-service social studies teachers could assign a concrete meaning to recycling and related concepts, which could be considered as the content knowledge competency of the pre-service social studies teachers, was one of the problems encountered in the learning-instruction processes. This was reported by several studies. However, it could not be argued that concretization of these topics in instruction would eliminate all problems associated with recycling. This is due to the fact that the topic or concept was not internalized adequately by the individuals or the society. Thus, the present study employed the views of pre-service social studies teachers via the semi-structured interview form that required qualitative findings that improved the intelligibility of the topic. Furthermore, poems were authored by the pre-service teachers in the study group to contribute to the perceptions of the students and to draw attention to the topic. The analysis of the poems written by the study group members revealed that there was a perceptual diversity about the concept of recycling. This diversity could be considered as a significant criterion in the determination of the awareness level in the study group about the concept of recycling. The examples of the acrostic poetry written by the pre-service social studies teachers in the study group on the themes given in Figure 2 are presented below:

Table 6: Acrostic poetry samples

<p><i>Güzel bir dünya için (For a better world)</i> <i>Elindeki atıkları at geri dönüşüme (Recycle your waste)</i> <i>Renkli plastikleri, cam şişeleri atma çöpe (Do not discard colored plastics, glass bottles)</i> <i>İnsanları uyar, dönüştürelim hep birlikte. (Warn others to recycle all.)</i></p>	<p><i>Geri Dönüşüm</i> (Recycling)</p>	<p>(Participant 44)</p>
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<p><i>Denizler mavi kalsın yazık etme (Do not destroy the seas, let them remain blue)</i> <i>Ördekler yüzün temiz nehirler üzerinde (let the ducks swim in clear streams)</i> <i>Ne olur bilinçli olalım (Let us be aware)</i> <i>Üzerimize düşen görevi hep birlikte yapalım (Let us do our share together)</i> <i>Şöyle bir bak etrafındaki atıklara (look at the waste around you)</i> <i>Üzülme geç kalmadın vaktin var hala (Do not despair, it is still not too late)</i> <i>Mutlaka geri dönüşüme katılmalısın bunu unutma. (Just remember that you should participate in recycling.)</i></p>		
<p><i>Atma doğaya çöpleri (Do not dispose your garbage to the nature)</i> <i>Temiz tut çevreyi (Keep the environment clean)</i> <i>Izdırıp çektirme gelecek nesillere (Do not torture the future generations)</i> <i>Katkın olsun geleceğe (Contribute to the future.)</i></p>	<i>Atık (Waste)</i>	(Participant 23)
<p><i>Peyzajda süs (Ornament in landscape)</i> <i>İmarıda donanım ve uyum (Equipment and harmony in buildings)</i> <i>Lisanda doğruluk gerekli (Accuracy in language are necessary)</i></p>	<i>Pil (Battery)</i>	(Katılımcı 132)
<p><i>Güneş gibi değil ki (They are not like the sun)</i> <i>Elektronik atıklar (The electronic waste)</i> <i>Rüzgâr gibi geri dönmez (They would not recuperate like the wind)</i> <i>İşlem görmeyen kâğıtlar (Non-processes paper)</i></p> <p><i>Dünya için hepimiz (Altogether for the earth)</i> <i>Önlemler mi alsak (Should we implement measures)</i> <i>Nice güzel projeyi (Several good projects)</i> <i>Ülkece hep konuşsak (Should we discuss nationwide)</i> <i>Şişeleri camları (Bottles and glasses)</i> <i>Üşenmeden toplasak (Should we collect without indolence)</i> <i>Memleket hepimizin bunu hiç unutmasak (This land belongs to all of us, we should never forget)</i></p>	<i>Geri Dönüşüm (Recycling)</i>	(Participant 111)

4. Conclusion and Discussion

In the present study, conducted to measure the awareness of pre-service social studies teachers about the concept of recycling and to analyze acrostic poems written by them, significant findings were obtained. It could be suggested that the study group members, whose views were obtained with a semi-structured interview form, made significant contributions to the study findings. The study findings included six dimensions on recycling. It could be suggested that each dimension included significant findings on recycling. The finding dimensions determined in the study included the meaning of the concept of recycling, the educational level that the participants heard about recycling for the first time, the necessity of recycling, raising awareness about recycling, the goals of recycling, and authoring acrostic poems about the concept of recycling. One of the significant study findings included those presented in Table 1 on the meaning of the concept of recycling. As seen in Table 1, it was observed that the study group members reflected four different themes on recycling. This may indicate that the study group members comprehensively analyzed the concept of recycling. It could be argued that the study findings in this section were consistent with the findings reported by Harman and Çelikler (2016), and Öktem (2016).

In the study, the section on the education level where the participants first heard about the concept of recycling included further significant findings. It could be observed in Table 2 that about 74% of the participating pre-service social studies teachers heard about the concept of recycling from their teachers at different education levels, 22% heard about recycling from their parents and the rest were informed by TV shows. This could be considered as the most important indicator that activities associated with recycling were included in various education levels. Furthermore, the study finding on the necessity of recycling was also quite significant. The fact that all study group participants paid attention to this requirement and expressed their views was a significant finding that revealed individual and social awareness. It could be argued that these study findings would raise the awareness about the positive impact of recycling on national economy in Turkey. This awareness had an impact on government policies on recycling. It could be suggested that this significant study finding was consistent with the statement by Meys, Frick, Westhues, Sternberg and Klankermayer (2020) that recycling played an important role in government programs since it determines economic development. Furthermore, all present study participants considered recycling necessary and stated that it should be conducted for the future of the earth and the health of future generations. They included the alleviation of the destruction of nature and the preservation of natural resources, the transformation of waste into raw material; and thus, sowing economic benefits among the reasons for recycling. In the literature on the recycling of environmental waste, it was observed that most preschool children (Can-Yaşar, İnal, Kaya, & Uyanık, 2012), primary school students (Gönüllü, Doğan, & Çelik, 2015; Ural Keleş & Keleş, 2018), middle school students (Çimen and Yılmaz, 2012; Yalçın & Kara, 2017), and adults (Gürer & Sakız, 2018) had high level awareness about the concept of recycling environmental waste. As seen in Table 4, important findings were obtained in the study on the measures that should be taken to raise individual and social awareness about the concept and process of recycling. It could be argued that all study participants proposed significant measures to raise awareness. Exemplary projects, organization of programs and activities that would be supported by written and visual media, academic meetings are just a few of these recommendations. As seen in Table 4, it could be argued that the findings on recycling were based on learning by doing, experiences and observations. Thus, increasing the number of participatory activities supported by individuals and the society could lead to permanent awareness about recycling. It could be suggested that the outcomes of the projects and beneficial results should be presented to the society concretely and clearly to raise awareness. This present study finding was also emphasized in a study by Baumann and Tillman (2004): the projects on processing each raw material should be conducted based on recycling planning; and also in a study by Erikson et al.: different recycling processes should be implemented for each plastic product or waste.

It could be argued that the awareness of 162 pre-service social studies teachers who participated in the study about recycling was high based on their responses to the interview questions and the acrostic poems they wrote. These findings were consistent with the results reported by Cici et al. (2005); however, they were not consistent with those reported by Karatekin (2014). In that study, Karatekin reported that the awareness of pre-service social studies teachers about recycling was low. In various studies conducted with pre-service teachers (Soran et al., 2000; Can Yaşar et al., 2012; Demircioğlu, Demircioğlu, & Yadigaroğlu, 2015; Ak & Genç, 2018), it was reported that plastic, paper, glass, metal products could be recycled. These findings supported the present study results.

The education system aims to train a human model who meets the requirements of higher education institutions, life and the nation. Teachers play an important role in achieving this systemic goal. In a study conducted with students, Çelik (2011) reported that recycling knowledge was often provided by teachers. Recycling became an increasingly important phenomenon due to globalization. High awareness of pre-service teachers about recycling would ensure that they would train individuals with similar awareness levels. Thus, both compulsory or elective courses should be included in college curricula and non-governmental organization programs to provide instruction on the importance and necessity of recycling and to raise the awareness of pre-service teachers.

References

- Ak, Ö. & Genç, A. T. (2018). A Research About The Reecycling Awareness Of University Student: The Example Of Sakarya University, *International Journal of Economic Studies*, 4(2), 19-35.
- Akanyeti, İ. & Kazımoğlu, Ç., (2019). The Influence of Education on the Awareness and Behavior of University Students towards Solid Waste Pollution and Management, *Folklore-Literature*, 25(97-1), 129-146.
- Altın, M., Bacanlı, H. & Yıldız, K. (2002). Assesment Of The Biology Teacher Candidates' Environmental Attitudes For Informal And Formal Learning Surroundings, V. National Science and Mathematics Education Congress. Ankara: METU Culture and Congress Center.
- Can Yaşar, M., İnal, G., Kaya, Ü. Ü. & Uyanık, Ö. (2012), "Going Back To Mother Nature In The Eye Of Children". *Journal of Research in Education and Teaching* 1 (2): 30-40.
- Cici, M., Şahin, N., Şeker, H., Görgeç, İ. & Deniz, S., (2005). Pre-service Teachers' Environmental Awareness and Knowledge Level in Connection With Solid Waste Pollution, *Educational Sciences and Practice*, 4(7), 37-50.
- Çelik, Z. (2011). The status of packaging wastes recycling education in primary school curriculum and investigation of recycling applications in primary schools (a sample of Istanbul) (Unpublished master's thesis). Yıldız Teknik University, Institute of Science, İstanbul.
- Çimen, O. & Yılmaz, M. (2012). Recycling Knowledge, Behaviors, and Attitudes of Primary School Students, *Uludağ University, Journal of the Faculty of Education*, 25(1), 63-74.
- Demircioğlu, G., Demircioğlu, H. & Yadigaroğlu, M. (2015). "The Assessment Of Environmental Consciousness Levels Of Physics, Chemistry And Biology Student Teachers". *Adıyaman University Journal of Social Sciences Institute* 8 (19): 167-193.
- Gönüllü, M. T., Doğan, S. & Çelik, Z. (2015). Awareness of children in primary school about the hazardous packaging material to environment (a sample of Istanbul). *Journal of National Education*, 205, 44-63.
- Gündüzalp, A. A. & Güven, S. (2016). Waste and Waste Types, Waste Management, Recycling and Consumer: Çankaya Municipality and Instance of Neighbourhood Consumers, *Hacettepe University Sociological Research E-Journal, Şubat*, 1-19.
- Gürer, A. & Sakız, G. (2018). Global Warming Knowledge Levels and Recycling Awareness in Adults, *Journal of the Human and Social Science Research*, 7(2), 1364-1391.
- Harman, G. ve Çelikler, D. (2016). Awareness Of Science Teacher Candidates On Recycling *AİBÜ Journal of the Institute of Social Sciences*, 16(16), 331-353.
- Harman, G., & Yenikalaycı, N. (2020). Awareness of preservice science teachers on zero waste approach. *Pamukkale University, Journal of the Faculty of Education*, doi: 10.9779/pauefd.589781
- Kaçtıoğlu, S., Şengül, Ü. (2010). Recycling of Erzurum City Packaging Wastes Reserve Logistics Network Design and a Mixed For Integrated Programming Model, *Atatürk University Journal of Economic and Administrative Sciences*, 24, 1.
- Kahyaoglu, M. & Kaya, M. F. (2012). "Teacher Candidates' Views about Environmental Pollution and Non-Governmental Organizations Related to the Environment". *JESR* 2 (1): 91-107.
- Karasar, N. (2012). *Scientific Research Method*, Ankara: Nobel Dağıtım.
- Karatekin, K. (2014). "Social Studies Pre-Service Teachers' Awareness of Solid Waste and Recycling". *Procedia - Social and Behavioral Sciences* 116: 1797-1801.
- Kıışoğlu, M. & Yıldırım, T., (2015). The analysis of attitudes of pre-service teachers who will provide environmental education in elementary and secondary schools towards solid wastes and recycling in terms of various variables. *International Journal of Human Sciences*, 12(1), 1518-1536.
- Kocalar, A. O. & Balcı, A. (2013). The Environment Literacy Levels Of Prospective Geography Teachers. *International Journal Social Science Research*, 2 (1): 15-49.
- Özen, Y. & Gül, A. (2007). Population-Sampling Issue On Social And Educational Research Studies, *Kazım Karabekir Journal of the Faculty of Education*, 15, 394-422.
- Schultz, P. W., Oskamp, S & Mainieri, T. (1995). Who Recycles and When? A Review of Personal and Situational Factors. *Journal of Environmental Psychology*, 15, 105-121.
- Soran, H., Morgil, F. İ, Yücel, Seda, A. E. & Işık, S. (2000). "Investigation of Biology Students' Interest in Environmental Issues and Comparison with Chemistry Students". *Hacettepe University, Journal of the Faculty of Education*, 18: 128 -139.
- Taş Divrik, M., Karakaş, H. & Divrik, B. (2018). Vocational School Students' Attitude for Plastic Wastes and Recycling, *Selçuk University Journal of Vocational School of Social Sciences*, 21(2), 448-470.
- Ural Keleş, P. & Keleş, M. İ. (2018). Perceptions of the 3rd and 4th Grade Students of Elementary School about The Concept of "Recycling, *Erzincan University, Journal of the Faculty of Education*, 20(2), 481-498.
- Yalçın, M. N. A. & Kara, E. E. (2017). Investigation Of Middle School Student's Views Towards To Recycling Of Packaging Waste: (The Case Of Nigde), (*TURKSOSBİLDER*), 2(1), 86-100.

- Yıldırım, A. & Şimşek, H. (2011). *Qualitative Research Methods in the Social Sciences*. Ankara: Seçkin Publishing.
- Yılmaz, A., Morgil, İ., Aktuğ, P. & Göbekli, İ. (2002). "Knowledge of the Secondary School and University Students on the Environment, Environmental Concepts and Problems and Suggestions.". *Hacettepe University, Journal of the Faculty of Education* 22: 156-162.
- Yücel, A. S. & Morgil, F. İ. (1998). Researching the Environmental Phenomenon in Higher Education, *Hacettepe University, Journal of the Faculty of Education*, 14: 84-91.



Impacts of Online Education on Teaching Quality and Satisfaction of Medical Students During Covid-19: A Case Study in a Private University in Vietnam

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Abstract

As a developing countries, Vietnam has been facing a myriad of challenges in various aspects during the Covid-19 pandemic. Educational sector is not an exception as it is currently suffering the heavy consequences of the constant disruptions stemming from the switching to online learning. This study was conducted with the aim of surveying and evaluating the views of students of the Faculty of Medicine at Nguyen Tat Thanh University on the influence of online learning on learning quality. Using data from survey questionnaires, the results show that the online learning has impacted different learning aspects of students such as: time management, online satisfaction, training problems. At the same time, the study also recognizes the contributions of students in improving the quality of online teaching of Nguyen Tat Thanh University.

Keywords: Covid-19 Pandemic, Online Education, E-Learning, Medical Students, Impacts

1. Introduction

In March 2020, the World Health Organization (WHO) declared a worldwide outbreak of COVID-19 pandemic emergency (WHO, 2020). This has caused a huge crisis in all areas of social life, especially in the field of education. More than 190 countries worldwide have had to stop all face-to-face teaching and learning in schools to prevent the spread of the pandemic (UNESCO, 2020). One third of children worldwide cannot accept distance learning when schools are closed for various reasons (UNICEF, 2020).

In Vietnam, the education industry is not immune to obstacles caused by COVID-19. Schools, especially universities, are encouraged to switch to online learning for the 2021-2022 semester (Jamalpur, Chythanya and

Kumar, 2021). It can be seen that online education has now become a widely accepted method of education. Many studies highlight the growing need in implementing online education (or e-learning) (Ramachandran and Dinesh Kumar, 2021). Universities around the world promote this as a future teaching method that is widely available to all learners (Blas and Fernandez, 2009). By choosing the right online learning tools as well as building a reasonable teaching plan, online education can help students be more active and motivated to learn (Azhiimah et al., 2021) thereby helping to improve their learning outcomes and educational quality of the institution (Nugroho et al., 2021). However, for medical students - a field that focuses on experimentation and experience more than some other university training disciplines - there are many difficulties with online education when the curriculum is gradually changed (French and Kennedy, 2016). At this time, medical institutions are in a situation of large-scale social restrictions and that requires educators around the world to rethink how they can continue to deliver. providing high-quality medical education in a time of large-scale social restrictions (Muhammad, Yelvi and Ayu, 2020).

This survey selected Nguyen Tat Thanh University (NTTU) as a case study to review and verify the impact of online education on medical students in the context of the COVID-19 pandemic. By the method of survey by questionnaire survey, the results of the study will be a reference database for NTTU in improving and enhancing the quality of online education. In addition, the lack of opportunities to practice basic skills due to the difficulty of direct access to patients can affect the satisfaction of medical students. This will also strengthen the basis for evaluating the quality of online training at this school (Vogel and Harendza, 2016; Peluso and Hafler, 2011).

2. Methods

2.1 Developing a quantitative survey questionnaire

The quantitative survey questionnaire was built and divided into the following main topics, namely: (1) Time for self-study each day (before Covid19 and during Covid19); (2) Online learning time per day and online instructor time; (3) The distribution between theoretical and practical subjects when learning online; (4) benefits of online learning; (5) The level of satisfaction of the criteria for evaluating the quality of online training; (6) Comparison between online and face-to-face learning; (7) Benefits of virtual medical education for medical students' learning process.

Items measuring students' evaluations of online learning due to the COVI-19 pandemic (from items 5-7) are designed according to a Likert scale with 5 levels from strongly disagree to strongly agree. The purpose of this measurement is to give students an opportunity to reflect on their feelings and to indicate their level of agreement if they are satisfied or dissatisfied with the assessed issues. In this study, the predictive constructs measured were: compare the average rating of students with a given neutral level of 3 for items 5,6,7. If the average value obtained is 3 or higher, students will tend to rate positively with the problems that the survey raises. On the contrary, if the mean is less than 3, this indicates that students are not satisfied with the above problems.

2.2 Data collection from survey questionnaire

Data was collected from 350 medical students of Nguyen Tat Thanh University through an online survey with the Google Forms application.

2.3 Data processing

Survey data were collected and analyzed using Statistical Package for the Social Sciences (SPSS) software. By analytical techniques such as: Descriptive statistics, Chi-squared Test, One-sample T-Test, ..., the software provides the necessary data for this research. The results obtained will be the basis for evaluating the quality of online training of Nguyen Tat Thanh University.

3. Result and discussion

3.1 Respondent's profile description

On the basis of the standard sampling method and the population of undergraduate students from the Faculty of Medicine, Nguyen Tat Thanh University, Ho Chi Minh City, Vietnam, 350 students were randomly selected to participate in the survey. All the responses obtained were all valid. The respondents are from 1st to 5th year students (due to the unique nature of the medical faculty) and are described in Table 1 below:

Table 1: Description of respondents

		Frequency	Percent
Gender	Male	114	32.6
	Female	236	67.4
	Total	350	100.0
Student	1 st year	155	44.3
	2 nd year	91	26.0
	3 rd year	23	6.6
	4 th year	50	14.3
	5 th year	31	8.9
	Total	350	100

Source: Primary Data

3.2 Student's learning time

During the outbreak of the Covid-19 pandemic, the study habits of university students have been changed a lot. This makes a difference in student self-study time before and during the ongoing pandemic. To prove it, Asanov et al. (2021) examined how Ecuadorian students aged 14 to 18 spend their time studying during the COVID-19 quarantine. Although most of the students surveyed had similar time spent in distance learning, different patterns in the use of time for education habits may appear depending on gender, wealth status and time spent on household chores.

Going back to the data obtained from medical students of Nguyen Tat Thanh University. With the hypothesis H0 that there is no relationship between student's learning time before the COVID-19 pandemic and during the COVID-19 pandemic, the chi-square test is fully expressed. see Table 2 below:

Table 2: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	176,849 ^a	9	.000
Likelihood Ratio	129,688	9	.000
Linear-by-Linear Association	104,655	1	.000
N of Valid Cases	350		

a. 7 cells (43.8%) have expected count less than 5. The minimum expected count is ,90.

Source: Primary Data

The analysis results show that the value of asymptotic significance (2 sides) of the Pearson Chi-Square row is less than 0.05 ($0.00 < 0.05$). Therefore, we reject the hypothesis H0, that is, students' self-study time before and during the COVID-19 pandemic is related. This proves that COVID-19 has changed students' learning behavior based on the time factor.

Table 3: Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.711	.000
	Cramer's V	.410	.000
N of Valid Cases		350	

Source: Primary Data

Besides, the Value index of Cramer's V has a value of 0.410, equivalent to 41.0%, showing that there is a high correlation between these two variables.

Changing the form of education from face-to-face to online makes the study time of university students and the teaching time of lecturers subject to change. Figure 1 below shows the distribution of students' online learning time and the amount of time students receive instruction from instructors:

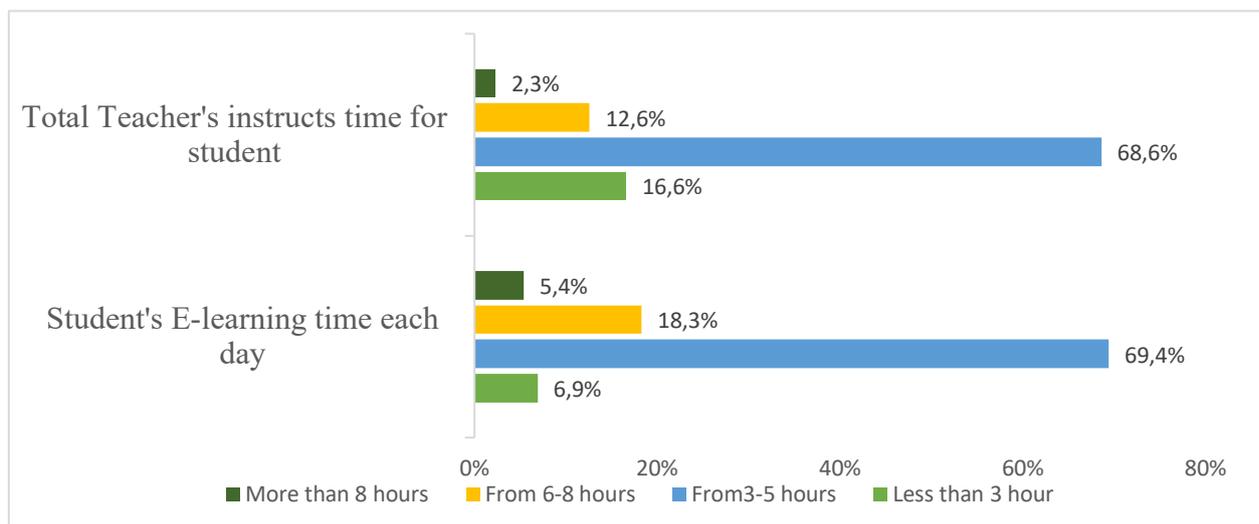


Figure 1: Graph of students' online learning time and the duration of student instruction from instructors.

According to the results from Figure 1, up to 69.4% of medical students at Nguyen Tat Thanh University responded that they spend 3-5 hours a day studying online during the ongoing COVID-19 pandemic, accounting for the proportion the highest among the answers and completely outperformed the percentage of students participating in online learning less than 3 hours in 1 day (6.9%). This proves the fact that the time spent studying online can also be equivalent to the time in face-to-face despite being heavily affected by COVID-19. In addition, up to 68.6% of students who responded to the survey said that they receive 3-5 hours of instruction per day from instructors when participating in online learning. This result shows that even though students had to switch to online learning due to COVID-19, they still received dedicated support and guidance from lecturers during class time. This will also be one of the factors that will improve the quality of online learning at NTTU.

Table 4: Learning Tools

Learning Tools	N	Responses	
		Percent	
Zoom	23	4,3%	
LMS	166	31,2%	
ClassIn	1	0,2%	
Google Meet	338	63,5%	
Microsoft Teams	4	0,8%	
Total	532	100%	

Source: Primary Data

With Table 4 above, we can see that Google's Meeting and Learning Management System - LMS are the two tools most commonly used by Medical students of Nguyen Tat Thanh University for online learning, with a ratio of 63.5% and 31.2% respectively. Meanwhile, Zoom - an online learning tool that is always rated as simpler and more accessible than LMS, has a rather low selection rate of 4.3%. Google Meet is one of the simple learning tools and it is becoming more and more popular and widely used in online learning at universities, so that can explain the high rate that Google Meet gets. But, for the two tools Zoom and LMS, this difference is a very interesting ratio. To explain this amazing rate, David et al. (2016) in a study on Learning Management Systems (LMS) showed that it is the ability to update and develop The LMS's ongoing feature development has made it effective and popular among students. In addition to the remote connection between people for online teaching and learning like Zoom, LMS also has additional features such as: View timetables, exam preparation plans; Look up academic results, curriculum, student results, even update school announcements and more. This helps maximize student support during the COVID-19 pandemic when just sitting at home and using a few small interactions with electronic devices can get information.

Table 5: Ratio between theory and practical subjects

Ratio		Responses	
		N	Percent
	100/0	40	11.4%
	90/10	22	6.3%
	80/20	33	9.4%
	70/30	54	15.4%
	60/40	32	9.1%
	50/50	119	34.0%
	40/60	23	6.6%
	30/70	19	5.4%
	20/80	8	2.3%
Total		350	100%

Source: Primary Data

Next, Table 5 shows us that when students of the Faculty of Medicine of Nguyen Tat Thanh University participate in online training due to the COVID-19 pandemic, the learning of theoretical subjects and practical subjects are ensured balance with each other (with the rate of 34.0% of students choosing). The COVID-19 pandemic poses a huge challenge to ensuring the quality of training for a hands-on education such as Medicine (e.g. suspension of face-to-face instruction, lack of autopsies and practice/experiment session). In response to that, many Medical institutions have successfully introduced the novel culture of "online learning at home" using technology-driven innovations (Uma et al., 2020). The use of emerging technology (e.g., artificial intelligence for adaptive learning, virtual simulation, and telehealth) for Medical education will be a transformative change to address the balance issue between theory and practice in medical training. The results obtained from the above table show that at present NTTU can ensure teaching and learning for students of the Faculty of Medicine.

4. Impact of online education on medical students of Nguyen Tat Thanh University during the covid-19 pandemic

4.1. Benefits of online learning

Research on the impact of online education on students should first let students self-assess about the benefits that online learning brings to them. Although this study was based on a very small group, the inclusion of diverse interests may provide another insight into the type of content better suited to online learning environments (Brittany, 2016). The benefits of online learning that are explored in this part of the study are mainly based on the features of the tools that serve the online form of teaching that medical students are using. The specific results are presented in Table 6 below:

Table 6: Benefits of online learning

		Responses	
		N	Percent
Benefits	1. Access to open source material	211	20.5%
	2. Self-coordination and time management skills.	206	20.0%
	3. Personalization	146	14.2%
	4. Knowledge of online behavior culture	145	14.1%
	5. Instructor support, assignment, and feedback	142	13.8%
	6. Human-to-human interaction	113	11.0%
	7. Communication skills	67	6.5%
Total		1030	100%

Source: Primary Data

According to the results from Table 6, “Access to open source documents” and “Skills of self-coordination and time management” are two benefits that Medical students of Nguyen Tat Thanh University evaluate will obtained when participating in online education with the choice of 20.5% and 20.0% respectively (out of 350 students participating in the survey). This proves that students of the Faculty of Medicine at Nguyen Tat Thanh University have very high requirements for collecting learning materials as well as managing their learning for online education. The two issues mentioned above coincide with two features that Google Meet and LMS implement very effectively. Therefore, it can be understood why the percentage of these two tools chosen by students is so high. On the contrary, very few respondents think that online learning will help their communication skills much, with only 6.5% choosing rate, a very low number. Online education forces human-to-human communication to be done from long distances, and ensuring that communication is fully transmitted while online training depends on It depends on a lot of factors, for example: equipment, network connection, etc. Therefore, it makes it very difficult to supplement "Communication skills" while learning online and also explaining for a low selection rate for this benefit.

4.2. Quality of online education

The quality of online education is guaranteed to be the basis for students to get the best benefits from it. For this issue, the study uses One Sample T-Test to compare the average satisfaction of medical students of Nguyen Tat Thanh University with the quality of online education with test value = 3. Accordingly:

Hypothesis H0: The average score of medical students on the online education quality assessment criteria is 3 (If the obtained mean is greater than 3, students would tend to be satisfied with the quality of the online education. Conversely, if the mean is less than 3, this indicates that students are not satisfied with the online education quality brings.)

The study identified the following evaluation criteria for the quality of online education: TN1: Online learning applications that the Faculty of Medicine is applying

TN2: Competency assessment criteria (scores) during online learning

TN3: The level of interaction during online learning (with instructors, with classmates)

TN4: Online teaching materials and methods

TN5: Practical subjects but must be learned online

Table 7: One-Sample Test

Test Value = 3						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
TN1	9,739	349	,000	,4371	,349	,525
TN2	6,921	349	,000	,3000	,215	,385
TN3	8,641	349	,000	,3714	,287	,456
TN4	5,028	349	,000	,2543	,155	,354
TN5	-3,485	349	,001	-,1886	-,295	-,082

Source: Primary Data

Table 8: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
TN1	350	3,437	,8398	,0449
TN2	350	3,300	,8109	,0433
TN3	350	3,371	,8042	,0430
TN4	350	3,254	,9461	,0506
TN5	350	2,811	1,0122	,0541

Source: Primary Data

Looking at the sig value of the t-test in Table 7, it can be seen that all sig values are less than 0.05. Therefore, we reject the initial hypothesis H0, that is, the mean score of medical students for the other online education quality assessment criterion 3. Therefore, we will use the results from Table 8 for further review. The results from the one-sample statistical table show that, the average value of the indicators from TN1 to TN4 in the test ranges from 3.25 to 3.44, both are greater than 3. Thus, medical students are agreeing with the quality of online education above neutral 3 on four criteria from TN1 to TN4 Only criterion TN5: Practical subject but must be learned online is only valuable, with the mean is 2.811, lower than the neutral of 3. This means that students are not satisfied with this evaluation criteria. Student dissatisfaction can be explained by the obstacle of the COVID-19 pandemic. To prevent the spread of the pandemic, medical students' practical activities in laboratories or clinics were forced to postpone, and having to study those subjects online exposes for students many problems in acquiring knowledge.

4.3. Compare with the traditional form of education

Assessing the impact of online learning on students during the COVID-19 period, we should have a comparison between the two forms of education, online and in-person. To do this, the survey builds some values on the elements that make up education so that respondents self-assess whether online learning delivers those values in a more positive or negative way compared to traditional learning. Values include: HD1: Practical applicability

HD2: Soft skills

HD3: Time

HD4: Learning environment

HD5: Thinking ability

HD6: Creativity

HD7: Proactivity Still continue to use One Sample T-Test to compare the average assessment of Medical students of Nguyen Tat Thanh University about the values that online education brings compared to face-to-face education . With test value = 3.5, The study builds the following hypothesis:

(Based on a Likert scale with a value from 1.5 to 5.5, where: 1.5 means "Much worse" and 5.5 means "Much better")

Table 9: One-Sample Test

	Test Value = 3.5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
HD1	-18,493	349	,000	-,8200	-,907	-,733
HD2	-11,175	349	,000	-,5086	-,598	-,419
HD3	-3,382	349	,001	-,1486	-,235	-,062
HD4	-11,511	349	,000	-,5257	-,616	-,436
HD5	-7,206	349	,000	-,2914	-,371	-,212
HD6	-7,197	349	,000	-,3143	-,400	-,228
HD7	-2,189	349	,029	-,1029	-,195	-,010

Source: Primary Data

Table 10: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
HD1	350	2,680	,8295	,0443
HD2	350	2,991	,8514	,0455
HD3	350	3,351	,8219	,0439
HD4	350	2,974	,8544	,0457
HD5	350	3,209	,7566	,0404
HD6	350	3,186	,8170	,0437
HD7	350	3,397	,8792	,0470

Source: Primary Data

Based on Table 9, it can be seen that all sig values are less than 0.05. Therefore, we reject the initial hypothesis H0, that is, the average score of medical students at Nguyen Tat Thanh University for values other than 3.5. Next, the results from Table 10 show that the mean value of the factors included in the test is less than the neutral value of 3.5. Thus, students of the Faculty of Medicine of Nguyen Tat Thanh University think that online learning brings them values built from the survey somewhat worse than face-to-face teaching. Bali and Liu (2018) also show in their research that students' perceptions of face-to-face learning are higher than online learning in terms of social presence, social interaction and satisfied. Although, online learning actually has some advantages for students.

4.4. Virtual medical with medical students in online education

The COVID-19 pandemic has caused a lot of difficulties for the education industry in general and medical education in particular. In response to that, medical education has undergone changes and adjustments to maintain standards in medical education as well as minimize disruptions in knowledge training (Tabatabai, 2020). As an educational discipline that requires a lot of experimentation, medical education in the context of the COVID-19 crisis has highlighted the need to develop online learning and virtual education (Emmanuelle et al., 2021). For VR in the medical field, users have a visual impression of their experience. This technology can make up for many lacking resources and equipment and improve traditional teaching methods. VR compromised many features ideal for surgery simulation training, rehabilitation, pain management, behavioral therapy, such as: VR medical care training, allowing users to interact with VR, as if immersing in the actual scene, can reduce the Health Care technical operation due to negligence. Using VR to build virtual organs or tissues can assist doctors in their work, allowing doctors and nurses to communicate more effectively with their patients, enhancing their ability to diagnose diseases, provides information about their illness and surgical progress, and is low-cost, non-invasive, and discharges assessment, treatment training and technical training will not present any real risk to the patient (Min-Chai and Jia-Jin, 2018). VR is a powerful educational tool for defined learning goals, and its practice is growing worldwide (Jack, 2019). Returning to the subject of the study, a student of the Faculty of Medicine of Nguyen Tat Thanh University in the context of the 4th wave of the COVID-19 pandemic in Vietnam, Figures 3 below show a simulation result. General description of survey respondents' participation in virtual medical education:

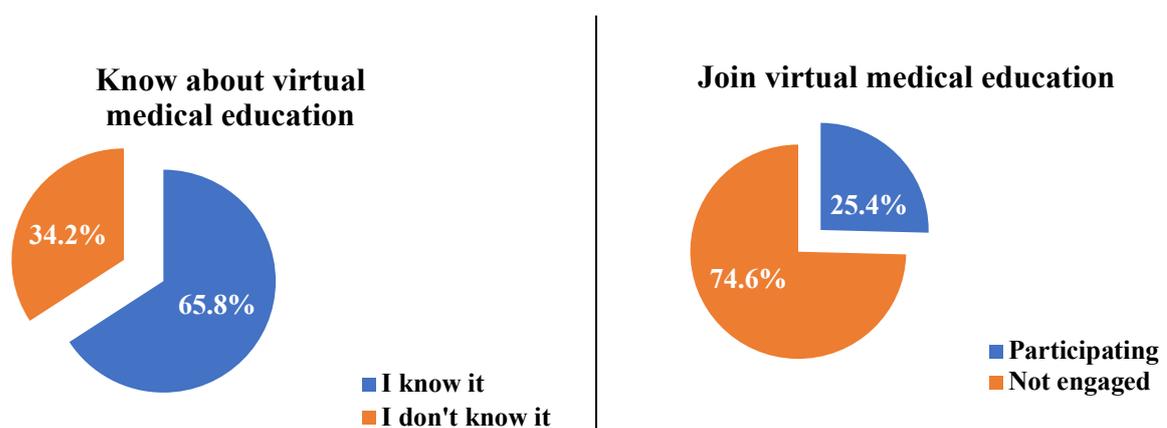


Figure 3: Virtual Medical Education

The results showed that 65.8% of the students answered that they knew about virtual medical education, a fairly high rate showing the curiosity and the spirit of market demand of medical students at Nguyen Tat Thanh University. However, the survey results show that only 25.4% of medical students are allowed to participate in subjects with virtual reality (VR) applications in teaching and practice when learning online (not yet exploiting what specific activities in the application of VR in medical education at NTTU) in the context of the COVID-19 pandemic, a low percentage compared to the number of students who know about it. That shows the low level of exposure of students to virtual medical education.. This can be seen as a rather remarkable indicator when Nguyen Tat Thanh University always focuses on improving the quality of online training in the context of the COVID-19 pandemic.

However, Nguyen Tat Thanh University in general and the Faculty of Medicine in particular also need to be very careful in applying Virtual Reality (VR) to medical training programs, especially during the COVID-19 pandemic. Because, despite the benefits of using virtual reality (VR) in medical education, a number of challenges and limitations lead to the technology becoming useless or abused. Accordingly, the main challenges of developing and using VR with medical education goals include reducing face-to-face communication, education, cost challenges, user attitudes, and other challenges such as designing, safety considerations, side effects of VR, and evaluation and validation of VR applications (Tayebeh, Seyed and Niloofar, 2020). Those challenges or limitations can completely negatively affect the quality of the school's online education, which is undesirable in a difficult period due to the impact of the pandemic.

5. Conclusion and contributions

Collecting data from 350 students of the Faculty of Medicine at Nguyen Tat Thanh University, the study can somewhat generalize the impacts that online education brings to medical students in a private university in Vietnam. In the context of the fourth wave of the COVID-19 pandemic in Vietnam. Specifically, online education contributes to changing students' living habits, transforming the learning environment and affecting students' objective perceptions. However, the results obtained from the study also provide an extremely positive situation of Nguyen Tat Thanh University in general and the Faculty of Medicine in particular. Students' study time with the guidance of lecturers is always guaranteed at the necessary level. Not only that, for a practice-intensive discipline like Medicine, the amount of time students are trained between theory and practice is assessed at a balanced level. Besides, the quality of online education after being tested by the research also shows that it is rated above neutral by students. However, it seems that for a specific discipline like Medicine, the conversion of training to online learning is still not appreciated by students as bringing more value than face-to-face training. Another problem that the survey has exploited is that the application of virtual reality technology (VR) in medical training programs has not been focused despite the students' objective assessments of the benefits.

In summary, the impact of online education on students is quite clear, especially during the COVID-19 pandemic outbreak. With the analysis and evaluation of those impacts on medical students of Nguyen Tat Thanh University, the study will be a reference for NTTU in particular and universities in general in the quest to improve the education quality.

References

- Asanov, Igor, et al (2021). *Remote-learning, time-use, and mental health of Ecuadorian high-school students during the COVID-19 quarantine*. World development 138 (2021): 105225.
- Azhiimah, A. N., et al (2021). *An analysis of online learning media in promoting learners' autonomy during covid-19 pandemic*. Journal of Physics: Conference Series. Vol. 1810. No. 1. IOP Publishing, 2021, pp1-7
- Bali S. and Liu M. (2018). *Students' perceptions toward online learning and face-to-face learning courses*. J. Phys.: Conf. Ser. 1108. 012094
- Blas, T. M., Fernandez, A. S (2009). *The role of new technologies in the learning process: Moodle as a teaching tool in Physics*. Comput Educ. 52(1): 35-44.

- Brittany, G (2015). *Online Learning Revealing the Benefits and Challenges*. Fisher Digital Publications. St. John Fisher College.
- Coronavirus disease (COVID-19) Weekly Epidemiological Update and Weekly Operational Update, 2020. Available from: <https://www.who.int/emergencies/diseases/novelcoronavirus/2019/situation-reports>. Assessed on 16 September 2020.
- David A., et al (2016). *Learning management system and e-learning tools: an experience of medical students' usage and expectations*. *Int J Med Educ.* 7: 267–273. doi: 10.5116/ijme.57a5.f0f5
- Emmanuelle, M., Antoine, L., Grégoire, B., Agnès, L., Vincent, G., Alexandre, L. (2021). *Perception of medical education by learners and teachers during the COVID-19 pandemic: a cross-sectional survey of online teaching*. 26(1):1919042. doi:10.1080/10872981.2021.1919042.
- French, S., Kennedy, G (2016). *Reassessing the value of university lectures*. *Teaching in Higher Education* 2016; 22(6): 639- 654.
- Jack, P (2019). *Virtual reality and the transformation of medical education*. *Future Healthc J.* Oct; 6(3): 181–185. doi: 10.7861/fhj.2019-0036
- Jamalpur, B., Chythanya, K. R., & Kumar, K. S. (2021). *A Comprehensive Overview of Online Education-Impact on Engineering Students during COVID-19*. *Materials Today: Proceedings*, pp 1-4.
- Min-Chai H. and Jia-Jin L. (2018). *Preliminary Study of VR and AR Applications in Medical and Healthcare Education*. *Journal of Nursing and Health Studies*. Vol.3 No.1:1. ISSN 2574-2825
- Muhammad, R. U, Yelvi, L., Ayu, L. P (2020). *Medical students' perspectives about distance learning during early COVID 19 pandemic: a qualitative study*. Vol 4, No 2. DOI: <http://dx.doi.org/10.30651/jqm.v4i2.5000>
- Nugroho, Yuli Sutoto, et al (2021). *Analysis of Learning Quality With Internet-Based Distance Learning During the COVID-19 Pandemic*. *IJORER: International Journal of Recent Educational Research* 2.1 (2021): 96-110.
- Peluso MJ, Hafler JP (2011). *Medical Students as Medical Educators: Opportunities for Skill Development in the Absence of Formal Training Programs*. *Yale J Biol Med.* 84(3):203-9.
- Ramachandran K, Dinesh Kumar R (2021). *Perception of medical students about online learning in the COVID-19 era*. *Biomedicine*. Vol. 41, No. 1. doi: <https://doi.org/10.51248/v41i1.549>
- Tabatabai, S (2020). *COVID-19 impact and virtual medical education*. *J Adv Med Educ Prof.* 8(3):140–143.
- Tayebeh B., Seyed M. and Niloofar M. (2020). *Challenges and Practical Considerations in Applying Virtual Reality in Medical Education and Treatment*. *Oman Med J.* 35(3): e125. doi: 10.5001/omj.2020.43
- Uma G., et al (2020). *Challenges and Opportunities of Preclinical Medical Education: COVID-19 Crisis and Beyond*. *SN Comprehensive Clinical Medicine*. Volume 2, Pages: 1992–1997.
- UNICEF Vietnam for every child (2020). *The Remote Learning Reachability report*. Accessed on 09/09/2021 at <https://www.unicef.org/vietnam/press-releases/covid-19-least-third-worlds-schoolchildren-unable-access-remote-learning-during>
- United Nations Educational, Scientific and Cultural Organization (UNESCO) (2020). *Education in the time of COVID-19*. COVID-19 report, ECLAC-UNESCO, August 2020, pp 1.
- Vogel D, Harendza S (2016). *Basic practical skills teaching and learning in undergraduate medical education – a review on methodological evidence*. *GMS J Med Educ.* 33(4):64.



Metaphorical Perceptions of Teachers Regarding the Concept of "Teaching Profession" (A Weighted Study)

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Abstract

Today, the perceptions of individuals who are performing the teaching profession are very important. The purpose of this research is; to investigate the metaphorical perceptions that teachers have regarding the concept of the teaching profession and to compare the metaphorical perceptions of classroom teachers and branch teachers. The research is a qualitative study and the data are examined by content analysis. As a data collection tool, 60 teachers were told to "Teaching profession..... it's like. Because....." they were asked 3 times to complete the sentence. According to the results of the study; the number of metaphors produced by teachers is 155 and all are valid. The created metaphors are collected in 5 different categories. It was observed that the classroom teachers and branch teachers who participated in the study produced metaphors mostly in the category of "Expressions Related to An Object." Teachers in the study group perceive the teaching profession most with the metaphors of "parenting, motherhood and candles." According to the findings of the study; When comparing metaphorical perceptions of classroom teachers and branch teachers in all categories, it was determined that classroom teachers produced more metaphors than branch teachers, while branch teachers could not produce little or no metaphors.

Keywords: Metaphor, Teacher, Teaching Profession, Classroom Teacher, Branch Teacher

1. Introduction

Teaching is one of the oldest and most respectful professions of our time. Turkish Language Association (2019) concept of profession; It defines the rules as the determined work, which is gained with a certain education, based on systematic knowledge and skills, to produce useful goods for people, to provide services and to make money in return. There are professions that arise with a long and intensive work, with special expertise, knowledge and skills. One of these professions is teaching (Unal and Ada, 1999). The teacher is the main element that allows the individual to have a quality education process in the school. They are the building blocks of the teacher and student education system. Teacher; the person who is to teach knowledge is defined as teacher, scholar, muallime (TLA, 2019). The teaching profession is as vital to society as doctors. While medicine heals our bodies; enriches our minds by providing education, knowledge and skills. Teaching is a kind of sacrifice for the benefit of the students. The teacher gives all the energy, strength and knowledge to the students.

Teaching is constantly evolving and exploring. Teachers who do their job well will train explorers to make future inventions and research.

According to the Kart (2016), it is the responsibility of the teacher to inform the students and to guide them to the truth. A quality education begins with the responsibility of the teacher. An effective educational activity is reserved for the teacher to have an active role in the classroom. If a teacher knows his responsibilities towards his students, he becomes an effective role-model in the classroom and contributes to the education of the students as well as has significant effects on personality development. That's why it's important how teachers perceive their profession.

Today, there is a so-called "theory of mental metaphor" based on the work of Lakoff and Johnson (1980a). As Lakoff and Johnson mentioned, if a large amount of our concept system is considered metaphorical, it can be said that the way we think, everything we experience and what we do every day is related to metaphors (Lakoff and Johnson, 1980b:103). Metaphors are a tool of imagination for people; make analogies with an unusual language instead of using ordinary language. The expressions we perceive and the relationships we establish with others are formed through concepts. Concepts that govern our thoughts are important resources that help us in our daily work. The metaphors we create with concepts; We often use it not only in language, but also in the movements and thoughts we make in everyday life. In this regard, metaphors allow a person's mind to reach from a certain way of understanding to another, allowing that person to understand a particular phenomenon as another fact (Saban, 2009). Therefore, metaphors play a role in defining our needs in everyday life. According to the theory of mental metaphor, the original metaphor is to understand and experience one phenomenon according to another (Lakoff and Johnson, 2005). The metaphor is formed by stating that the X phenomenon is like the Y phenomenon and establishes a relationship between two imspatial phenomena, allowing a certain mental schema to be projected onto another mental schema (Saban, 2009). In a metaphor relationship, three main headings are mentioned: (1) the subject of the metaphor , (2) the source of the metaphor, and (3) the characteristics that are intended to be attributed from the source of the metaphor to the subject of the metaphor. For example, if you want to use "The teaching profession is like a flower. Because I don't know if I it is the one that constantly blooms, offers innovations, adds beauty around it." it is the one that constantly opens, offers innovations, adds beauty around it" is the feature that is intended to give from the source of the metaphor to the subject of the metaphor (Forceville, 2002). When the field article was examined, the metaphorical perceptions of students, teacher candidates and teachers towards the 'teaching profession' were the subject of many studies.

Koc (2014), has identified the metaphorical perceptions of class teacher candidates regarding the concepts of "teacher" and "teaching profession." Accordingly, metaphors include teaching as a challenging profession, teaching as a multifaceted profession, teaching as a valuable profession, teaching as a profession full of surprises, teaching as a profession of need, teaching as a canonical profession, teaching as a protective profession, teaching as a profession of the heart, teaching as a healing profession, teaching as a profession of sacrifice, teaching as a guiding profession and an informative profession. Additionally, it is collected under 11 headings, including teaching. It was concluded that the most common 'motherhood' (8.85%) and then 'soil' (7.08%) and 'water' (7.08%) metaphors were the most common.

Semerçi, Eliusuk, Semerçi and Kartal (2012) examined the responses of teachers working in schools to metaphors about the teaching profession, and the majority (43.7%) of these responses were called gardeners. He emphasizes that this is because teachers see their students as flowers and raise them with a special value for each of them. Thomas and Beauchamp (2011) explored the views of teachers who had just graduated with metaphors and were in their first year of teaching. According to the results of the study, it has shown that individuals who are new to teaching are moving towards adopting survival mode rather than seeing themselves ready for teaching. According to the study by Skaalvik and Skaalvik (2015), job satisfaction, work-related stress, the consequences of stress and coping strategies were investigated among Norwegian teachers. According to the results of the study, teachers reported high job satisfaction as well as severe stress and exhaustion. They showed a difference between the age of the participants and their coping strategies.

In the literature review on the subject (Martinez, Sauleda and Huber, 2001; Celikten, 2006; Ocak and Gunduz, 2006; Saban, Kocbeker and Saban, 2006; Cerit, 2008; Oguz, 2009; Alger, 2009; Kalyoncu, 2012; Yilmaz, Gocen and Yilmaz, 2013; Ekiz and Kocyigit, 2013; Asaman, 2013; Eren and Tekinaslan, 2013; Cocuk, Yokus and Tanrıseven, 2015; Ozdemir and Erol, 2015; Kart, 2016; Budak and Kula, 2017; Eguz and Ontas, 2018) the concepts of teacher and teaching profession have been the subject of research.

On the other hand, there has been no study in the literature that examines the metaphorical perceptions of classroom and branch teachers regarding the profession. Therefore, it is thought that the results of this research will provide qualified data to the literature on the subject. The purpose of the old teaching profession was to transfer the knowledge of teachers to students who could make art or explore nature in order to survive. The purpose of today's teaching is to teach students to think creatively and to look for answers to various questions, to guide them.

1.2 Purpose of The Study

The purpose of this research is; to investigate the metaphorical perceptions that teachers have regarding the concept of the teaching profession and to compare the metaphorical perceptions of classroom teachers and branch teachers. For this purpose, the problem and sub-problems of the study are determined as follows.

Sub-Problems:

1. What are the metaphorical perceptions of classroom teachers regarding the concept of teaching profession?
2. What are the metaphorical perceptions of the teachers of the branch regarding the concept of the teaching profession?
3. Do the metaphorical perceptions of classroom and branch teachers regarding the concept of teaching profession have similarities/differences?

2. Method

2.1 Research Model

This study, which aims to investigate the metaphorical perceptions of classroom teachers and branch teachers towards the concept of teaching profession, was carried out with a factology pattern from qualitative research patterns. "The factology pattern focuses on cases that we are aware of but do not have an in-depth and detailed understanding of" (Yildirim and Simsek, 2018).

2.2 Working Group

The working group of this research consists of 35 classroom teachers and 24 branch teachers. These branches; It consists of 5 mathematics, 4 preschoolers, 4 Turkish, 2 psychological counseling and guidance (PCG), 2 biology, 2 special education, 2 physical education, 2 religious culture and moral knowledge and 1 geography teacher. The workgroup is easily accessible and created using a maximum diversity sample.

2.3 Collection and Analysis of Data

In order to determine the metaphors of teachers for the concept of the teaching profession, teachers are told 3 times, "The teaching profession is like...; because". Teachers were asked to compare the concept of the teaching profession to a phenomenon they encountered in abstract, concrete daily life and to write down the reason for their analogies. This is given 10 minutes. The forms used as data collection tools are meticulously explained to the teachers who will be applied with the authorized persons. Content analysis from qualitative data analysis methods was used on the data collected in the research. The analysis of the data was followed up in the

following order; enumeration of data, entry of numbered data into Microsoft Word, extraction of data (determination of invalid metaphors), and grouping of data and creating categories.

2.3.1 Coding and Sorting Stage

Each of the metaphors of the teachers involved in the study was numbered and entered into the Microsoft Word program. The 155 metaphors that were investigated during the numbering work were numbered from 1 to 155. The metaphors and reasons developed by the teachers have been entered into the Microsoft Word program. Then the categories were entered. It was concluded that the metaphors developed by some teachers belonged to more than one category and were entered into the second categories. Some teachers have even developed multiple metaphors. Some teachers created 3 metaphors, while others created 2 metaphors and some created 1 metaphor. The 60 teachers who participated in the study produced 155 metaphors. The research did not find metaphors that would be considered invalid. "Sample metaphor expressions" were selected from the participant expressions representing the 5 categories created. Thus, sample expressions that are thought to best represent that category are determined for the categories to which 155 metaphors belong. These sample expressions are K1, K2, K3 for each participant... It is encoded as K60.

2.3.2 Creation of Categories

The part of the metaphor developed when creating categories was dealt with and five different categories were created. When creating categories, the themes determined by the researchers were used. Categories created accordingly; (1) Statements concerning the family (2) Statements related to the profession (3) Statements concerning natural and irrevocable elements (4) Expressions related to an object (5) Vital and Idiom statements.

2.4 Ensuring Validity and Reliability

Valid in qualitative research means that the researcher observes the phenomenon he is investigating as unaccured as possible (Kirk and Miller, 1986; as cited in Yildirim and Simsek, 2008). In this research, all stages of the research were explained in detail, without bias and metaphor samples of the participants were included to ensure the validity and reliability of the research. In order to ensure the reliability of the research, expert opinion was used to confirm whether the metaphor images given under the 5 conceptual categories reached in the research represented such a conceptual category. For this purpose, the opinion of 2 educators who are experts in their field was used. Experts have been asked to consider this list. Later, the criticisms made by the expert were compared with the researcher's own categories. The reliability of the research was calculated using Miles and Huberman's (1994) formula ($\text{Reliability} = \frac{\text{consensus}}{\text{consensus} + \text{difference of opinion}} \times 100$) by determining the numbers of "consensus" and "difference of opinion" in comparisons. In qualitative studies, reliability is ensured in cases where the harmony between expert and researcher evaluations is 90% or more. A consensus (reliability) of 98.7% was achieved in the reliability study conducted specific to this research. The expert consulted within the scope of the reliability study linked a total of 5 metaphors to a different category than that of the researcher. In this case, $\text{reliability} = \frac{153}{153 + 2} \times 100 = 98.7\%$ is calculated. In this case, $\text{reliability} = \frac{153}{153 + 2} \times 100 = 98.7\%$ is calculated.

3. Results

The teachers who participated in the study produced a total of 155 metaphors. The most frequency metaphors are motherhood (f=12), parenting (f=12), candle (f=8), sun (f=7), mirror (f=5), life (f=5), farming (f=4), artistry (f=4), compass (f=4), book (f=4). Table 1, created by participants, is given.

Table 1: Metaphors developed for the concept of "Teaching Profession" and its percentage

Metaphor Code	Metaphor Name	Student Representing Metaphor		Metaphor Code	Metaphor Name	Student Representing Metaphor	
		f	%			f	%
1	Motherhood	12	7,7	43	A flower I expect to bloom in the spring	1	0,6
2	Parenting	12	7,7	44	Sycamore tree	1	0,6
3	Candle	8	5,1	45	Rose	1	0,6
4	Sun	7	4,5	46	Lung	1	0,6
5	Mirror	5	3,2	47	A shining star	1	0,6
6	Life	5	3,2	48	Stream	1	0,6
7	Farming	4	2,5	49	Plant that remains green for four seasons	1	0,6
8	Artistry	4	2,5	50	Planting thousands of saplings in the garden	1	0,6
9	Compass	4	2,5	51	Spring season	1	0,6
10	Book	4	2,5	52	Season	1	0,6
11	Soil	3	1,9	53	Pickle	1	0,6
12	Water	3	1,9	54	Wine	1	0,6
13	Sculptor	2	1,2	55	Garden	1	0,6
14	Cooking	2	1,2	56	Moon	1	0,6
15	Company Manager	2	1,2	57	A mother's love of her baby	1	0,6
16	Gardening	2	1,2	58	Father	1	0,6
17	Guide	2	1,2	59	Individual of the house	1	0,6
18	Lamp	2	1,2	60	Family	1	0,6
19	The stone of patience	2	1,2	61	Women	1	0,6
20	World	2	1,2	62	Love	1	0,6
21	Flower	2	1,2	63	Passion	1	0,6
22	Ocean	2	1,2	64	Melody	1	0,6
23	Being a child	2	1,2	65	Football	1	0,6
24	Library	2	1,2	66	Türlü dish	1	0,6
25	Dough	1	0,6	67	The soul of man	1	0,6
26	Dream trap	1	0,6	68	Scapegoat	1	0,6
27	Sponge	1	0,6	69	Building a future	1	0,6
28	Cresset	1	0,6	70	Heroic saga	1	0,6
29	Nail polish	1	0,6	71	Constantly contracting	1	0,6
30	Road	1	0,6	72	Cooking	1	0,6
31	Factory	1	0,6	73	Five fingers of one hand	1	0,6
32	Light	1	0,6	74	The wise man in the fairy tales	1	0,6
33	Treasure chest	1	0,6	75	Building a tall building	1	0,6
34	Magic wand	1	0,6	76	Digging a well with a needle	1	0,6
35	White color	1	0,6	77	Renewing	1	0,6
36	Wooden pen in elementary school	1	0,6	78	Living old and new	1	0,6
37	High-rolling stone	1	0,6	79	Volunteering	1	0,6
38	Cologne	1	0,6	80	Shepherding	1	0,6
39	Fruiting tree	1	0,6	81	Psychologist	1	0,6
40	Plant	1	0,6	82	Architecture, carpenter	1	0,6
41	Tree	1	0,6	83	Surgery	1	0,6
42	Growing a red rose	1	0,6	84	Idolism	1	0,6
SUM						155	100

Table 2: Metaphors and percentage that make up the category "Expressions Related to an Object"

THEME	CODE	(f)	%	CLASS TEACHER	MATHEMATICS	PRESCHOOL	TURKISH	PCG	RELIGION CULTURE	BIOLOGY	PHYSICAL EDUCATION	SPECIAL EDUCATION	GEOGRAPHY	ENGLISH	
EXPRESSI ONS RELATED TO AN OBJECT	Candle	8	25,16	6	-	2	-	-	-	-	-	-	-	-	
	Mirror	5		4	-	-	-	1	-	-	-	-	-	-	-
	Compass	4		3	-	1	-	-	-	-	-	-	-	-	-
	Book	4		3	-	-	1	-	-	-	-	-	-	-	-
	Lamp	2		1	-	1	-	-	-	-	-	-	-	-	-
	The stone of patience	2		2	-	-	-	-	-	-	-	-	-	-	-
	Dough	1		-	-	-	-	-	-	1	-	-	-	-	-
	Dream trap	1		-	-	-	-	1	-	-	-	-	-	-	-
	Sponge	1		-	-	-	-	-	1	-	-	-	-	-	-
	Cresset	1		1	-	-	-	-	-	-	-	-	-	-	-
	Nail polish	1		1	-	-	-	-	-	-	-	-	-	-	-
	Road	1		1	-	-	-	-	-	-	-	-	-	-	-
	Factory	1		-	-	-	-	-	-	-	-	-	1	-	-
	Light	1		-	-	1	-	-	-	-	-	-	-	-	-
	Treasure chest	1		1	-	-	-	-	-	-	-	-	-	-	-
	Magic wand	1		-	-	1	-	-	-	-	-	-	-	-	-
	White color	1		1	-	-	-	-	-	-	-	-	-	-	-
	Wooden pen in elementary school	1		1	-	-	-	-	-	-	-	-	-	-	-
	High-rolling stone	1		1	-	-	-	-	-	-	-	-	-	-	-
	Cologne	1		-	-	-	-	-	-	1	-	-	-	-	-
SUM		39		26	0	6	1	2	1	1	0	0	1	0	

As shown in Table 2, metaphors are produced in the "Expressions related to an object" category of the most out of 5 categories. When table 2 is examined; The term "candle" (f=8) appeared predominantly in the metaphors of the teachers who participated in the study. The most commonly used metaphors are mirror (f=5), compass (f=4), book (f=4), lamp (f=2), patience stone (f=2), respectively. When we compare metaphorical perceptions of classroom teachers and branch teachers in this category; while it was seen that the class teachers produced more metaphors than the branch teachers, it was determined that the branch teachers (Mathematics, Psychological Counseling and Guidance, Special Education, English) could not produce any metaphors.

Examples of improved metaphors;

"Teaching profession; it's like a candle... We melt while we teach, we're finished. We consume ourselves and always try to illuminate." (K51)

"Teaching profession; it's like a burning lamp... the teacher is the one who guides, sheds light on the darkness and should be looked up to." (K10)

"Teaching profession; it's like a compass... you guide students in every aspect of life." (K29)

"Teaching profession; it's like a book... you learn new things on every page and improve yourself on every page." (K31)

"Teaching profession; It's like a lamp shining around you. it is the only profession where we can see the light you have scattered around you in the eyes of your children." (K50)

Table 3: Metaphors and percentage that make up the category "Statements Related to Natural and Irrevocable Elements"

THEME	CODE	(f)	%	CLASS TEACHER	MATHEMATICS	PRESCHOOL	TURKISH	PCG	RELIGION CULTURE	BIOLOGY	PHYSICAL EDUCATION	SPECIAL EDUCATION	GEOGRAPHY	ENGLISH	
STATEMENTS RELATED TO NATURAL ELEMENTS	Sun	7	23,87	6	-	-	1	-	-	-	-	-	-	-	
	Soil	3		1	-	-	1	-	-	-	-	-	-	1	-
	Water	3		3	-	-	-	-	-	-	-	-	-	-	-
	World	2		1	-	-	-	-	-	-	1	-	-	-	-
	Flower	2		-	2	-	-	-	-	-	-	-	-	-	-
	Ocean	2		1	-	1	-	-	-	-	-	-	-	-	-
	Fruiting tree	1		-	-	-	-	-	-	-	1	-	-	-	-
	Plant	1		-	-	-	-	-	-	-	1	-	-	-	-
	Tree	1		1	-	-	-	-	-	-	-	-	-	-	-
	Growing a red rose	1		-	-	-	-	-	-	1	-	-	-	-	-
	A flower I expect to bloom in the spring	1		1	-	-	-	-	-	-	-	-	-	-	-
	Sycamore tree	1		1	-	-	-	-	-	-	-	-	-	-	-
	Rose	1		1	-	-	-	-	-	-	-	-	-	-	-
	Lung	1		-	1	-	-	-	-	-	-	-	-	-	-
	A shining star	1		-	-	-	-	-	1	-	-	-	-	-	-
	Stream	1		-	-	-	1	-	-	-	-	-	-	-	-
	Plant that remains green for four seasons	1		1	-	-	-	-	-	-	-	-	-	-	-
	Planting thousands of saplings in the garden	1		1	-	-	-	-	-	-	-	-	-	-	-
	Spring season	1		1	-	-	-	-	-	-	-	-	-	-	-
	Season	1		-	-	1	-	-	-	-	-	-	-	-	-
	Pickle	1		-	-	1	-	-	-	-	-	-	-	-	-
	Wine	1		-	-	-	1	-	-	-	-	-	-	-	-
	Garden	1		1	-	-	-	-	-	-	-	-	-	-	-
Moon	1	-	-	-	-	-	1	-	-	-	-	-	-		
SUM		37		20	3	3	4	2	1	3	0	0	1	0	

When table 3 is examined; Under the theme of "expressions related to natural and irrevocable elements" of the teachers participating in the study, it is seen that the term "sun" (f=7) is the metaphor with the most frequency in the metaphors related to the teaching profession. The most commonly used metaphors are earth (f=3), water (f=3), Earth (f=2), flower (f=2), ocean (f=2), respectively. When we compare metaphorical perceptions of classroom teachers and branch teachers in this category; while it was seen that classroom teachers produced more metaphors than branch teachers, it was determined that the branch teachers (Physical Education, Special Education, English) could not produce any metaphors.

Examples of improved metaphors;

"Teaching profession; it's like the sun... to be a light, to be an example, to illuminate your life." (K53)

"Teaching profession; it's like water... just as water brings living things to life, the teacher prepares the student for life with knowledge." (K11)

"Teaching profession; it's like a flower I expect to bloom in the spring... Seeing our bud students outdo themselves as they learn new things reminds me of those blooming flowers." (K23)

"Teaching profession; the world is like (everything)... Teacher parents, who also give information, are also everything to the guidance (guiding) child, especially in the first stage. He is the role model of the child after the parents. For him, a teacher is everything. What he says is true, and most importantly, he loves his teacher in an infinite and pure way." (K28)

"Teaching profession; it's like the ocean... Just as it contains riches in it, a teacher has a lot of riches in it. " (K25)

Table 4: Percentage of metaphors that make up the "Family-Related Expressions" category

THEME	CODE	(f)	%	CLASS TEACHER	MATHEMATICS	PRESCHOOL	TURKISH	PCG	RELIGION CULTURE	BIOLOGY	PHYSICAL EDUCATION	SPECIAL EDUCATION	GEOGRAPHY	ENGLISH	
FAMILY STATEMENTS	Motherhood	12	20	8	-	1	1	-	-	-	-	1	-	1	
	Parenting	12		9	3	-	-	-	-	-	-	-	-	-	-
	Being a child	2		2	-	-	-	-	-	-	-	-	-	-	-
	A mother's love of her baby	1		-	-	-	-	-	-	1	-	-	-	-	-
	Father	1		1	-	-	-	-	-	-	-	-	-	-	-
	Individual of the house	1		1	-	-	-	-	-	-	-	-	-	-	-
	Family	1		-	-	-	-	-	-	-	-	-	-	1	-
	Woman	1		-	-	-	-	-	-	-	-	1	-	-	-
SUM		31		21	3	1	1	0	1	0	1	1	1	1	

When table 4 is examined; Under the theme of "family-related statements," it is seen that the phrases "parenting" (f=12) and "motherhood" (f=12) are the metaphors with the most frequency in the metaphors related to the teaching profession. When we compare metaphorical perceptions of classroom teachers and branch teachers in this category; while it was seen that classroom teachers produced more metaphors than branch teachers, it was determined that branch teachers (PCG, Biology) could not produce any metaphors.

Examples of improved metaphors;

"Teaching profession; it's like motherhood... there is an emotional connection between the student and the teacher. After motherhood, the strongest bond with the child is with the teacher. The student continues his emotional education with his teacher." (K37)

"Teaching profession; it's like parenting... Sometimes we worry about what the future of students, such as a mother or father, will be." (K43)

"Teaching profession; It's like a mother loving her baby. .. Mother loves her baby unconditionally. Whether it hurts or is forced, it never occurs to you to neglect him for a moment, to leave him and step aside. It's a dedication job in teaching." (K19)

"Teaching profession; it's like family... The teacher is a family head who keeps his child, mother and father together and now takes care of everything." (K48)

"Teaching profession; it's like being a father... Just as a father puts his best foot forward for his son, a teacher does his job with the same sacrifice." (K14)

Table 5: Metaphors and percentage that make up the category "Vital and Idiom statements"

THEME	CODE	(f)	%	CLASS TEACHER MATHEMATIC	PRESCHOOL	TURKISH	PCG	RELIGION CULTURE	BIOLOGY	PHYSICAL EDUCATION	SPECIAL EDUCATION	GEOGRAPHY	ENGLISH	
DAILY AND AUDITORY STATEMENT S	Life	5	16,12	2	2	-	-	1	-	-	-	-	-	
	Library	2		2	-	-	-	-	-	-	-	-	-	-
	Love	1		-	-	-	-	1	-	-	-	-	-	-
	Passion	1		-	1	-	-	-	-	-	-	-	-	-
	Melody	1		-	-	1	-	-	-	-	-	-	-	-
	Football	1		1	-	-	-	-	-	-	-	-	-	-
	"Türlü" dish	1		-	1	-	-	-	-	-	-	-	-	-
	The soul of man	1		1	-	-	-	-	-	-	-	-	-	-
	Scapegoat	1		-	-	-	-	-	-	-	-	1	-	-
	Building a future	1		1	-	-	-	-	-	-	-	-	-	-
	Heroic saga	1		-	-	-	-	-	-	1	-	-	-	-
	Constantly contracting	1		1	-	-	-	-	-	-	-	-	-	-
	Cooking	1		-	-	-	-	-	-	-	-	-	-	1
	Five fingers of one hand	1		-	-	-	-	-	-	1	-	-	-	-
	The wise man in the fairy tales	1		-	-	-	-	1	-	-	-	-	-	-
	Building a tall building	1		1	-	-	-	-	-	-	-	-	-	-
	Digging a well with a needle	1		1	-	-	-	-	-	-	-	-	-	-
	Renewing	1		1	-	-	-	-	-	-	-	-	-	-
Living old and new	1	1	-	-	-	-	-	-	-	-	-	-		
Volunteering	1	1	-	-	-	-	-	-	-	-	-	-		
SUM		25		13	4	1	0	1	2	0	2	1	0	

When table 5 is examined; It is seen that the expression "life" (f=5) is the metaphor with the most frequency in the metaphors related to the teaching profession under the theme of "vital and idiom expressions" of the teachers participating in the study. When we compare metaphorical perceptions of classroom teachers and branch teachers in this category; while it was seen that the class teachers produced more metaphors than the branch teachers, it was determined that the branch teachers (Turkish, Biology, Geography) could not produce any metaphors.

Examples of improved metaphors;

"Teaching profession; bittersweet life... Our world can fall on us with a drop of tears while bursting into laughter with a little word from a student." (K30)

"Teaching profession; it's like a library... You read hundreds of books in the library, but there's still a lot you don't know that you haven't read. You have hundreds of students in teaching, you say you've seen all kinds of students, but you come across another student life that you haven't necessarily seen, and I know there are many students I haven't seen and their unique world." (K30)

"Teaching profession; it's like football... The more you play football, the more you open up, the more you enjoy it. The teaching profession is a profession that you love as you do it." (K36)

"Teaching profession; it's like cooking... You use different ingredients to make great food. It's like creating a beautiful atmosphere in a classroom with children of different characters." (K46)

"Teaching profession; like a spanking boy... the teacher is billed for the skills that the student is inadequate and the courses in which he is weak. The fact that the child has no interest or does not really understand is always ignored." (K54)

Table 6: Metaphors and percentage that make up the category "Professional Expressions"

THEME	CODE	(f)	%	CLASS TEACHER	MATHEMATI CS	PRESCHOOL	TURKISH	PCG	RELIGION CULTURE	BIOLOGY	PHYSICAL EDUCATION	SPECIAL EDUCATION	GEOGRAPHY	ENGLISH	
PROFESSIONAL STATEMENTS	Farmer	4	14,83	4	-	-	-	-	-	-	-	-	-	-	
	Artist	4		3	-	-	-	-	-	1	-	-	-	-	-
	Heykeltıraş	2		1	-	1	-	-	-	-	-	-	-	-	-
	Cooking	2		1	-	-	-	-	-	-	-	-	1	-	-
	Company Manager	2		1	1	-	-	-	-	-	-	-	-	-	-
	Gardening	2		1	-	-	-	-	-	-	-	1	-	-	-
	Guide	2		-	-	-	1	1	-	-	-	-	-	-	-
	Shepherding	1		1	-	-	-	-	-	-	-	-	-	-	-
	Psychologist	1		-	-	-	-	-	-	-	-	-	1	-	-
	Architecture, carpenter	1		-	-	-	-	-	-	-	-	1	-	-	-
	Surgery	1		-	1	-	-	-	-	-	-	-	-	-	-
Idolism	1	1	-	-	-	-	-	-	-	-	-	-	-		
SUM		23		13	2	1	1	1	1	0	2	2	0	0	

When table 6 is examined; Under the theme of "professional expressions," it is seen that the expression "farming" (f=4) and the expression "artistry" (f=4) are the metaphors with the most frequency. The most commonly used metaphors are sculptor (f=2), cookery (f=2), company management (f=2), gardening (f=2), guide (f=2), respectively. When we compare metaphorical perceptions of classroom teachers and branch teachers in this category; while it was seen that the class teachers produced more metaphors than the branch teachers, it was determined that the branch teachers (Biology, Geography, English) could not produce any metaphors at all.

Examples of improved metaphors;

"Teaching profession; like a guide person... the guide next to the child who embarks on the journey of self-discovery is the guide. The kid trusts him. The guide tries to help the child in this struggle and guides him." (K34)

"Teaching profession; it's like being an artist when the time comes... the artist leaves lasting traces when exhibiting his art. Creates the same effect on the teacher." (K10)

"Teaching profession; like a farmer... it is similar to growing crops. We have to do our job with patience, tolerance and effort while raising the children so that the result is good. Let's get nice products." (K28)

"Teaching profession; it's like cooking ... Just as a cook cook cooks differently from different ingredients, the teacher recognizes different students according to their Characteristics and produces products by giving them the trainings they need based on individual differences. Since the same food cannot be made from every ingredient, it does not have the same characteristics in every individual, taking into account the necessary educational needs." (K38)

"Teaching profession; it's like gardening... The more care gardeners take to the garden, the more beautiful the garden will get. That's what teaching is like. The more you take care of the kids, the better his future will be.." (K56)

4. Discussion

This research was carried out in order to reveal and compare the perceptions of classroom teachers and branch teachers regarding the concept of "teaching profession" through metaphors. Yılmaz, Göcen and Yılmaz (2013), he stated that revealing perceptions of the teaching profession with metaphors can be used as an important research tool to understand and explain this profession. Therefore, metaphorical perceptions of the teaching profession are important for teachers, teacher candidates or students who want to choose this profession. In the study, 155 valid metaphors were produced and these metaphors were collected in 5 different categories. When the metaphors are examined; teachers' perceptions of the teaching profession were generally positive. The most

repeated metaphors in the study were "motherhood (f=12)" and "parenting (f=12)". As a matter of fact, this finding obtained by the metaphor of parents Yilmaz, Göcen and Yilmaz (2013), Budak and Kula (2017), Ocak and Gunduz (2006) with Eguz and Ontas (2018) also coincides with their work. In this case, it can be said that the teaching profession for teachers is as effective and important as parenting. This is due to teachers spending most of their time with their students during the day (Yilmaz, Göcen and Yilmaz, 2013).

Based on metaphors, 5 conceptual categories were created. Categories created accordingly; (1) Statements concerning the family (2) Expressions concerning the profession (3) Statements concerning natural and irrevocable elements (4) Expressions concerning an object (5) Statements related to an object are vital and idiomizing statements. Of the 5 categories created, metaphors were produced mostly in the category "Expressions related to an object." It is seen that the phrase "candle" (f=8) is the metaphor with the most frequency among the metaphors of the teachers who participated in the study in this category. This is because teachers' perceptions of the teaching profession guide students on the paths they will take, illuminating their paths. As a matter of fact, this finding obtained by candle metaphor is similar to the work of Koc (2014). Metaphors created by teachers can also be said that the teaching profession is perceived as a profession with the characteristics that guide them, guide them and shape them.

The metaphors put forward by the teachers who make up the working group to express their perceptions of the teaching profession are semantically diverse in terms of the images they evoke in teachers. From this point of view, it is seen that the concept of the teaching profession will not be collected under a single metaphor, so alternative metaphors are needed. In addition, there was no difference between the same metaphors produced by classroom teachers and branch teachers. For example, if you want to use metaphor of a person who is a classroom teacher "Teaching is like motherhood. Because I don't know if I We don't just teach children to read, write or count in school. We feed them, we wipe their noses, we fall, we dressing, most importantly, we love them unconditionally like their mothers and we always work hard for their good." The metaphor of an English teacher is "Teaching profession; It's like motherhood. Because I don't know if I Students are as valuable as your own, and they expect what you expect from your child, teacher. You're as merciful to your child as you are to your student. " in the form of " . Whether it is a classroom teacher or a branch teacher, the perception of the teaching profession does not change. Such studies will benefit the teacher identities of the teacher candidates in the future. However, when we compare metaphorical perceptions of classroom teachers and branch teachers in all categories; while it was seen that the class teachers produced more metaphors than the branch teachers, it was determined that the branch teachers could not produce little or no metaphors. As a reason, it can be said that the professional identity transformations and professional experiences of the classroom teachers are more pronounced and functional than the teachers of the branch.

5. Recommendation

In terms of determining the needs of education, more effective and functional training programs can be developed in teacher training by taking into account the results of these and similar studies. As a matter of fact, Majchrzak and Ostrogska (2021) stated that a teacher training program should be introduced that will contribute to classroom management and help them manage their resources. Giving more space to practical courses than theoretical courses during undergraduate periods will help them to get to know the teaching profession. The criteria that the teacher who will perform the teaching profession should adopt, love and pay attention to when choosing this profession are important for our education system.

References

- Alger, C. L. (2009). Secondary teachers' conceptual metaphors of teaching and learning: Changes over the career span. *Teaching and Teacher Education*, 25, 743-751.
- Asaman, E. (2013). Metaphorical perceptions of teachers and students in special educational institutions. Master's Thesis, Mersin University, Mersin.
- Budak, Y. & Kula, S.S. (2017). Perceptions of Classroom Teacher Candidates regarding the Teaching Profession. *Ahi Evran University Kirsehir Faculty of Education Journal (KEFAD)*, 18(2), 311-329.

- Celikten, M. (2006). Culture and teacher metaphors. *Journal of Selçuk University Institute of Social Sciences*, 2(1), 1-7.
- Cerit, Y. (2008). Opinions of students, teachers and administrators on metaphors related to the concept of teachers. *Turkish Journal of Educational Sciences*, 6(4), 693-712.
- Cocuk, H. E., Yokus, G. & Tanriseven, I. (2015). Pedagogical formation students' self-worth and metaphorical perceptions of teaching: Mersin University Example. *Journal of Mustafa Kemal University Institute of Social Sciences*, 12, 373-387.
- Eguz, S. & Ontas, T. (2018). Metaphors Used by Middle School Students regarding the Concept of "Teacher." *MSKU Faculty of Education Journal*, 5(1), 79-91.
- Ekiz, D. & Kocyigit, Z. (2013). Determination of the metaphors of classroom teachers regarding the concept of teachers, *Kastamonu Journal of Education*, 21(2), 439-458.
- Eren, A. & Tekinarslan, E. (2013). Prospective Teachers' Metaphors: Teacher, Teaching, Learning, Instructional Material and Evaluation Concepts. *International J. Soc. Sci. and Education*, 3(2), 435-445.
- Forceville, C. (2002). The Identification of Target and Source in Pictorial Metaphors. *Journal of Pragmatics*, 34, 1-14
- Kalyoncu, R. (2012) Metaphors of visual arts teacher candidates regarding the concept of "teaching." *Mustafa Kemal University Journal of the Institute of Social Sciences*, 9(20), 471-484
- Kart, M. (2016). Metaphorical perceptions of the teacher concept of pedagogical formation students and faculty of education students. (Published Master's Thesis). Pamukkale University, Institute of Educational Sciences, Pamukkale.
- Koc, S. E. (2014). Metaphorical perceptions of teacher and teacher profession concepts of classroom teacher candidates. *Inonu University Faculty of Education Journal*, 1(15), 47-72.
- Lakoff, G. & Johnson, M. (1980a) The metaphorical structure of the human conceptual system. *Cognitive Science*, 4, 195-208.
- Lakoff, G. & Johnson, M. (1980b). *Metaphors we live by*. Editor J. O'Brien, *The production of reality: Essays and readings on social interaction* (pp.103-115). Chicago, IL: The University Of Chicago Press.
- Lakoff, G. & Johnson M. (2005). *Metaphors Life Meaning and Language*. İstanbul: Paradigma Publishing.
- Majchrzak, O. & Ostrogska, P. (2021). Between Expectations and a Sustainable Teaching Career: The Results of a Metaphor Study, *Positive Psychology in Second and Foreign Language Education*, 159-184.
- Martinez, M.A., Sauleda, N., & Huber, G.L. (2001). Metaphors as blueprints of thinking about teaching and learning. *Teaching and Teacher Education*, 17, 965-977.
- Miles, M.B. & Huberman, A.M. (1994). *Qualitative data analysis*. Thousand Oaks, CA: Sage. Morgan G. (1998). *Metaphor in management and organizational theories*(Translated by, G. Bulut). İstanbul: BZD Yayıncılık.
- Ocak, Gurbuz & Gunduz, M. (2006). Comparison of the metaphors of the teacher candidates who have just won the faculty of education before and after taking the introduction to the teaching profession. *Afyon Kocatepe University Journal of Social Sciences*, 8(2), 293-311.
- Ozdemir, T.Y. & Erol, Y., C. (2015). Perceptions of school, teaching and student concepts of teacher candidates studying pedagogical formation. *CBU Journal of Social Sciences*, 13, 215-244.
- Saban, A., Kocbeker, B.N. & Saban, A. (2006). Examination of teacher candidates' perceptions of teacher concept through metaphor analysis. *Educational Sciences in Theory and Practice*, 6(2), 461-522.
- Saban, A. (2009). Metaphors of Teacher Candidates regarding the Student Concept. *Turkish Journal of Educational Sciences*. 7(2), 281-326.
- Semerci, C., Eliusuk, A., Semerci, N. & Kartal, E. S. (2012). Teacher opinions on the agenda of the teaching profession. *Bartın University Faculty of Education Journal*, 1(1), 22-40.
- Skaalvik, E.M. & Skaalvik, S. (2015). Job Satisfaction, Stress and Coping Strategies in the Teaching Profession—What Do Teachers Say? *International Education Studies*, 8(3), 181-192.
- Thomas, L. & Beauchamp, C. (2011). Understanding new teachers' professional identities through metaphor. *Teaching and Teacher Education*, 27(4), 762-769.
- Turkish Language Association, *General Turkish Dictionary* (2019). <http://www.sozluk.gov.tr/> (Date of access: 12/08/2021).
- Unal, S. & Ada, S. (1999). *Introduction to the Teaching Profession*. İstanbul: Marmara University Publications.
- Yildirim, A. & Simsek, H. (2018). *Qualitative research methods*. (11. Edition). Ankara: Distinguished Publishing.
- Yilmaz, F., Göcen, S. & Yilmaz, F. (2013). Teacher candidates' perceptions of the concept of teachers: A metaphorical study. *Mersin University Faculty of Education Journal*, 9(1), 161-164.



The Use of Genre Based Approach in Training and Mentoring for Improving Argument Skills in Research Articles Journal Writing for Social and Humanity Authors

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Abstract

Argumentation in writing research articles is very crucial for showing the position of authors in a certain science field, but the social and humanity authors are still lower in skill for argumentation. This research investigated the using and impact of the Genre Based Approach (GBA) in training and mentoring of Research Article writing in improving the skill of argumentation in writing RA. The aim of this study is to describe the activity of learning and teaching by using GBA in training and mentoring of writing RA for social and humanity authors and the impact of this training and mentoring on the skill of argumentation in RAs writing. The material and steps of learning and teaching activity are adapted and modified from Widodo (2006) who stated that the rule of GBA is to prepare, focus, task, evaluate and elaborate. Moreover, Ferris & Hedgcock (2005) also explained that GBA is started from joint construction and independent construction stages when students start to write. The instruments of this research were direct observation and RAs draft analysis. Direct observing is also conducted to record every side of GBA design for teaching writing articles. To find the effect of GBA in training and mentoring to improve argumentative skills, the content analysis to the draft of RAs is conducted. The Result shows that the first the activity of training and mentoring writing RAs by using GBA to improve argumentation skills can be described from prepare, focus, task, evaluate and elaborate. The second finding shows that the participants have competence in writing argumentative for each section of RAS. Thus, it can be concluded that GBA in training and mentoring to write RAs is effective to improve argumentative skills in writing class especially writing RAs class.

Keywords: Genre Based Approach (GBA) Design, Argumentative Writing Skill, Research Article

1. Introduction

According to Arsyad (2018) writing is an effective way to educate the community massively to improve the standard of living into a better life. Firdaus (2018) also said that by writing scientific articles and disseminating them to citizens, a nation will achieve rapid and equitable progress. It is understood that by accessing the latest and greatest research results, people will be provoked to study, try, believe, use and make it a new better habit.

Although the competence of writing is crucial in the development of science and technology and must be the thing that has been mastered by lecturers, but the fact is that the competence of writing is still low in Indonesian academics with indicators of the low number of publications of research journal articles from Indonesia. The knowledge, skills, motivation and mindset are factors in the low quantity and quality of scientific publications of Indonesian academics. The development of technology requires a variety of scientific discoveries needed by the people's lives must be shared to various parts of the world both orally, especially with published scientific writing. Steven R. Covey (BPSDM-Kemendikbud, 2012) mentioned that scientific publication activities are one form of effort to renew the mental. Arsyad (2018) said that scientific publications are important for the development and dissemination of science that is awaited and needed by the community.

The data also showed that Indonesian academic publications are mostly in the fields of design, technology, health and medicine such as: Engineering (15.14%), Medicine (10.64%), Computer Science (10.2%), Agriculture and Biological Sciences (9.57%), Physics and Astronomy (5.39%), while publications in the field of Social Sciences only (4.74%) arts and humanities only (0.91%) (Kemenristekdikti, 2016:18). This data shows that very few Indonesian academics in the field of social sciences and humanities have successfully published in reputable international journals. Conditions in Bengkulu Province such as at the University of Bengkulu are not much different; in the last three years (2014, 2015 and 2016) from 740 lecturers from the University of Bengkulu there were only 51 publications of lecturers in reputable international journals, mostly produced by lecturers in the field of Design and Technology (Form AIPT Universitas Bengkulu, 2016).

Data that shows low quantity and also shows the personal quality of lecturers in the field of social and humanities (Arts and Humanities) which only shows a figure of 0.91%, becomes a motivation to research more about problems or obstacles experienced, especially lecturers in the field of science. Some previous research such as that conducted by Arsyad (2019) which gave a questionnaire to lecturers of social sciences and humanities about the perception against writing Research Journal Articles to be published in international journals or reputable journals that found that the problems found are the problem of knowledge and skills. The lack of knowledge and skills makes AJP writers from the social sciences and humanities unable to compete.

From this, it can be known that the issue of competence owned by lecturers of social sciences and humanities in writing AJP in accordance with standard AJP is one of the problems that encourage low publication. Arsyad (2018) also found that the low competence of English-speaking groups of lecturers of social sciences and humanities became a factor inhibiting the group's lecturers from accessing international journals both journal information and as a reference in writing AJP. These factors are what the solution wants to find so that the consolidation of low complement of lecturers in the field of social sciences and humanities can be minimized and in the end there is an increase in active participation of authors of social sciences and humanities in writing AJP published in reputable journals.

According to Arsyad (2018), one cause of poor quality of the academics Indonesia does not yet understand the style of rhetoric and subsection standard every part of the journal articles research in English as described by (swales, 1990 and 2004) and differences and similarities style rhetoric scientific article in Indonesian language and English. Some research that found the problems lack of understanding the author of the journal articles research from Indonesia as discovered by Safnil (2001), Mirahayuni (2002), Adnan (2009), Arsyad and Wardhana (2014), Arsyad and Arono (2015) and Arsyad and Arono (2016). From this problem can be described that this conclusion needs an approach to training and coaching in writing RA which is effective and efficient to increase knowledge and skill in writing argumentative.

As an offer of a solution to change perceptions negative about writing RA, increase the motivation, competence, and skill in writing RA knowledge was too simple training and worked effectively and efficiently. This must be considered, activities time and the saturation lecturers participants a class training writing. One approach learning writing (writing) offered and updated is learning based genre (genre based approach) cut down with GBA. GBA approach was chosen because the work calls learners to focus on what will be written and who will read his writings. This method is suitable for training RA writing. As according to Hyland (2000), the use of a genre-based approach in the learning of scientific writing is the most suitable approach because writing and

teaching writing is social communication activities as people do in real life and genre-based writing learning theory does this. L Trong (2011) said "most of the students gained the control over the key features of the required recount genre in terms of social purposes, language features and schematic structure. The necessity and usefulness of the application of the teaching-learning cycle into learning the recount genre were predominantly recognized among students.

Various researches on the application of Genre Based Approach have been conducted in writing classes as research by Rashidi & Mazdayazna (2016); Atai & Shoja (2011); Dirgeyasa (2016); and Elashri (2013), but research on the application of GBA to lecturers in writing Research Journal Articles for international publications have never been conducted.

From the background above, it can be stated that it is important to be researched on the use of training and mentoring approaches to write research journal articles using the Genre Based Approach abbreviated as GBA in an effort to increase motivation, improve the skill of argumentative in writing RAs. Furthermore, the problem formulation can be prepared: 1) How is the implementation of GBA in mentoring write AJP to improve the argumentative skills of writers in the field of social sciences and humanities; 2. How is the quality of argumentation of author in writing the abstract of RAs after getting training and mentoring by using genre-based approach based as recommended by Yang (2016)? 3. How is the quality of argumentation of author in writing introduction of RAs after getting training and mentoring by using genre-based approach based as recommended by Yang (2016) 4. How is the quality of argumentation of author in writing result and discussion of RAs after getting training and mentoring by using a genre-based approach based as recommended by Yang (2016)

2. Literature Review

2.1. GBA in training and mentoring RA writing

Training and coaching wrote the study by the journal articles based approach considering the importance of science writing and publicity for the development of science, then need to design / design learning wrote (writing) discourse that can effectively increase the motivation, knowledge and skill in writing academics in the field of social and the humanities. One of the approaches recommended can work effectively is the approach based (GBA). GBA in writing scientific work is ever more popular because this approach proved to be the most efficient in particular international to train students to learn in a country users English (Dudley-Evans, 1997). According to Widodo (2006), a genre based approach is defined as: teaching learners how to make use of language patterns to achieve a coherent and purposefully composition (p: 173). Widodo (2006) explained that the genre of the theory-based approach developed systemic functional grammar in which a language and functions. be correlated So, according to Widodo, in this approach is a professor or instructors have to explain and show a student or trainee three important aspect of a text, scientific namely: purpose organization and the reader and after that train them wrote the text very well based on the purpose of, organization and certain readers.

In learning based genre of learning and there is five-step; preparation, concerned with the purpose of learning, focus exercise assignment task, evaluation and elaboration. Some advantages of using an approach based particularly in the context of the learning of languages the genre of foreign such as: 1) this approach is focused on the process of writing in which students are aware of what makes a writing is good and how to achieve it in terms of the content and organization; 2) approach encourages faculty and students practice of composing type particular text together between faculty and students and teachers could transfer knowledge and experience writing them; and directly to students; 3) by adopting this students trained to consider three important aspects of a writing (purpose, the rhetoric and readers) in writing a kind of scientific text (Widodo, 2006). Thus, academics in the field of social and the humanities are driven to think about why they should write the text certain, how organization text that is Ideal to a kind of the text and who will read the text.

2.2. Writing on the international journal reputable Skill based on competence in writing RA for international journal

In research and publication of reputable international journal, Jeong in Han (2008) stressed on some aspects of skills such as; 1) Originality and novelty to the research and publication written; 2. fit and strong planning and design research; and 3. making publication as a tool of storytelling for the best quality of knowledge.

This shows that skill which has been had as author for research article (RA) for reputable journal include reading skill for knowledge and its scoop to find the novelty which is guaranteed improvement of knowledge and community better life quality.

Secondly, having the skill to arrange design that can make belief from others authors or researchers about validity, reliability dan accountability of research. thirdly, having the skill to present research findings which can make sure from content, rhetorical and argument of presented RA.

In this research, the focus of skill to be improved: the first, knowledge of writing RA based on international journal standard and strategy to write argumentative RA in each part of RA such as argument in abstract, argument is introduction, argument in method and argument in result and discussion RA section.

Some previous research related to the study such as Arsyad (2001), Adnan (2009), Arsyad (2013.a), Arsyad (2013.b), Arsyad & Wardhana (2014) and Arsyad & Arono (2016). The objective of the researches is to find out how the rhetorical style, citation style and linguistic features are used by Indonesian authors in writing RA in other knowledge disciplines compared with other texts in the same kind of text. Then, to find out about the similarity and deferences of RA rhetorical style in Indonesian and English.

Based on his research, Arsyad (2001) suggested a more suitable rhetorical model of writing RA for accommodate communicative unit in Indonesian RA introduction in social and humanity which is a revision from rhetorical model in introduction section of RA in English by Swalles (1990) called by CARS (creating a research space). It is different with CARS, PJP model has four moves and each move has more steps compared with the move and step in CARS model. According to Arsyad (2003), PJP can accommodate more various communicative units in RA introduction section than CARS model from Swalles (1990).

Adnan (2009) had analysed the rhetorical structure of RA introduction in education knowledge discipline which is written by Indonesian authors by using CARS model from Swalles as a parameter. He found that from 20 RA introductions by Indonesia language in his research corpus, no one of them was suitable with rhetorical style in RA introduction in English as Swalles (1990) found.

The main difference according to Adnan is in move 1 (establishing a territory) where the majority of authors in Indonesia RA discuss the main point and its usefulness of their research by focusing on practical problems which occurred to common people or government not relevant discourse community. Besides of that, no one of the authors of RA from Indonesia related their research based niche from relevant previous research finding as in the move 2 models or in establishing a niche section (Swales. 1990). Adnan suggests an ideal problem solution (IPS) which is modification from CARS model for getting introduction rhetorical in Indonesian moreover in education knowledge discipline.

Moreover, research finding from Arsyad & Wardhana (2014) and Arsyad & Arono (2015) focus more on rhetorical analysis type and linguistics future in the introduction section of Indonesian RA in the social and humanity field. Their researches show that there are differences between Indonesian and English rhetorical in the introduction section. Arsyad & Arono concluded that the differences between Indonesian and English authors in the introduction section of RA such as: 1) Indonesian author of RA considers that preparing readers to read the RA is very important; 2) Indonesian author of RA considers to support the important topic or title of the research by personal reason and based on previous researches; 3) Indonesian author of RA tends to support their research by subjective and personal reasons. From the research, it can be described that Indonesian authors need to

change mindset and style in writing RA in international standard. By this condition, their RAs can publish in international journals.

2.3. Argumentation quality in writing Research Articles (RAs)

The first, in presenting argumentative writing on abstract in RA, the author can choose some types of argumentative style such as Appeal to problemacy, Appeal to salience, Appeal to topicality, Appeal to Magnitude (Yang, 2016). Correct and strong argumentative choice in the abstract section of RA shows the skill of the author. It also can give positive motivation to the readers to make deeper in reading the RAs presented. The quality of presenting argumentative in RAs becomes the focus of this research by implementing GBA.

Secondly, in the introduction of RA according to Yang (2016), the author usually presents argumentation for their RA by showing the mistakes from previous research, showing the weakness of previous research, showing the limited scope of previous research, or by showing that there is no the same to previous research or new problem for all previous research. The acuration of choice for the type of argumentative in RA introduction shows the skill of the author in writing RA and publication of RA journal. Arsyad (2018) said that an author and researcher must understand the scoop of science and information fully she or he writes and will be published so she or he can follow the development of information from the science scoop she or he studies and will be published.

The third, in the method section the author usually strengthens his or her arguments by saying the methods which are used by famous researchers or many researchers (Yang, 2016). in this part or section, the author must be focused to share that he or she focused on the research subject and can give guarantee that the research is valid and no doubt in its process, analysis and concluding. This skill will be a parameter of author quality in writing RA and publishing it.

Fourth, author argumentation in result and discussion in RA, according to Yang (2016), can be done as stating similarity or supporting previous researches, contrasting argument to the previous researches, and stating continuing previous researches. This skill will be the parameter of author quality in writing RA and publishing it.

3. Methods

3.1. Participant

This study used mix method. According to Gay, using descriptive research qualitative is used to test hypotheses or to answer questions related to the status of the research subject (Best. WJ, 1977). Then, for quantitative research, follow Cresswell, J.W (2012) to find the perception of participants after implementing of GBA. It is predicted that GBA is effective to be used in teaching writing, so this is needed to be described how the real implementation is. For answering the research question, 36 lecturers from some universities in Bengkulu were invited to follow a training and mentoring writing RAs by using GBA.

3.2. Instrument

A training and mentoring in research article writing classes for international journal publication are conducted to implement the GBA to get its strengthen. As Widodo (2006) said that the rule of GBA, prepare, focus, task, evaluate and elaborate. Ferris & Hedgcock's (2005) GBA was specifically on joint construction and independent construction stages when students start to write. RAs drafts from participants are also taken as data of the research to know the impact of innovative GBA implementation toward the competency of argumentative in writing RAs.

3.3. Data Analysis procedures

The data of implementation innovative GBA in RA writing class is analysed by trimming and displaying from preparation, main activity and evaluation. Then, the data of the impact of innovative GBA toward participants are analyzed by using Paired two tailed test with SPSS (Statistical Package for Social Science). For data of participants RAs draft after following this GBA class is analysed by content analysis based on the type of argumentation for each move and steps of RAs as recommended by Yang (2016).

4. Finding and Discussion

4.1. Finding

4.1.1. The implementation of GBA to improve argumentative skill in writing RA

The activity of training and mentoring writing RAs by using GBA to improve argumentative skills can be described from prepare, focus, task, evaluate and elaborate.

Table 1. Lesson plan of GBA design in RAs writing class

Learning Activity	Focus	Target	Lesson Material
Preparing: Opening and Orientation of Learning	Motivation & Building Self-awareness as academician or lecturers related to Nation & community	Preparing fresh authors to build up themselves to be a good authors	<ul style="list-style-type: none"> ✓ Data of research publication in Indonesia and compared with other countries. ✓ The government policy about publication. ✓ The impact of publications on social life.
Main activity: <ul style="list-style-type: none"> ✓ Focusing: Giving concepts, form, principles, and strategies for writing RA. ✓ Modeling and Discussing each item of RA ✓ Practicing to write RA based the model is given. 	Focusing on the goal of Learning how to write RAs	Understanding the Goal of writing RA and implementing to each part of RA (sections, Moves and steps)	Kind of RAs RA rhetorical and its sections, moves and steps. How to write argumentative and persuasive text to strength RAs.
Evaluation: <ul style="list-style-type: none"> Giving the task to independently writing part of RAs Revising incomplete or not suitable parts of RAs Helping to send RAs draft to international Journal 	Author independent and self-confident in writing RAs	<ul style="list-style-type: none"> ✓ Trained RAs author ✓ Continuing elaboration of writing RAs activities. 	How to struggle in publishing our RAs to International Journal. The history of famous authors from rejecting to other accepting journal.

From table 1 above, it can be seen that in teaching and learning writing RAs by using GBA has three core of learning and teaching activities, they were the first, preparing with opening and Orientation of Learning; the second was main activity with giving concepts, form, principles, and strategies for writing RA, discussing each item of RA, Practicing to write RA based the model is given; the third was evaluation with activities such as

giving the task to independently writing part of RAs, revising incomplete or not suitable part of RAs and helping to send RAs draft to international Journal

4.1.2. The skill of writing argumentation in the abstract section of RA

After analysing the draft of RAs from the social and humanity author, it can be presented as in the table below:

Table 2: Argumentation style of social and humanity authors after following GBA writing class

NO	Argumentation type in Abstract	Frequency	Percentage
1	Appeal to problemacity	21	58%
2	Appeal to salience	6	17%
3	Appeal to topicality	5	14%
4	Appeal to Magnitude	4	11%
Total		36	100%

From table 2 above, it can be seen that type of argumentation from social and humanity author such as appeal to problemacity 21 (58%), appeal to salience 6 (20%). for appeal to topicality is 5 (14%). The last, for appeal to magnitude is 4 (11%).

More than a half of them write an argument in abstract by saying problem such as in RA extract below:

Extract 1:

(S-1) Group counseling as a guidance and counseling service does not have a standard instrument yet in assessing its activities. (S-2) This study was designed to develop a group counseling assessment instrument. (S-3) Specifically, this study conducted content validity, empirical validity, and internal reliability of group counseling assessment instruments.

From the sample of abstract which is used argumentation appeal to salience problemacity type above, it can be seen that the author able to show that this work is important to be read because there is a serious problem must be solved by findings in her or his work. The author gave argumentation that there is no a strong guidance with the best standard in conducting counseling, the work in the RA tries to present the model of counseling assessment instrument.

The other participant also used appeal to salience to make strong their RA abstract. By this type of argumentation in writing RA abstract, they try to provoke the readers to read their RA because it is important to be known. It is such as in the extract of the abstract below :

Extract 2:

(S-1) The phenomena of bullying at schools have occurred very often. (S-2) Although there have been many studies conducted, those studies have not yet been well-balanced compared to the continuous presence of various bullying cases at schools from time to time up to the present.

From extract 2 above, it can be seen that the author tried to make strong his abstract by showing salience. The author wrote that the study on willingness to communicate on low willingness to communicate focusing factors on learners with high English ability is needed.

The others author also choose argumentation by appealing to topicality where they try to persuade the readers by statement that the works in important and up to date issue. The argument from the author by appealing to topicality as example in extract below:

Extract 3:

(S-1) English Learning and Teaching (ELT) in Vocational School has crucial function to help students for competition in working on the competition in international scoop. (S-2) So many people in vocational field try to find the best result of research in teaching for vocational school students.

From extract 3 above, it can be seen that after training and mentoring the author can apply to write argumentation in their RAs by appealing to topicality. It is written that study about ELT in vocational school is hot topic. Many researchers conducted this study to find the best way of ELT in vocational school, such as in a sentence

Appealing to magnitude is also used by authors to make a strong position for their abstract, for more data it can be seen to the extract of RA from the author as follow :

Extract 4:

(S-1) Mathematics is a compulsory subject in all of Indonesian high school. Problem solving ability is a competency that must be possessed in learning mathematics.

From the abstract in extract 4 above, it can be seen that the author makes a stronger position of the abstract by saying that the topic of his or her work is being discussed by people in the world. Thus, this work is important to be read.

4.1.3. Argumentation in Introduction of RA section

After following the training and mentoring the author from social and humanity field show the quality of argumentative in writing section of introduction in RA. It is more argumentative in introduction's move and steps. The argument is more clear in move 2 or in part of establishing a niche in RA's introduction. The authors show their competence in argumentation by showing the mistakes from previous research, the weakness of previous research, the limited scope of previous research, or by showing that there is no the same to previous research or new problem for all previous research.

By content analysis toward the RAs draft from the authors, the type of argumentation for each part of introduction which is used by authors can be identified as table 3 below:

Table 3: Author argumentation in RA Introduction section after following RA writing training and mentoring

NO	Argumentation style in Introduction	Frequency	Percentage
1	showing that there is no the same to previous research or new problem for all previous research.	18	50%
2	Showing the weakness of previous research	11	31%
3	Showing the limited scoop of previous research	7	19%
4	Showing the mistakes from previous research	0	0%
Total		36	100%

From table 3 above, it can be seen that the author can write argumentation for their introduction of RAs by showing unique research or no same research before is 18 (50%); Showing weakness in previous research is 11 (31%); then for 7 (19%) is showing the lack of previous research; Showing mistake for previous research is 0%. from this finding, it can be resumed that stating unique research topic I dominant used by the authors. It can be seen clearly ss example below:

Extract 5:

- (S-1) Looking at a number of the research results as presented above, there has not been explicitly found how the roles of family and religious teachings can significantly prevent bullying at schools.
(S-2) Although there is a study undertaken by Calik, et al. (2018) vis-a-vis the need of parental role, this study has not yet explicitly accounted for what parents must do in preventing bullying at schools.

From example of the introduction in extract 5 above, it can be seen that authors' argument in introduction by showing there is no similarity with the previous research. The argumentation can be seen in sentence (S-1) which explains that there are no researches as the authors present in the RA. The author can build trust from readers by making sure that although there are many researches about bullying but preventive effort for it is not clear. This argumentation such as is in second sentences (S-2)

The other style of making argumentation is by stating weaknesses from previous research as extract 6 below:

Extract 6:

- (S-1) Although there is a study undertaken by Calik, et al. (2018) vis-a-vis the need of parental role, this study has not yet explicitly accounted for what parents must do in preventing bullying at schools.

In extract 6 above, it is seen the way of the author to present previous researches in sentence 1 (S1) and the author try to evaluate by showing weakness of the research in same sentence. The author makes stronger his or her RA by presenting the weaknesses previous researches compared with the present research.

Argumentation by showing lack or limited scoop of previous research is also used by authors after following the training and mentoring. The way of presenting showing lack or limited scoop as sample below:

Extract 7:

- (S-1) However, not many studies have been conducted on writing the method section of research articles in English, in particular the study related to students' difficulties in writing the method section.
(S-2) Most studies deals with the structure of the method section (Lim, 2006; Bruce, 2008; Peacock, 2011; Kafes, 2016; Pramoolsook, Li and Wang, 2015; Zang and Wanaruk, 2016). (S-3) In addition, some studies deal with the use of themes and grammatical subjects in the method section of research articles (Martinez, 2003; Ebrahimi, 2016; Ebrahimi and Heng, 2018). (S-4) Inadequate attention to the method section may due to the misunderstanding that writing up this section is often considered as an easy and straightforward activity/task (Pramoolsook, Li and Wang, 2015).
(S-5) To address the gap in previous research, we conducted a study to investigate the difficulties of ELT undergraduate students in writing the method section of research articles in English.

Example in extract 7 above shows that author presents the argument by presenting lack of information in the field of his or her research. The argument such as in sentence 1 (S-1) that not many studies have been conducted on writing the method section of research articles in English, in particular the study related to students' difficulties in writing the method section. In sentences 2 to sentence 4 (S-2 to S-4) the author also presents some researches result with their weakness and the author claimed that the researches needed to be add from data or information or they are needed more continue researches. Then in sentence 5 (S-5) the author shows that his research is very important to fulfill the gap from previous researches.

4.1.4. The quality of argumentation in writing Result and Discussion

Argumentation for presenting in RA result and discussion part. The analysis as table below:

Table 4. The style of argumentative from the author in result and discussion after following training and mentoring by GBA

NO	Authors Argumentation type in Result & Discussion	Frequency	Percentage
1	stating similarity or supporting previous researches	20	56%
2	contrasting arguments	10	28%
3	stating continuing previous researches	6	17%
Total		36	100%

From table above it can be described that the argumentation quality of author after following training and mentoring in part result and discussion satiating similarity or supporting previous researches is 20 authors (56%). Argumentation by contrasting arguments as much as 10 (28%). then argumentation by stating continuing previous researches is 6 (17%). Similarity or supporting strategy is dominant as example below:

Extract 8:

(S-1) The findings of this study are in line with the studies conducted by Erdogdu (2016) and Yanez, et.al. (2018). (S-2) However, both Erdogdu and Yanez still place the role of parents or family in terms of children's bullying prevention in a small portion. (S-3) In their studies, family or parents do have a contribution in preventing children from bullying at schools, but their role is considered not yet dominant. (S-4) The findings of this study reaffirm that family or parents are the main pillars in preventing children from bullying at schools.

From extract 8 of the result and discussion section above, it can be described that the author makes stronger the RA by stating similarities or supporting previous research. The author stated that his research has similarities with research findings from Erdogdu (2016) and Yanez, et.al. (2018). The statement can be found in sentence 1 (S-1). The author also explains that his research emphasizes completing previous research as in sentences 1 to 4 (S-2 to S-4).

The others author about 20% choose making argumentation by stating contrasting and stating that their researches are different with the previous study. This style is by contrasting. This can be seen in the following example:

Extract 9:

[P-1] Introduction of solar lighting units in rural communities has helped children to study even after dark. More than 50,000 children in India are attending Barefoot Night Schools after sunset (as they work at home and herd livestock during the day). The very belief that educational qualification is not a barrier for picking up practical skills, and serving communities makes

[P-2] The illiterate men and women irrespective of their age are being trained to work as school teachers, doctors, midwives, dentists, health workers, solar engineers, water drillers, hand pump mechanics, architects, artisans, designers, masons, communicators, water testers, phone operators, blacksmiths, carpenters, computer instructors and accountants.

[P-3] As of May 2010, 480 people have been trained as Barefoot Solar Engineers (BSEs), of whom 230 are women. These BSEs have fabricated, installed, repaired and maintained nearly 16,000 fixed solar units and 9,762 solar lanterns across 16 states of India and 20 of the least developed countries like Afghanistan, Bhutan, Kenya and Cameroon

Example of RA result or finding in extract 9 shows that the author makes strong the position of result and discussion of his RA by contrasting to previous study as in sentences (P-1 to P-3]. the author presents something new which is not researched before or it is missed from previous discussion. 17% author after following the training and mentoring by using GBA shows the quality of argument by continuing previous researches. It can be seen in extract 10 below:

Extract 10:

[P-1] That this research was carried out to provide assistance in learning whether the challenges carried out by students in working on the test questions on the questions given, in the opinion of Chaudrey (1990), time is an important element, a reader needs time in the discussion of ideas. It is time to move on, and revisions must be part of the process. Regarding the deadline and performance of examinees, Elliot and Marquart (2004) have conducted research. The aim of their study was to examine the effect of extended time during testing on the performance.

[P-2] Inspired by Elliot and Marquart, this research was conducted. This research, carried out at Kaur 03 High School, used 2 different classes randomly selected from class 11. The class taken as research material was 11th grade which will be the subject of this study. They were asked to read types of narrative text readings based on certain topics. Under various test conditions, the standard time limit (90 minutes) and also under the extended time limit (120 minutes).

From example of argument from author after following training and mentoring on part of result or finding above, the author present the argument by showing similarity or continuing previous research in paragraph 2 [P-2] and related to some previous researches such is paragraph 1 [P-1]. The author stated that her research is inspired by previous research which was done by Elliot and Maquat (2004).

4.2. Discussion

4.2.1. Implementation GBA in training and mentoring to RA writing class

The first, the steps of implementation genre Based Approach (GBA) in training and mentoring class for writing Research Articles (RAs) in this research are planning, practicing and evaluating of class activity. In planning activity GBA provided such as; 1) preparing with opening and Orientation of Learning; 2) giving concepts, form, principles, and strategies for writing RA, discussing each item of RA, Practicing to write RA based the model is given; 3) evaluating with activities such as giving task to independently writing part of RAs, revising incomplete or not suitable part of RAs and helping to send RAs draft to international Journal. The finding is in line with the concept of GBA implantation from Widodo (2006) said that the rule of GBA is to prepare, focus, task, evaluate and elaborate. Then, Hyland (2000); Almacioglu, et al (2018) and Arono & Safnil (2019) also said that GBA was specifically on joint construction and independent construction stages when students start to write.

Secondly, in practicing of learning and teaching writing RAs by using genre based approach it starting from explaining concepts and focusing on the goal of writing RAs, then discussing part of RAs consisting of moves and steps, and then practicing to write RAs together and revising the RAs. These steps are in line with Widodo (2006); Hyland (2000); Batubara (2013); Mazdayazna & Rashidi (2016); and Cartens, A (2009) that they concluded for steps of genre based approach starting from giving concept (focus), example (modelling), ways (trying) and practice it (together and independently).

Thirdly, to evaluate the achievement of students or participants the instructor or teacher use the standard of RAs rhetorical from (Swalles, 2009). The evaluation to products of GBA training or teaching based, the teacher looked to the moves and steps of RAs such as abstract, introduction, methods, result and discussion, and conclusion and recommendation with all of their steps. This way of evaluation is in line with Adnan, Z. (2014); Swales & Feak (2009); Ariyansfar, et all (2020); Changpueng, P (2013) and Safnil (2018) they discussed that evaluation of writing text must back to the rhetorical of the text.

4.2.2. Author Argumentation skill in writing Research Article (RA) abstract

The finding of the research shows that in inviting the readers, the author has strategy to provoke the readers in order to read the RA. Each section of the RA has different ways. Yang (2016) said that in writing argumentative abstract, there are four style such as; appeal to salience, appeal to magnitude, appeal to topicality and appeal to problemacity. The position of the argumentation for abstract is in move 1 or it is called introduction.

The using GBA in training and mentoring to write RA is effective in improving skill of writing RA to be published in international journals. Argumentation in abstract is very crucial because by finding abstract, the reader will decide to continue for reading or leave the RA (Arsyad, 2019). More over. Arsyad (2019) stated that it is right that the type of RA text is more argumentative although Indonesian authors tend to leave from debating and arguing. It is same with Van Maanen (1989) that for building trust for others in writing for him, "*We try to persuade others by 'presenting a coherent point of view told with grace, wit, and felicity.'*"

The skill of authors after following the training and mentoring to write RA argumentatively in abstract is appeal to problemacy is 21%, appeal to salience is 17%, appeal to topicality is 14%, and appeal to magnitude is 11%. Thus, appeal to problemacy is dominant style to make strong RA abstract. This finding is supported the previous study from Yang (2016).

From the discussion above, it can be resumed that the skill of making argumentation in abstract is very important to make sure that the RA can be suitable to be published in journal international.

4.2.3. Author argumentation skill in RA introduction section

In introduction, the author presents his or her skill of argumentation by showing the mistakes from previous research, the weakness of previous research, the limited scope of previous research, or showing that there is no the same to previous research or new problem for all previous research. This finding is supported previous researches from Rashidi & Mazdayazna (2016) which had found that by using GBA learning of writing activity can improve needed aspects for best quality of writing. The quality of argumentative introduction from author in training and mentoring as suggested by Yang (2016).

4.2.4. Author Argumentation skill in RA finding and discussion section

The authors after following training and mentoring had skill to make argumentation in finding and research such as stating similarity or supporting previous researches; Argumentation by contrasting arguments; and argumentation by stating continuing previous researches. Dominant from them is giving argument by presenting similarity or supporting strategy. The research finding is in line with (Widodo, 2006; Pudji A, 2013) they concluded that by GBA is suitable method in writing class. In line with Hyland (2003); Rose, D & Marthin (2012); Samsudin Z & Arif (2018) and Wardhana (2020)

Arsyad (2019) also say that in writing RAs international must be argumentative so can show the novelty for the knowledge development. Argumentation skill from the author in this research is clear and the author have changed their style in writing RA from shopping list without critics and correction to the previous researches to the critics and debating to the other authors. This is as study from Adnan (2014), he found that Indonesian authors do not want to show critics and debate to the other authors because according to them, it can caused bad relation among the authors.

5. Conclusion and Recommendation

5.1. Conclusion

The first, in GBA implementation for RA writing training and mentoring to improve argumentative skill is conducted by steps; focusing to write RA argumentatively, modelling in section and move argumentation type and style, practicing write together and practicing individually in giving argumentation to all of RAs section and moves.

Secondly, the skill of writing abstract of RA after following the training and mentoring can be reported as appeal to problemacy is 21%, appeal to salience is 17%, appeal to topicality is 14%, and appeal to magnitude is 11%. Thus, appeal to problemacy is dominant style to make strong RA abstract. It can be stated that GBA is effective to share the argumentative skill in writing RA to social and humanity authors.

The third, the skill of writing introduction of RA after following the training and mentoring can be concluded as follow: showing unique work (no the same to previous research or new problem in research is 50%, showing the weakness from previous researches 31%, showing the limited scoop from previous researches is 19%, showing the mistakes from previous researches is 0%. Thus, argument in introduction by type showing unique work (no the same to previous research or new problem in research is dominant style to make strong RA introduction. Then, no author or researcher of social and humanity in this study brave to choose showing the mistakes from previous researches in making argumentation for their introduction of RA. So, It can be stated that GBA is effective to share the argumentative skill in writing RA to social and humanity authors.

Fourth, the skill of writing finding and discussion of RA after following the training and mentoring can be concluded as follow: stating similarity or supporting previous researches is 56%; contrasting argument to previous researches is 28%; stating to continue previous researches is 17%. So, in this research, the type of argumentation with stating similarity or supporting previous researches is dominantly used by the authors. Then, the stressing point of the research that GBA is effective to share the argumentative skill in writing RA to social and humanity authors.

5.2. Recommendation

The first, for the authors who want to upgrade the competence of writing RA can take this research finding as references especially about argumentation for each move and steps of RA. Secondly, for teachers and lecturers or instructors of training for writing classes can choose GBA as method to make focused, simple and applicable learning and teaching for writing especially writing RA. Thirdly, for university, college or school can choose and invite the lecturers and teachers to implement GBA method in improving skill of writing for students.

References

- Adnan, Z. (2014). Prospects of Indonesian research articles (RAs) being considered for publication in center journals: A comparative study of rhetorical patterns of RAs in 22 selected humanities and hard science discipline. In A. Lyda & K. Warchal (Eds.), *Occupying niches: Interculturality, cross-culturality and aculturality in academic research* (pp. 79-99). Heidelberg, NY: Springer. <https://doi.org/10.1007/978-3-319-02526-1>.
- Almacioğlu, G. & Okan, Z. (2018). Genre-Based Approach to Writing Instruction for Students at an English Language and Literature Department. *Eurasian Journal of Applied Linguistics* 4(1), 71–100, DOI: 10.5539/elt.v9n9p45.
- Ariyanfar, Somayye & Rod Mitchell (2020) Teaching Writing Skills through Genre: Applying the Genre-based Approach in Iran, *International Research Journal of Management, IT & Social Sciences*, 7(1), 242-257. <https://sloap.org/journals/index.php/irjmis/>
- Arsyad, S. & Adila, D. (2018). Using local style when writing in English: The citing behavior of Indonesian authors in English research article introductions. *Asian Englishes*, 20(2), 170-185.
- Arsyad, Safnil. (2018). *Memahami Menulis Abstrak Artikel Jurnal*. Jakarta: Halaman Moeka Publishing.
- _____ (2020) *Masalah dan Solusi Publikasi Jurnal Internasional*. Jakarta: Universitas Atmajaya Press.
- Arsyad, S., Bambang K. P., Katharina E.S. & Zifirdaus A. (2019) Factors hindering Indonesian lecturers from publishing articles in reputable international journals, *Journal on English as a Foreign Language*, 9(1), 42-70.
- Arono and Safnil Arsyad (2019). The Effect of Genre-Based Mentoring on Rhetorical Quality of Research Article Drafts by Indonesian Lecturers in Social Sciences and Humanities, *International Journal of Instruction*, 12(3), 35-50.
- Batubara, Surya Sagiro (2013) The Implementation of Genre-Based Approach: A Case Study in Teaching a Narrative Texts to Second Grade Junior High School Students, *English Education*, 1(2), 139-160.
- Bhatia, V. K. (2004). *Worlds of written discourse: A genre-based view*. London, England: Continuum.
- _____ (1997) Genre-mixing in academic introductions, *English for Specific Purposes*, 16(3), 181-195.
- Bawarshi, A., & Reiff, M.J. (2010). *Genre: An introduction to history, theory, research, and pedagogy*. West Lafayette, IN: Parlor Press.
- Best, W.J. *Metodology Penelitian Pendidikan*. Surabaya: Usaha Nasional.

- Burgos, E.G. (2017). Use of the genre-based approach to teach expository essays to English pedagogy students. *HOW*, 24(2), 141-159.
- Carstens, A. (2009). *The effectiveness of genre-based approaches in teaching academic writing: Subject-specific versus cross-disciplinary emphases* (Unpublished doctoral dissertation). University of Pretoria, Pretoria, South Africa.
- Changpueng, P. (2013). The Implementation of the Genre-Based Approach in the Teaching of Writing to Engineering Students, *International Journal of Communication and Linguistic Studies*, 10(2):1-15, DOI: 10.18848/2327-7882/CGP/v10i02/43601.
- Coleman, J. A. (2014) How to Get Published in English: Advice from the Outgoing Editor-in Chief. *System*, 42, 404–411.
- Creswell, J.W. (2012). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research (4th ed.)*. Boston: Pearson Education Inc.
- Correa, Doris and Sandra Echeverri (2016). Using a Systemic Functional Genre-Based Approach to Promote a Situated View of Academic Writing Among EFL Pre-service Teachers, *HOW*, 24(1), 44-62. <http://dx.doi.org/10.19183/how.24.1.303>.
- Deng, L., Chen, Q., & Zhang, Y. (2014). *Developing Chinese EFL Learners' Generic Competence A Genre-based & Process Genre Approach*, London: Springer. DOI 10.1007/978-3-642-54845-1.
- Dirgeyasa, I. Wy. (2016) Genre-Based Approach: What and How to Teach and to Learn Writing, *English Language Teaching*, 9(9), 45-51. doi: 10.5539/elt.v9n9p45
- Dujcik, D. (2013). A Genre Analysis of Research Article Discussion in Applied Linguistics, *Language Research*, 42(9), 453-477.
- Ferris & Hedgcock (2005). *Genre Based Instruction, theory and practice*. London: Printed Hall.
- Firdaus, L. 2018. The strategy success in writing Article for International Journal Publication. General Stadium of Bengkelu University Doctoral program . September. 2018.
- Hyland, Ken (2000). *Disciplinary Discourse: Social interaction in academic Writing*. London: Longman
- _____ (2007) Genre pedagogy: Language, literacy and L2 writing instruction, *Journal of Second Language Writing*, 16(3), DOI: 10.1016/j.jslw.2007.07.005.
- Kemristekdikti (2016). *Kekuatan 50 institusi ilmiah Indonesia: Profil publikasi ilmiah terindeks Scopus* [The strength of 50 Indonesian universities: Publication profile in Scopus indexed journals]. Jakarta, Indonesia: Direktorat Pengelolaan Kekayaan Intelektual, Direktorat Jenderal Penguatan Riset dan Pengembangan Kemristekdikti Indonesia.
- Martin, J. R. (1993). *A contextual theory of language*. In B. Cope, & M. Kalantzis (Eds.), *The powers of literacy. A genre approach to teaching writing*. London: The Falmer Press.
- Mastura, Dina M. 2020. The effect of Genre Based Approach on Students' Writing Ability of Recount Text. *JOALL*. Vol. 5. No.1 88-93.
- Mirahayuni, N.K, (2002). Investigating textual structure in native and nonnative English research article: Strategy differences English and Indonesian Writers, Unpublished Disertation, the university of new south Walles, Sydney Australia.
- Nagao, A. (2018). A Genre-Based Approach to Writing Instruction in EFL Classroom Contexts. *English Language Teaching*, 11(5), 130-147. <http://doi.org/10.5539/elt.v11n5p130>.
- Peacock, Mathew (2011). The structure of the method section in research articles across Eight Disciplines
- Nasihin, A. et al. 2021. The using Innovative Genre Based Approach in training and mentoring for improving Motivation, Knowledge and skill of writing Research Articles Journal. *IJAHSS*. Vol. 6 Issue 9. September. P. 37-51. 2021.
- Rashidi, Narges & Golnar Mazdayasna (2016) Impact of Genre-based Instruction on Development of Students' Letter Writing Skills: The Case of Students of Textile Engineering. *Research in Applied Linguistics*, 7(2), 55-72.
- Rose, D., & Martin, J. R. (2012). *Learning to write, reading to learn: Genre, knowledge and pedagogy in the Sydney school*. Sheffield, England: Equinox.
- Samsudin, Z. & Arif, M.F.M. ((2018). The Efficacy of the Genre-Based Approach in Teaching Academic Writing, *International Journal of Management and Applied Science*, ISSN: 2394-7926, 4(6), 90-97.
- Suryani, I., D.F. Petra, W. Rodziah & N. Hamidun (2015) Challenges in Research Article Writing among the Southeast Asian Writers, Proceedings of Symposium of International Languages and Knowledge, p. 123-125, 12th-13th of June 2015 held in Thailand. file:///C:/Users/asus/Downloads/Challenges_in_Research_Article_Writing_a.pdf
- Swalless, John. M (1990). *Research Genre: Exploration and Application*, Cambridge: Cambridge University Press.
- _____ (2004). *The Genre Analysis: English in academic and research setting*, Cambridge: Cambridge University Press.
- Swalless, John. M & Feak (2009). *Rhetorical Research Article for International Journal*, Cambridge: Cambridge University Press.

- Tuan, T.LUU. (2011). Teaching Writing through Genre-Based Approach. *BELT Journal Porto Alegre*, 2(1), 121-136. janeiro/junho.
- Ueasiriphan, Tanaphorn & Supong Tangkiengsirisin (2019) The Effects of Genre-Based Teaching on Enhancement of Thai Engineers' Technical Writing Ability, *International Journal of Instruction*, 12(2), 723-738. <https://doi.org/10.29333/iji.2019.12246a>.
- Uzun, K. & Topkaya, E.Z.. (2018). The Effect of Genre-Based Instruction on Foreign Language Writing Anxiety among Pre-Service English Teachers. *Journal of Language and Linguistic Studies*, 14 (4), 243-258.
- Wardhana. DEC, et.all. (2020) *Tahapan dalam Bagian Hasil Penelitian dan Pembahasan Artiel Mahasiswa Program Magister Pendidikan Bahasa Indonesia Universitas Bengkulu*. Diglosia jurnal. Universitas Majalengka, Vol. 4 No. 2, 2020.
- Wardhana. DEC. (2020) *Study of Book Contents: Writing Internasional Journal Articles In English Rhetorical Style" by Prof. Safnil Arsyad*. ICOTEL. Vol. 1. No.1 2020.
- Widodo, H.P. (2006). Designing a genre-based lesson plan for an academic writing course. *English Teaching Practice and Critique*, 5(3), 173-199.
- Wijayanti, M.A., Emilia, E. & Gunawan. W. (2017). Genre Pedagogy to the Teaching of Academic Writing in Tertiary Level and Cognitive Empowerment. *The Journal of English Language Studies*. 02(02), Sept 2017, (120-131).
- Yang, Y. (2016). Teaching Chinese college ESL writing: A genre-based approach, *English Language Teaching*, 9(9), 36-44.



Interdisciplinary Approach in Primary School Mathematics Education

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Abstract

Life is a set of relationships in which countless factors interact and go on together. Each of the interacting factors is handled and used as a different discipline when the time comes. Depending on the spirit of the times and the structure of societies, the importance of some discipline areas may change and their place in the agenda may decline. However, this does not apply to mathematics. Because mathematics has served as a constant reference tool for the development of all other scientific fields. Activities that are put forward by ignoring this relationship of mathematics with other disciplines, turn out to be a waste of time and energy. This situation is also valid for educational activities. When mathematics is isolated from other disciplines, ambiguity of meaning and purpose emerges, loses its importance, and becomes a source of concern. The resulting confusion causes mathematics to be perceived as an academic obstacle to be overcome, rather than as a useful tool. It is in the hands of teachers to eliminate this perception and to teach mathematics as the common language of all disciplines. To achieve this, understanding must be changed, and mathematics must be taught based on an interdisciplinary approach.

Keywords: Teaching, Mathematics Education, Interdisciplinary Approach, Primary School, Primary School Teacher

1. Introduction

Despite the developments in science and educational technologies, education adopted and continued in primary schools today is based on the understanding of teaching subject areas (TDK, 2021) under disciplines that are or may be the subject of teaching and then reuniting them by the individual when necessary for complex applications (Wicklein & Schell, 1995, p.59). The curriculums of most developed and developing countries are divided into separate subjects or disciplines such as science, mathematics, literature, social studies, and the arts. In the curriculum, students are expected to focus on one area of knowledge. Curriculum developers express this as a discipline-based Curriculum (Kridel, 2010). It is assumed that disciplines consisting of different concepts, principles, theories, skills and applications will provide students with a depth of understanding, and that the knowledge specific to the field will be structured and can be used with other fields of knowledge in different contexts when necessary. There is a need for a transformation of understanding in the Turkish education system, which seems not to realize this assumption as expected. While how to transfer what is taught in schools to real life remains a big problem that needs to be answered, students are not questioned about the usefulness of this

information, which is divided into different disciplines, in daily life. As this search for meaning becomes longer, the time and cost spent for education increases, and the quality of education in schools is far from meeting the expectations. Taking different perspectives on the agenda in the education system, which must somehow be rescued from the spiral of exam-oriented teaching, and the evaluation and implementation of solution tools are among the most important problems of today's education. Since schools are the meeting point of all stakeholders of education and the field of application of the pending problems of the education system, the places where the effects of the solutions to be implemented will be seen most clearly are the classrooms where students come together with their teachers. Because all kinds of development and change targeted in educational policies are ultimately knotted in the teacher-knowledge-student relationship.

Since the unit approach is centered in the traditional teaching approach, each discipline has been evaluated within itself, causing the student's thinking skills to not develop at a high level (Kansızoğlu, 2014). In the Education Vision of 2023 it is, current practices in the field of education are unsustainable; While the need for an interdisciplinary educational background where formalism, uniformity and routines are not consecrated is clearly stated in many sections of the document (MEB, 2019), the use of interdisciplinary teaching approach is advocated in most of the curriculums from primary school to university in order to increase the quality of education especially in the western world in recent years (Lenoir & Hasni, 2016). It is suggested that paradigms that focus on interdisciplinary studies based on cooperation and team spirit will facilitate the emergence of a learning path that will motivate students to be more successful in the future (Lucchiari & Folgeri, 2017).

According to Gestalt theory, the whole is different, original and more than the sum of its parts. The individual perceives the whole in integrity, not by decomposing it into its parts. It consists of the dynamic and organic relationships of the parts that make up the whole. This integrity has been exemplified as the instruments playing in the orchestra are not analyzed separately, on the contrary, it makes sense as a whole (Senemoğlu, 2012; Aydın, 2007). Integrity is also essential in interdisciplinary teaching design. The approach is based on the principle of arranging different subject areas in harmony or bringing together different disciplines in any setting (Demirel, 2019). In the interdisciplinary approach where cooperation is essential and the distance between life and school is shortened, it is aimed to understand the subjects and concepts located at the intersection points of different courses, the connections between different disciplines and the relations of these connections with the real world. Here, the concepts, theories and methods of two or more course contents are combined, emphasizing more process and holistic meaning than product and content (UNESCO, 2020).

The interdisciplinary perspective includes a holistic approach to lessons at any level of education. It is based on the understanding that the best and meaningful learning takes place when the knowledge learned by individuals coincides with various disciplines (Furner, 1995). In interdisciplinary approach, students are instilled with the necessary knowledge and skills to approach a subject through multiple frameworks and disciplines. Thus, students can confidently approach all subject areas from various perspectives. An interdisciplinary curriculum combines multidisciplinary skills as well as interdisciplinary critical thinking and problem solving skills (Hathout, 2016). In short, it requires the combination of methods and analytical frameworks from more than one academic discipline to examine a problem, and it involves the effort to produce alternative solutions from the perspective of two or more disciplines. With the interdisciplinary holistic teaching approach, it is essential to teach with real life and as many disciplines as possible, where the expected development of students is achieved (Demir, 2009).

1.1. Interdisciplinary Approach to Mathematics Teaching in Primary School

All fields of science have emerged from a need and many disciplines have developed in this way. Mathematics is also an important branch of science that is located at the intersection of numerous disciplines. Although the idea of bringing these disciplinary fields together when necessary does not attract much attention at first glance, all sciences that contain human beings are somewhat intertwined and can be used to interpret each other when necessary. Sometimes the boundaries between them become blurred and infinitely many new disciplines may emerge (Williams, et al., 2016).

In the past, mathematics has always been used as a tool to organize and understand the physical sciences. Today, it is applied to other disciplines such as biology, medicine, management, linguistics and social sciences (William & Mary, 2021). Mathematics is essential for activities in daily life such as calculating, money management, and building things. In addition, many career fields such as engineering, architecture, accounting, banking, business, ecology and aviation require a strong mathematical foundation. Mathematics is important in developing computing technology and software that underlies the technologically advanced and knowledge-based world as well as economically and financially (Lindquist, Philpot, Mullis, & Cotter, 2019). Mathematics is a tool that provides viable answers to scientific, technological, social and economic challenges. Since it is a field of science that is related to other disciplines in different ways and expresses life with abstract concepts, its importance in primary school education is indisputable. Because math is useful in everyday life and is necessary in many types of employment. While it can be easily applied to other learning areas, it provides an opportunity for the development of intellectual skills such as problem solving, reasoning, creative thinking and communication. Mathematical experiences in primary school give students pleasure, as they enable them to express their cognitive skills with numbers. However, the situation is different for students with high math anxiety. These students have a negative attitude towards their math achievements and potential regarding this lesson. On the other hand, for many students, mathematics is one of the hurdles that must be overcome to reach a point academically. For this reason, from kindergarten to adult education, it is increasingly important to develop a mathematical understanding of students as a means of perceiving and defining the world rather than disappointment and unsuccessful experiences (Biller, 1996).

Although the developments in recent years about the meaning of mathematics and how it should be taught have not been seen in practice, it has brought about a change in understanding. In traditional teaching, mathematical information was presented to the students by the teacher in small skill pieces, and students were expected to repeat this information with exercises. The questions had a predetermined solution method and only one correct answer (Olkun & Uçar, 2020). Today, traces of the traditional teaching mathematics in Turkey is perceived as a course generally feared. Perhaps the most important reason for this is the thought that mathematics consists of only certain formulas or operations that are detached from daily life and that a strong memorization ability is a prerequisite for learning (Toptaş & Olkun, 2020). As a result, it is seen that students' achievement in mathematics is quite low compared to other courses and is far behind other countries. The fact that the results obtained in the central and international exams in the field of mathematics are far from the target is an indicator of this. For this reason, trying to teach mathematics without being associated with daily life makes it very difficult to understand and learn, and to achieve the expected development (İlgar & Gülten, 2013). In the event of failure, it leads to disappointment in many children, causing discussions about how to teach an important lesson such as mathematics. Different solutions are proposed to this question. Interdisciplinary approach in mathematics teaching can be an approach that will change the negative perception of students towards mathematics and positively affect the teaching of other disciplines.

Emphasizing that mathematics is a part of life in the mathematics curriculum, it is especially stated that every opportunity is used for the development of mathematical thinking. For this purpose, it was stated that mathematics should be associated with other courses when appropriate (MEB, 2018). In all of the curricula of the Ministry of National Education, a curriculum structure that guides the use of metacognitive skills, ensures meaningful and permanent learning, is solid and associated with previous learning, and is integrated with other disciplines and daily life within the framework of values and competencies (MEB, 2018). At the center of the interdisciplinary approach to mathematics teaching are the problems that guide learning activities. However, students at school often grapple with abstract problems. Whereas Engineers, architects, and urban planners use mathematics to solve real problems arising from the obstacles they face in their daily work. While we shop, estimate distances, or play games, we solve mathematical problems hidden in our daily lives (Winograd & Higgins, 1994).

By adopting an interdisciplinary perspective and associating mathematical gains with other lessons, the solution of daily life problems can be used as a teaching tool. In this way, students can apply what they have learned in a mathematics lesson to a different discipline that has a concrete equivalent in daily life in order to deepen their learning experiences. Practices based on an interdisciplinary approach are not limited to teaching more than one

discipline, but also a tool that enables them to see the connection between disciplines as they exist in the world, we live in. With the emergence of connections between disciplines, students' interest in mathematics will increase, and building newly learned knowledge on connections will turn mathematics into a challenging, interesting, and exciting learning experience (Hathout, 2016).

The main purpose in teaching mathematics with an interdisciplinary approach is more than the transfer of operation skills in an abstract form. Most of the time, students in Mathematics lessons confine themselves to the way of thinking of a certain discipline and experience a purpose-means confusion. It is very important to perceive the learned mathematical skills as a tool to reach various goals and solve problems related to different issues encountered in daily life (Yıldırım, 1996). When students realize that Mathematics is not only made up of numbers, but also a tool that they can use in Science and Social Studies, exciting rich learning experiences will emerge, and different disciplines will be brought together pragmatically with this integration of teaching (Duman & Aybek, 2003).

1.2. Associating Mathematics with Other Disciplines in Primary School

Nowadays, it is seen that one of the lessons given up from the first grade in order to train the curriculum in the basic courses, including mathematics in many classes in primary schools, is music lessons. However, research shows that this is an erroneous approach. Mathematics teaching supported by musical activities in primary school positively affects the remembering skills of students (Bütüner, 2010), improves the positive attitude towards mathematics by increasing success (Dinçer, 2008), adds, subtracts, counting and problem solving of lessons made on the basis of interdisciplinary approach with musical activities attached to mathematics lessons, Positive / significant effects were observed on mathematical skills such as creating tables (An, Capraro, & Tillman, 2013). In another study, it was revealed that primary school students combined mathematics with musical activities positively affected the classroom climate, and they gained skills related to geometric shapes and symmetry with the development of conscious rhythm and vocal tones by singing and applauding (Hudakova & Kralova, 2016).

It is seen that classroom teachers pass the Physical Education lessons (Pehlivan, Dönmez, & Yaşat, 2006), do not care enough (Bozdemir, Çimen, Kaya, & Demir, 2015), and these courses are far from the desired quality in terms of implementation (Arslan & Altay, 2008). Families also view Physical Education lessons negatively because they think that sports activities in primary school negatively affect the success of children in their lessons. However, sports and games are one of the easiest and most effective ways to reach children (Güven & Öncü, 2006). In a study, a significant relationship was found between students' angle knowledge and the development of dribbling skills (Arslantaş, 2006). It has been observed that Physical Education and Mathematics lessons conducted with an interdisciplinary approach significantly increase students' mathematics attainment (Uslu, 2019). The practice of a classroom teacher working in Samsun province by drawing a multiplication table on the floor of the school garden to develop students' movement and mathematics skills together is a remarkable and good example of the interdisciplinary approach to teaching (Samsun News, 2018).

Although it was thought that some of the acquisitions in the Social Studies curriculum could not be associated with mathematics (Aladağ & Şahinkaya, 2013), mathematics skills were effective on map, graphic and table reading skills, which have an important place in Social Studies teaching (Pala & Başbüyük, 2019). It has been stated that problems arising from mathematics in the Social Studies course cause loss of time, grow away from the lesson, and low motivation (Gürbüz & Kuzu, 2018). Associating mathematics with social studies and social studies lessons is necessary for a learning that has become meaningful with experiences between social and digital sciences. It was stated that in the mathematics curriculum, areas such as waste, recycling, healthy and planned life, which are encountered in daily life or are among the subjects of the Life Science and Social Studies course, should be taught in an interdisciplinary approach in association with mathematics (MEB, 2018).

STEM education which enables mathematics subjects to be taught in a holistic manner by integrating them with science, technology, and engineering fields (Benek & Akçay, 2018), is one of the most up-to-date examples of

the adaptation of interdisciplinary teaching understanding to contemporary education. Primary school 4th grade students stated that they had not seen any education in which the fields of science, mathematics, technology, and engineering were combined before, but they liked it after the application (Canbazoğlu & Tümkaya, 2020). The results regarding the positive attitudes of primary school students towards learning technology-supported mathematics (Hacıömeroğlu, 2019) indicate that these practices should be carried out continuously and widely. Since a student with high mathematics skills will have high science skills, science and technology cannot develop independently from mathematics (Çetin, 2013), these courses should be taught with an interdisciplinary approach. Since quantitative data in science cannot be expressed correctly without knowing mathematics, it can be said that mathematics skill is important for scientific achievement (Deringöl & Gülten, 2016). For example; Science and mathematics disciplines can be associated practically in an acquisition of the correct use of energy resources in the primary school science course curriculum. Students may be asked to work on a project on how to make more efficient use of electricity and water at home. In conducting such a study, basic mathematical calculations can be used, as well as subject-related skills such as data collection and processing. Thus, the learned mathematics will be permanent and take its meaning from real life.

1.3. The Role of Classroom Teachers in Teaching Mathematics with an Interdisciplinary Approach

Mathematics can be attributed to everything. For example: jumping, walking, and climbing stairs can be used as a way to practice counting. When children recognize, draw, play with, and combine shapes, they not only learn about geometry, but also experiment with visual arts, architecture, and science (Clements, 2021). However, Sharma (2018) stated that the methods adopted to teach mathematics in schools are largely inaccurate and are far from the learning experiences that may attract students' attention. Teachers who love music and art lessons in these areas stated that teachers who are bored or even afraid of mathematics should not teach mathematics. Because positive motivation is very important in the healthy conduct of mathematics lessons. As a matter of fact, it was observed that as the negative opinions of students towards their teachers increased, their math anxiety levels also increased (Keklikçi & Yılmaz, 2013).

It is known that classroom teachers working in primary schools take the time of other lessons in order to teach mathematics to students. This situation causes students to sacrifice other lessons that will support different development areas and enjoy and spend more time in a single learning area. Since this situation is often not criticized by the school administration and parents, and sometimes even positively welcomed, this way followed by the teachers is reinforced. Considering the fact that Turkey is low overall average achievement in mathematics shows that this is not the way toward a solution. Classroom teachers can take an interdisciplinary approach instead of sacrificing the time planned for other lessons to teach mathematics. Thus, mathematics can be a useful tool for other disciplines as well, instead of remaining on the agenda in many other subjects and being a barrier to be overcome for students.

An interdisciplinary approach plays an important role in developing a student profile based on 21st century skills, which includes mathematical literacy seen as one of the main areas of literacy (World Economic Forum, 2015). For this reason, thoughts about how to teach mathematics and how to establish relationships with other disciplines are also questioned by teachers. Because applying the interdisciplinary approach is seen as a challenge for teachers (Santaolalla, Urosa, Martín, Verde, & Díaz, 2020).

Primary school students often need the guidance of their teachers in solving problems as they go through a very intense period in terms of cognitive, moral and physical aspects due to their developmental characteristics. When they can express themselves comfortably in classroom environments where a sense of belonging is provided in a healthy way, they can share their problems with their friends and teachers. Classroom teachers can analyze students' daily life problems correctly and turn these shares into opportunities in order to find solutions with an interdisciplinary approach. It is very important to address real life problems in teaching mathematics with an interdisciplinary approach. When the topics covered are adapted from life, classroom teachers can bring real life situations to the classroom by gathering students' attention. For example, while teaching decimal operations from the achievements of the mathematics lesson, a temporal study can be designed by associating it with the gains of

other lessons. In agricultural activities, length and weight calculations can be made, in which the height and weight index is regularly monitored, with a schedule regarding the air temperature that requires precise measurement or a temporal project on a healthy life. Thus, the achievements that constitute the goals of the curriculums and express the intentions and expectations can be realized by the students, and the learning can be demonstrated and evaluated in real life situations (Aslan, Durgun, & Yazıcı, 2020).

It is very important for teachers to have a high level of experience and competencies in the relevant discipline (Gürbüz, et al., 2018), to be prone to cooperation and to have an interdisciplinary perspective in terms of efficient and meaningful integration of lessons (Gerke, 2017). However, it is observed that classroom teachers working in the same school differ significantly in terms of performance in interdisciplinary teaching (Karakuş & Aslan, 2016). Since planning and applications in the interdisciplinary approach require more time, expertise and cooperation (Yıldırım, 1996), classroom teachers may need theoretical and practical support from people who are competent in their field when necessary. While planning in interdisciplinary teaching, help can be obtained from teachers who are experts in the relevant field, and experienced people working in the field can be used for clarifying the relationship of the mathematics lesson with other lessons in real life. An architect may be invited to the class to share and exemplify the connections between mathematics, science, and visual arts as part of his / her experience. It can be provided to share with students how a musician used mathematics while composing or creating rhythms.

2. Discussion and Conclusions

Skills in the mathematics course are one of the main criteria in evaluating school success in society and educational institutions. Even if they are not successful in other disciplines, a success displayed in mathematics helps students to take a step forward within their age group. Students who are not successful enough in mathematics can be seen as underdeveloped not only academically but also in terms of other skill areas. Moreover, failure in other subjects is also associated with inadequacy in mathematics. When the drawbacks of taking the success criterion in such a narrow framework are ignored, it can be said that there is a certain level of problematic awareness about the importance of mathematics in society, although it is not very healthy. However, such a perspective leads to the emergence of a wrong understanding among teachers that mathematics should be taught at all costs. As a result, the focus is on abstract and rote-based mathematics teaching by saving time and planning from other development areas. At this point, a vicious circle occurs and despite the intense efforts, the desired level cannot be reached in the teaching of Mathematics in primary school. There is a weight that is difficult to carry, and the energy and time of both students and teachers are wasted in mathematics teaching.

Considering the problems faced by people in daily life, it draws attention that they are somehow related to each other. In the social life, the problem in one of the fields of education, health, security and economy is not independent from the others, and the solutions applied are not independent from each other. Education in schools should be handled in this way, and problems dealt with in different disciplines should be resolved with an interdisciplinary approach. Thus, education will prepare the child for life with the network of relationships in life in accordance with its purpose. When we look at the events in nature and the flow of daily life, there is an integrity in the relations between beings. Although each discipline examines the world in different ways, daily life continues in unity within the framework of certain rules. The situation is the same for man, who is a part of nature. Attempting to teach science and knowledge to students by constantly categorizing it creates confusion in perceiving life as a whole. Trying to teach children who tend to perceive as a holistic approach by moving mathematics away from life and other subjects instead of organizing it together with other lessons does not coincide with the nature of education. Thus, students have difficulty in establishing a connection between what they learn and life. Mathematics is a discipline that emerged to understand, organize, plan and conceptualize concrete objects with their different characteristics. In this respect, isolating mathematics from other disciplines and trying to teach them separately disrupts the classroom climate and distances learning from the unity of life.

While the problems in teaching mathematics are so prominent, it is not realistic to expect the results to change and the success of mathematics skills to be increased with practices reflecting the traditional understanding.

Instead of transferring the failure in mathematics to other disciplines, using the teaching method by associating the skills and achievements in the mathematics curriculum with other courses with an interdisciplinary approach will have positive results. With an interdisciplinary approach, mathematics will be seen as a practical tool that students can use in solving problems in their daily lives, not an academic goal that is difficult to reach. For students who discover that mathematics works in other disciplines, a significant distance will be taken in mathematics teaching and learning experiences will gain meaning in this way. In order to achieve this, it is very important for classroom teachers to be aware of the benefits and applications of interdisciplinary approach as an alternative. Because it is very difficult to teach mathematics only in certain class hours by solving routine problems and by memorizing. In the information age, this understanding is no longer valid. The role of the teacher should not be reduced to the position of information transmitter in our age where technology has developed so much and accessed information is so easy. Today, the primary task of the teacher in teaching mathematics is to transform this lesson from an academic obstacle to a useful skill area that they can use in all areas of life. In order for students to see and use mathematics in all areas of life, it must first be associated with other disciplines. Thus, math will be a useful calculation tool instead of an account asking tool.

References

- Aladağ, E., & Şahinkaya, N. (2013). The views of Pre-service Teachers on Relationships Between Social Studies and Mathematics. *Kastamonu Education Journal*, 21(1), 157-176.
- An, S., Capraro, M. M., & Tillman, D. E. (2013). Elementary Teachers Integrate Music Activities into Regular Mathematics Lessons: Effects on Students' Mathematical Abilities. *Journal for Learning through the Arts*, 9(1).
- Arslan, Y., & Altay, F. (2008). Classroom Teachers' Views Towards Physical Education Curriculum and Implementation of Physical Education. *Hacettepe Journal of Sport Sciences*, 19(2), 63-79.
- Arsantaş, B. (2006). A Model Application for Teaching the Basic Soccer skills in Primary School Physical Education Class with Interdisciplinary Teaching Approach. İstanbul: Marmara University Institute of Educational Sciences.
- Aslan, B., Durgun, B., & Yazıcı, E. (2020). Türkiye Yeterlilikler Çerçevesi Kapsamında Öğrenme Kazanımları Rehberi. Mesleki Yeterlilik Kurumu Türkiye Yeterlilikler Çerçevesi Dairesi Başkanlığı.
- Aslan, S., & Karakuş, M. (2016). İlkokulda Disiplinlerarası Öğretime Yönelik Mevcut Durumun İncelenmesi. *İlköğretim Online*, 15(4), 1325-1344. doi:10.17051/ıo.2016.29013
- Aydın, A. (2007). Eğitim Psikolojisi Gelişim Öğrenme Öğretim. Ankara: Tek Ağaç Eylül Yayıncılık.
- Benek, İ., & Akçay, B. (2018). STEM in the My Imaginary World! Investigation of Students' Deravings in the STEM Field. *Journal Of STEAM Education*, 1(2), 79-107.
- Biller, J. (1996). Reduction of Mathematics Anxiety. Paper presented at the Annual National Conference on Liberal Arts and Education of Artists.
- Bozdemir, R., Çimen, Z., Kaya, M., & Demir, O. (2015). The Problems That Elementary Teachers Face İn Physical Education (Sample of Tokat Province). *International Journal of Turkish Education Sciences*, 221-234.
- Bütüner, İ. (2010). Effects Of Using Songs on Some Parameters in Primary School Mathematics Instruction. İzmir: Dokuz Eylül University Institute of Educational Sciences.
- Canbazoğlu, H. B., & Tümkaya, S. (2020). İlkokul Dördüncü Sınıf Öğrencilerinin Fen, Teknoloji, Mühendislik, Matematik (FeTeMM) Tutumlarının Çeşitli Değişkenler Açısından Değerlendirilmesi. *Turkish Journal of Computer and Mathematics Education*, 11(1), 188-209. doi:10.16949/turkbilmat.655216
- Cresswell, J. W. (2020). Nitel Araştırma Yöntemleri: Beş Yaklaşımına göre Nitel Araştırma ve Araştırma Deseni. (M. Bütün, & S. B. Demir, Dü) Ankara: Siyasal Kitabevi.
- Çetin, Ö. F. (2013). According To the Students of Science Teacher Education, Why Is Mathematics? How Mathematics?. *Mehmet Akif Ersoy University Journal of Education Faculty* (25), 160-181.
- Demir, E. (2009). Holistic Approach to Teaching in Second Year Primary Impact of Interdisciplinary Applied. Konya: Selçuk University Institute of Educational Sciences.
- Demirel, M. R. (2019). Interdisciplinary Research of The Unity Principle in Design. *Akdeniz Sanat Dergisi*, 13(24), 149-158.
- Deringöl, Y., & Gülten, Ç. D. (2016). Pre-Service Teachers' Views on "Using Mathematics in Science Education": A Metaphor Analysis Study. *Journal of Research in Education and Teaching*, 5(1), 43-50.
- Dinçer, M. (2008). The effect of maths education with musical games on academics success and the attitudes in elementary schools. Bolu: Abant İzzet Baysal Üniversitesi Sosyal Bilimler Enstitüsü.

- Duman, B., & Aybek, B. (2003). A Comparison of the Approaches of Process-Based and Interdisciplinary Instruction. *Muğla Üniversitesi SBE Dergisi* (11).
- Furner, J. (1995). Planning for Interdisciplinary Instruction: A Literature Review. A paper presented at the Annual Conference on Effective Classroom Teaching.
- Gerke, A. G. (2017). Interdisciplinary Education in the Elementary Curriculum: Exploring Teacher Perceptions and Practices. Ontario Institute for Studies in Education of the University of Toronto.
- Gürbüz, N., & Kuzu, Ç. İ. (2018). Mathematics-Based Difficulties Experienced by Social Studies Teacher Candidates. *International Journal of Education Science and Technology*, 4(3), 141-154.
- Gürbüz, R., Erdem, Z. Ç., Şahin, S., Twmurtaş, A., Doğan, C., Doğan, M. F., . . . Çelik, D. (2018). Reflections from an Interdisciplinary Mathematical Modeling Activity. *Adıyaman University Journal of Educational Sciences*, 1-22. doi:10.17984/adyuebd.463270
- Güven, Ö., & Öncü, E. (2006). Beden Eğitimi ve Spora Katılımda Aile Faktörü. *Journal of Social Policy Studies*, 3(10), 81-90.
- Hacıömeroğlu, G. (2019). Examining Elementary Students' Attitude towards Learning Mathematics with Technology and Anxiety. *Journal of Computer and Education Research*, 7(14), 356-382. doi:10.18009/jcer.581625
- Hathout, H. (2016). An Interdisciplinary Math and Science Curriculum for Middle School. Harvard Extension School.
- Hudakova, J., & Kralova, E. (2016). Creative Interdisciplinary Math Lessons by Means of Music Activities. *Review of Artistic Education*. doi:DOI: 10.1515/rae-2016-0035
- İlgar, L., & Gülten, D. Ç. (2013). Matematik Konularının Günlük Yaşamda Kullanımının Öğrencilere Öğretilmesinin Gerekliği ve Önemi. *İZÜ Sosyal Bilimler Dergisi*, 2(3), 119-128.
- Kansızoğlu, H. B. (2014). A Study on Cross Curriculum Disciplines Acquisitions Present in Turkish Course Instructional Programme. *Dil ve Edebiyat Eğitimi Dergisi*.
- Keklikçi, H., & Yılmaz, Z. (2013). İlköğretim Öğrencilerinin Matematik Korku Düzeyleriyle Matematik Öğretmenlerine Yönelik Görüşleri Arasındaki İlişkinin Belirlenmesi. *Eğitim ve Öğretim Araştırmaları Dergisi*, 2(3), 210-216.
- Kridel, C. (2010). *Encyclopedia of Curriculum Studies*. Sage.
- Lenoir, Y., & Hasni, A. (2016). Interdisciplinarity in Primary and Secondary School: Issues and Perspectives. *Creative Education*, 2433-2458.
- Lucchiaro, C., & Folgeri, R. (2017). Math Empowerment: A Multidisciplinary Example to Engage Primary School Students in Learning Mathematics. *Journal of Pedagogic Development*, 7(3).
- MEB. (2018). Matematik Dersi Öğretim Programı. Republic of Turkey Ministry of National Education.
- MEB. (2019). 2023 Eğitim Vizyonu. Republic of Turkey Ministry of National Education.
- Merriam, S. B. (2018). Nitel Araştırma Desen ve Uygulama için bir Rehber. Ankara: Nobel.
- Olkun, S., & Uçar, Z. T. (2020). İlköğretimde Etkinlik Temelli Matematik Öğretimi. Ankara: Vizetek Yayınları.
- Pala, Ş. M., & Başbüyük, A. (2019). Matematik Becerisinin Sosyal Bilimler Derslerindeki Harita Grafik ve Tablo Okuma Becerilerine Etkisi. *International Journal of New Approaches in Social Studies*, 3(1), 41-56.
- Pehlivan, Z., Dönmez, B., & Yaşat, H. (2006). Classroom Teachers' Ideas on the Physical Education. *Gazi Journal of Physical Education and Sport Sciences*, 51-62.
- Samsun Haber. (2018, 01 02). <https://www.samsunhaber.com/samsun-haber/samsunlu-ogretmen-matematik-ve-beden-egitimi-dersini-birlestirdi-h32235.html> adresinden alındı
- Santaolalla, E., Urosa, B., Martín, O., Verde, A., & Díaz, T. (2020). Interdisciplinarity in Teacher Education: Evaluation of the Effectiveness of an Educational Innovation Project. *Sustainability*, 1-23. doi:10.3390/su12176748
- Senemoğlu, N. (2012). Gelişim Öğrenme ve Öğretim Kuramdan Uygulamaya. Ankara: Pegem Akademi.
- Sharma, P. K. (2018). Interdisciplinary Approach in Mathematics. Conference: Academic & Administrative Audit in Higher Education Institutions. doi:DOI: 10.13140/RG.2.2.13545.19044
- Toptaş, V., & Olkun, S. (2020). Önsöz. İlkokulda Matemaik Öğretimi (s. V-VI). içinde Ankara: Vizetek Yayınları.
- Türk Dil Kurumu. (2021, 01 03). Güncel Türkçe Sözlük.
- UNESCO. (2020, 12 26). Interdisciplinary approach. International Bureau of Education: <http://www.ibe.unesco.org/en/glossary-curriculum-terminology/i/interdisciplinary-approach> adresinden alındı
- Uslu, N. (2019). Multidisciplinary Approach to Physical Education and Sports: Example of Mathematics. İzmir: Ege University Institute of Health Sciences.
- Wicklein, R. C., & Schell, J. W. (1995). Case Studies of Multidisciplinary Approaches to Integrating Mathematics, Science and Technology Education. *Journal of Technology Education*, 6(2), 59-76.
- William&Mary. (2021). Mathematics in Interdisciplinary Areas. <https://www.wm.edu/as/mathematics/undergrad/major/appliedmath/interdisciplinary/index.php>

- Williams, J., Roth, W.-M., Swanson, D., Doig, B., Groves, S., Omuvwie, M., . . . Mousoulides, N. (2016). *Interdisciplinary Mathematics Education A State of the Art*. Springer Open.
- Winograd, K., & Higgins, K. M. (1994). Writing, reading, and talking mathematics: One interdisciplinary possibility. *The Reading Teacher*, 48(4), 310-318.
- World Economic Forum. (2015). *New Vision for Education Unlocking the Potential of Technology*. World Economic Forum®.
- Yıldırım, A. (1996). Disiplinlerarası Öğretim Kavramı ve Programlar Açısından Doğurduğu Sonuçlar. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 89-94.
- Yıldırım, A., & Şimşek, H. (2008). *Sosyal Bilimlerde Nitel Araştırma Yöntemleri*. Ankara: Seçkin.

M-Learning and Learning Autonomy - Needs Analysis and Suggested Model

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Abstract

In this 4.0 era, where technology has been a part of our daily lives, the integration of smart devices into education is an indispensable movement that we are striving for. Hence, the application of mobile devices into learning, M-learning is becoming a trendy approach and a quality assurance's measurement for almost every academic institution. Technology makes education available for students almost anywhere, anytime, and offers unlimited access to learning resources. Furthermore, M-learning is also reported to have a positive impact on students' learning autonomy. Hence, this paper aims at validating possibilities to amplify this aspect of M-learning and suggesting an appropriate M-learning model at Nguyen Tat Thanh university (NTTU). The paper investigates students' needs, requirements, ability to adapt to the new trend of M-learning plus the external elements affecting their learning autonomy to come up with the learning model. Surveys were collected from students in the Faculty of Foreign Languages and analyzed using a qualitative method to provide educators and teachers at NTTU with insightful information and careful preparation before launching new approaches to M-learning.

Keywords: M-Learning, Learning Autonomy, Needs Analysis

1. Introduction

Recently, the Covid-19 pandemic has led to many changes and adaptations in education segment around the world. Firstly, the need for distance learning makes online learning become the main focus of educators to maintain their operation during the pandemic. Many education institutions are investing in enhancing the quality of their online system to meet the requirements of the students and also to make up for the lack of face-to-face interactions. In Vietnam, the pandemic also forces all the students to study at home without direct interactions with their teachers. Hence, the need to learn about the students' requirements and demands for online system is an essential part that determines the quality of education. With the huge amount of young people using mobile phones, M-learning, which was defined as the use of computing mobile devices in learning (Mcconatha, Praul & Lynch, 2008), thus, become a trendy approach for educators to shorten the distance with their learners.

Moreover, the lack of social communication also leads to the decrease of learning motivation due to many a challenge faced by online learning. Without direct interaction with other learners and teachers, students may

lose their interest in learning. Therefore, the impact of M-learning on students' learning autonomy, which has long been confirmed by many authors (Su & Cheng, 2015; Huang, Yang, Chiang & Su, 2016), should maximize its implication during this time. The benefits of M-learning plus the habits of using mobile phones and playing mobile games are the answer for this issue.

In this paper, the authors hope to learn about the learners' needs and requirements for online learning system by assessing their opinions on the current platform, then measure the importance of different external factors on their learning autonomy. The data were collected and analyzed to lend insight for educators in Vietnam and other Asian countries about learners' voices relating to online learning. Then, based on the results of the data, the authors also suggested an appropriate model for M-learning application, which served as a supporting tool for students at home, and in class to improve their learning autonomy. Moreover, the findings of the paper also reassured what has been found by other authors about the influences of external factors on learning autonomy.

The paper is set up to address the following issues:

- (1) Identify students' needs, ability and readiness to adapt to new M-learning system
- (2) Pinpoint factors influencing students' learning autonomy
- (3) Suggest an appropriate model that fits Nguyen Tat Thanh context and can trigger learner's autonomy.

2. Literature review

2.1. Learning autonomy and influencing factors

In response to the development of technology, teachers are no longer mainly in charge of transferring knowledge but more of facilitators directing learners to acquire the new information. Hence, developing learning autonomy skills has become the center of education these days. Many researches were conducted to define and discover the elements influencing learning autonomy as well as its impacts on learners. Entwistle, Thompson, and Wilson (1974) compared learning autonomy as a cleaner that sweeps away challenges and differences rooted in traditional methodologies and educational mindsets.

Researchers are directing their works to identify the factors affecting learning autonomy so that educators can simulate a learning environment that triggers this trait from students. Higgs (1988) pinpointed the four main factors influencing learning autonomy (1) teachers themselves, (2) students' responsibility, (3) tasks, and (4) environment. In 2016, Kemala tested this model, then added the fifth element, which is motivation and changed the second factor of students' roles into materials. Kemala (2016) listed the five elements affecting learning autonomy (1) motivation, (2) social environment, (3) task, (4) teacher and (5) material. In this paper, the questions are designed to test these five factors in the context of Nguyen Tat Thanh University. Therefore, by adjusting external learning conditions and improving interactions among learners, teachers can help enhance students' learning autonomy.

2.2. M-learning and its impact on learners

The popularity of mobile devices and mobile phones among the young generations leads to the flourishing of a new approach to education, which is M-learning – the application of mobile technologies so that learners can learn anywhere and anytime (Lan & Sie, 2010; Girgin, Kurt & Odabasi, 2011). To design a successful application in M-learning, Naismith, Peter, Giasemi, and Sharples (2004) suggested four considerable factors including: (i) the flexibility and operating speed of the application; (ii) accessible and adaptive materials; and (iii) operating fee, and (iv) the use of application as a support to formal education. The qualities of a mobile application in education are also outlined by Miangah and Nezarat (2012) with six elements: (i) the mobility of the device; (ii) social interaction of the application so that learners can exchange information with each other; (iii) contextualization, which means the knowledge in the application is categorized for different purposes and in different situations; (iv) connection, the application can connect to other devices to support learning; (v)

individualization, the application is personalized according to learners' needs and ability; and (vi) popularity of devices and the application.

This paper aims at conducting learners' needs analysis then based on these factors and elements to suggest an appropriate mobile application model that fits Nguyen Tat Thanh University context.

2.3. M-learning in Vietnam and Nguyen Tat Thanh university

In Vietnam, educators are investing into M-learning and making it a trendy approach widely, especially at tertiary levels. Khanh (2014) stated that applying technology in learning languages in Vietnam is necessary as it is essential for learners pursuing higher education or entering the labour workforce. They also emphasized the influences of technological support from universities on students' purposes and attitudes in adapting to the new teaching method. Besides, studying about the factors contributing to the success of technology in teaching is also another focus for researchers in Vietnam. Tran (2016) conducted research about applying technology in teaching in Vietnamese schools using Technology Acceptance Model (TAM). The research concluded that interaction among learners and between learners-teachers is the most important factor determining the effectiveness of E-learning and M-learning in practice.

M-learning at tertiary levels is also examined at Ho Chi Minh City University of Education (HCMUE) by Vu, N.N. Vu (2016) asserted that Vietnam universities are ready to adapt to the modern approach to teaching, which is M-learning as the majority of the students are equipped with mobile devices and the connections to the Internet are quite stable. He found out that though students at HCMUE though initially faced many difficulties getting used to the new system, they could quickly adapt to M-learning, some of them even showed great interest and outstanding talent for utilizing technology in learning. Vu (2016) also pinpointed that students are most interested in the multimedia materials as well as its accessibility, but are concerned about the decrease of interaction with their teachers. Moreover, computer skills also hindered some of the students to further develop using new methods. Hence, Vu (2016) suggested that it was vital for preparing them for the changes by introducing courses before the application of the new system.

However, not many universities in Vietnam focus on building M-learning systems that are intriguing to the students. Moodle is the most popular M-learning system being used with basic functions like online classrooms, testing and storing materials. Nguyen Tat Thanh University is no exception with its Moodle system supporting learning at schools and in pandemic periods.

Therefore, this paper aims at researching learners' needs about M-learning application at Nguyen Tat Thanh University. The data then is analyzed using a qualitative method, which provides insightful perspectives for educators and teachers to develop a new M-learning system at Nguyen Tat Thanh University.

3. Methodology

3.1. Procedure

The project is conducted in six months, lasting from May 2020 to November 2020 at Faculty of Foreign Languages, Nguyen Tat Thanh University, including three stages:

- (1) *Preparing*: identify factors influencing M-learning and learning autonomy, design appropriate surveys
- (2) *Collecting data*: surveys are posted on social media for students to fill in.
- (3) *Analyzing data and suggesting application model*

3.2. Samples

The paper selected randomly 120 students in the Faculty of Foreign Languages, Nguyen Tat Thanh University. To guarantee the number of students from different years joining the research, all the instructors in the Faculty of Foreign Languages were asked to support the authors by sharing and encouraging students in their classes filling the survey. The participants were mainly 18-25 years old. This helps provide diverse insights for the project. After collecting enough 120 forms from the participants, the link to the survey was closed. 112 forms were valid for analyzing after initial filtering.

Information about participants of 112 valid forms were listed in Table 1.

Table 1: The number of participants categorized by genders and year of study at the university

	First year	Second year	Third year	Fourth year	Sum
Male	9	7	12	4	32
Female	16	22	27	10	75
Others	2	0	2	1	5
Sum	27	29	41	15	112

3.3. Instruments

Surveys are used to collect students' perspectives and assess their ability to adapt to new systems at Nguyen Tat Thanh University. The questionnaire includes 20 questions, divided into three main parts:

- (1) Personal information: This part consists of 4 questions relating to name, gender, year of study and age. This information allows the authors to further their understanding about the participants.
- (2) Ability, needs and current situation of M-learning: 8 multiple-choice questions are asked to assess students' perspectives about M-learning.
- (3) Learning autonomy: 8 questions ask students to validate the factors influencing their learning autonomy. This part used a 5-scale Likert measurement to analyze the importance of each factor.

The survey was published on the Faculty of Foreign Languages' social media platform. The post after that was shared on each class' private group by the instructors. After 120 forms were collected, the link was closed. Students who finish the survey will receive a link to download free English books as a thank you gift from the author.

4. Findings

4.1. Needs analysis on students' readiness and requirements for M-learning

The data collected from the students was analyzed using Microsoft Excel and SPSS.

Firstly, students were asked about Internet connection at university and at home.

Table 2: Students' opinions about Internet connection at university and at home

	Very good	Good	Normal	Bad	Extremely bad
How is the Internet connection at your home?	11 9.8%	75 67.0%	22 19.5%	2 1.8%	1 0.9%
How is the Internet connection at NTT University	2 1.8%	59 52.7%	31 27.7%	18 16.1%	2 1.8%

Most of the students have good Internet connections at home with the percentage of more than 75%. Internet connection at NTTU is also reported to be quite good with more than 50% of students choosing 'Good' and 'Very good.' However, there still exist many students who said that the connection at NTTU is not good or normal with the figure of 45%. At NTTU, all the campuses are equipped with wifi connections. However, due to the enormous number of students and the largeness of the campuses, the wifi signal can sometimes be interrupted.

Stable connection both at home and at university is the foundation for developing M-learning, which means, students at NTTU can connect freely to the system without any connection difficulties.

Table 3: Students' habits of using technological devices

	Mobile phones	Laptops/ iPads	Computers (PC)	Not use	Others
Which devices do you use to support your study?	55	38	17	0	2
	49.1%	33.9%	15.2%	0%	1.8%
Which device do you use most frequently?	88	21	2	0	1
	78.6%	18.8%	1.8%	0%	0.9%

Table 3 shows students' habits when using technological devices. More than 80% of the students use mobile phones and laptops/ iPad to study. Moreover, most of the students reported using mobile phones most frequently everyday. As can be seen from the figures, with learners aged 18-25, who were born in the era of technology development, mobile phones are the most popular devices. Learners are familiarized with mobile phones and other technology inventions. There were also 2 students reported to use Kindle in their study. Hence, compared to traditional classes using notebooks and paper coursebooks, students would enjoy the application of technology more. This is a huge disadvantage for educators to integrate M-learning in teaching and learning as students can quickly adapt to the system. Moreover, using mobile phones most frequently, students can maximize their study anywhere and anytime if integrated.

Besides, students' opinions about the current Moodle system at NTTU are also collected.

Table 4: Effectiveness of Moodle system at NTTU

	Very good	Good	Normal	Bad	Extremely bad
What do you think about the effectiveness of Moodle system at NTTU?	6	83	23	0	0
	5.4%	74.1%	20.5%	0%	0%

With more than 80% of the students choosing 'Very good' and 'Good,' the majority of the students are satisfied with the University's system. At NTTU, the Moodle system is used to support online learning. Teachers can upload their materials categorized by topics, organize online classrooms by linking to Google Meet platform, design online tests and discussions, etc. Thus, the system can meet the basic requirements of the students and the teachers, especially in the pandemic periods, where online teaching is compulsory.

However, when asked about developing another new system of M-learning in learning, many students responded that it was necessary.

Table 5: Needs for further development of M-learning

	Very necessary	Necessary	No ideas	Not necessary
Do you think it is necessary to develop another M-learning system to integrate in learning and teaching?	49	55	8	0
	43.8%	49.1%	7.1%	0%

Most of the participants thought it was necessary to develop another system or application in studying. Many students explained their choices in the survey ‘I need a less formal platform to use everyday,’ ‘I need a system to interact with other learners,’ ‘A more exciting system would help,’ etc.

Though the current system provides all necessary functions for online learning, students need a more user-friendly and interesting application that fits their ages and serves also as emotional support when learning.

4.2. Factors influencing students’ learning autonomy

In this part of the survey, the questions focused on identifying positive factors influencing students’ learning autonomy. Students assess the importance of the listed factors on a 5-scale measurement in which 5 points equal to ‘very necessary’ and 1 point means ‘Not necessary at all.’

Table 6: Factors influencing learners’ autonomy

	1	2	3	4	5	Mean
The materials are easy to accessed	0	0	3	48	61	4.5
	0%	0%	2.7%	42.9%	54.5%	
The materials are classified appropriately	0	1	0	29	82	4.7
	0%	0.9%	0%	25.9%	73.2%	
Students can interact with other learners	0	0	0	13	99	4.9
	0%	0%	0%	11.6%	88.4%	
Students can compete with other learners	0	0	3	30	79	4.7
	0%	0%	2.7%	38.4	58.9%	
Students can interact with their teacher easily	1	3	11	32	65	4.4
	0.9%	2.7%	9.8%	28.6%	58%	
Teacher gives clear instructions	0	1	0	78	33	4.3
	0%	0.9%	0%	69.6%	29.5	
The tasks are challenging and interesting	0	0	0	44	68	4.6
	0%	0%	0%	39.3%	60.7%	
The tasks fit learners’ ability and competency	0	0	0	17	95	4.8
	0%	0%	0%	15.2%	84.8%	

Table 6 shows students’ perspectives on factors affecting their learning autonomy. As can be seen from the table, all the factors listed are reported to be important by the students with more than 80% of the students agreeing that all of the factors were necessary or very necessary. It is also noticeable that students emphasized the importance of learners’ interaction to their learning autonomy with the highest mean of 4.9. Meanwhile, the mean of teachers’ instructions was lowest, which can be interpreted as a less influential factor to learning autonomy compared to the others.

Factor 1, which relates to material characteristics, was generally reported to be essential for students to take responsibility for learning. They thought that it was important for the materials to be accessible (mean = 4.5) and easy to use with clear classification (mean = 4.7). This requirement can be easily met with the use of technology and Mobile devices. Compared to classical books in the library, a tiny device can carry such large information and display them categorically according to the designers.

Factor 2 about relationships with other learners receives the highest score with means for interaction and competitiveness 4.9 and 4.7, respectively. Students reported to prefer a class with more interaction among the learners. Competitiveness, though assumed to be stressful for learners, received considerable high scores from the students. It helps students be aware of their level of learning and motivates them to try hard for better results.

Factor 3 was ranked the lowest by the students with the mean of 4.3. This means among the other factors, teachers are the last external factor influencing the students' learning autonomy. However, with an average of 4.3, this is still considered an important element. The role of the teachers nowadays is usually as facilitators, who give instructions and guide the students to conquer the knowledge themselves. Hence, in order to let the students work on their own effectively, the instructions given need to be constructive and clear enough. To support for this factor, the authors suggest the M-learning model to have careful instructions for learning, and how to utilize the application efficiently.

Finally, factor 4 about tasks is also another key element that leads to learning autonomy with the means just after factor 2. To be autonomous learners, students need to be motivated with a sufficient number of tasks. To effectively utilize this factor, it is vital for teachers to design either challenging, interesting and appropriate exercises. With the support of technology, teachers can also integrate traditional exercises with exciting games on mobile phones, which are more attractive due to colorful visual displays.

In general, interaction among learners, easy access to materials and the appropriateness of the tasks attributed significantly to the students' learning autonomy.

5. Discussion

This paper examines the needs and perspectives of the students about M-learning and learning autonomy closely. The findings of the paper indicate that the students at Nguyen Tat Thanh University are willing to adapt to a new system or application employing M-learning in teaching and learning. They are well equipped with Internet connection both at home and at university, this is a necessary condition for applying M-learning. Furthermore, using mobile devices most of the time, they can adapt quickly to the new system on mobile phones. With almost 90% of the students needing another application for their study, it is advisable for the faculty to develop a new approach to M-learning that fits our learners.

Secondly, the factors affecting students' learning autonomy are also pinpointed. Based on the results of the survey, the authors suggest develop an application integrating the learning program with the following structure

- (1) Competitive games for learners to compete with each other
- (2) Library containing learning materials classified by categories
- (3) Leaderboard ranking learners and also analyzing the learners' strengths or weaknesses
- (4) Practice mode provides games categorized by levels for students to practice with the computer
- (5) Learning guide: offer clear instructions and an interaction platform to communicate with the teacher.

The structure allows students to interact and compete with each other via playing games. Learning materials are also included in the application so that students can access and learn every time, everywhere. On the other hand, the library helps provide access and categorize learning materials for students. Besides, students are guided to improve their skills by leaderboard, in which they can identify their strengths and weaknesses. Ranking system is also an element triggering learners' competitiveness so that they will try to study harder to improve their levels. Furthermore, practice mode offers students with choices of which kind of game or which level to practice. Based on the results of the leaderboard, students can develop plans and strategies to practice with the computer to improve their skills. And finally, the learning guide will work as online teachers to instruct students on how to utilize the application in study, how to make the best out the games and how to integrate the application in their formal study at school. Moreover, the learning guide also connects learners with the teachers in emergent cases or when students need it.

The insights from this paper are useful for teachers and educators not only in the faculty of foreign languages but also at Nguyen Tat Thanh University as well as educators at tertiary levels. The study suggests that students at Nguyen Tat Thanh University and in Vietnam are ready for the era of M-learning as they are familiar with mobile devices with Internet connections almost available everywhere. In addition, Vu (2016) 's conclusion about the readiness of Vietnamese students with Internet connection and mobile devices was tested and reported

to be true in the context of Nguyen Tat Thanh University. Lastly, the paper examined the four out of four factors of learning autonomy which are (1) social environment, (2) roles of teachers, (3) types of tasks, (4) materials and (5) motivation (Higgs, 1988; Kemala, 2016). The four factors examined were social environment, roles of teachers and types of tasks and materials. In Vietnamese context, the mean scores of the abovementioned factors were generally high ranging from 4.3 to 4.9. However, compared to the other three, the roles of teachers were listed to be the least important for Vietnamese students.

On the other, there still exist limitations to this study. Firstly, the students conducting the survey were from The Faculty of foreign languages. Hence, it is difficult to generalize the sample for students at Nguyen Tat Thanh in general. Besides, the paper used only one method to collect students' perspectives, which is survey. To deeply understand the students' needs and opinions, it is also essential to conduct interviews and collect diverse individual responses. Moreover, the study can only test for three factors influencing learning autonomy, excluding environmental factors. Finally, the study analyzed perspectives from only one stakeholder, which is students. However, to build a system, the opinions from the university and the teachers should also be put into consideration.

6. Conclusion and suggestions

The paper examines students' needs and readiness to employ M-learning in learning and teaching. In general, almost every student at Faculty of foreign languages and Nguyen Tat Thanh university possesses their own mobile devices which can be used for learning and a strong Internet connection at university and their home. This means the basic conditions for M-learning are met. Moreover, although satisfied with the current system of the university, they are also excited about the new M-learning system, which is user-friendly and more interesting. The results also imply that four out of five factors of learning autonomy (Higgs, 1988; Kemala, 2016) are tested to be valid in Vietnamese context. More interestingly, Vietnamese students regard learners' relationships as the most significant factor leading to learning autonomy. As a country with collective culture, it is possible that the learners in Vietnam will be more comfortable to study with each other. Accordingly, based on the data, the authors suggested a model of M-learning to use at Nguyen Tat Thanh University, which is a mobile application with four modes: (i) competitive games; (ii) library; (iii) leaderboard; and (iv) practice games and (v) learning guide.

However, the paper still has several limitations, which are the size of the sample, the subjects of the study and the factors to be examined. The size of the sample makes it risky to generalize for the whole university. Besides, it has not discovered perspectives from other stakeholders like teachers or the university leaderboard. Finally, the paper excluded the fourth factor, which was 'environment,' when considering the elements affecting learning autonomy.

Further research should be conducted to examine all four factors influencing learning autonomy. The last factor, which is the environment, is also an important element that decides the learners' motivation and emotions. Moreover, researchers can also focus on building a sample application containing the four suggested modes and test its influences on the students' learning autonomy and also academic performances. The application should also be applied in sample teaching and learning to examine its usage' possibility in class. This research, hence, should be a combination of quantitative and qualitative approaches.

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References

- Al Zieni, H. (2019). The effect of mobile learning on learner autonomy: A suggested measurement tool to assess the development of learner autonomy. *Journal of Asia TEFL*, 16(3), 1020.
- Entwistle, N. J., Thompson, J., & Wilson, J. D. (1974). Motivation and study habits. *Higher Education*, 3(4), 379-396.
- Girgin, U., Kurt, A. A., & Odabasi, F. (2011). Technology integration issues in a special education school in Turkey. *Cypriot Journal of Educational Sciences*, 6(1), 13-21.
- Higgs, J. (1988). Planning learning experiences to promote autonomous learning. *Developing student autonomy in learning*, 40-58.
- Huang, C. S., Yang, S. J., Chiang, T. H., & Su, A. Y. (2016). Effects of situated mobile learning approach on learning motivation and performance of EFL students. *Journal of Educational Technology & Society*, 19(1), 263- 276.
- Kemala, Z. (2016). An analysis of factors influencing the autonomous learners in learning English. *Eltin Journal, Journal of English Language Teaching in Indonesia*, 4(1).
- Khanh. "FACTORS INFLUENCING MOBILE-LEARNING ADOPTION INTENTION: AN EMPIRICAL INVESTIGATION IN HIGH EDUCATION." *journal of social science* 10.2 (2014): 51-62.
- Lan, Y. F., & Sie, Y. S. (2010). Using RSS to support mobile learning based on media richness theory. *computers & education*, 55(2), 723-732.
- Mcconatha, D., Praul, M., & Lynch, M. J. (2008). Mobile learning in higher education: An empirical assessment of a new educational tool. *Turkish Online Journal of Educational Technology-TOJET*, 7(3), 15-21.
- Miangah, T. M., & Nezarat, A. (2012). Mobile-assisted language learning. *International Journal of Distributed and Parallel Systems*, 3(1), 309.
- Naismith, L., Lonsdale, P., Vavoula, G. N., & Sharples, M. (2004). Mobile technologies and learning.
- Su, C. H., & Cheng, C. H. (2015). A mobile gamification learning system for improving the learning motivation and achievements. *Journal of Computer Assisted Learning*, 31(3), 268-286. <https://doi.org/10.1111/jcal.12088>
- Tran, K. N. N. (2016). The Adoption of Blended E-learning Technology in Vietnam using a Revision of the Technology Acceptance Model. *Journal of Information Technology Education*, 15.
- Vu, N. N. (2016). Mobile learning in language teaching context of Vietnam: An evaluation of students' readiness. *Tạp chí Khoa học*, (7 (85)), 16.



Understanding of Global Citizenship among Higher Education Teachers: Implications for Graduate Attributes

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Abstract

Global Citizenship (GC) has recently claimed its position as desired graduates' attribute in many Higher Education (HE) institutions in different non-Western contexts. However, ambiguity and complexity still linger over what GC means contextually and how this understanding may shape educational outcomes. Taking cognizance of this, a study was carried out to investigate the understanding of GC among Vietnamese HE teachers as major agents in Global Citizenship Education (GCE), in order to discuss their implications for graduate attributes. This study adopted purposeful sampling strategy to conduct in-depth interviews among 14 teachers from 4 different faculties of a private university in Southern Vietnam. Emergent themes were then compared with GC conceptions theorized in the literature. Data analysis revealed a three-fold dimensions in teachers' perception: (1) GC understanding was ambiguous and divergent and uniquely nuanced by personal and contextual factors, (2) triple helix of GC conceptions were intricately entwined in GCE rationales, and (3) GC notion was framed with juxtapositions of conceptions. The findings highlighted an implementation gap in GCE which might subvert the intended educational aim, especially in the context of unavailable official documents to guide GCE. In this way, the paper contributes to the ongoing discussion regarding GCE implementation, and indicates a need to have clearer instructional GCE-related policies and more comprehensive teacher trainings.

Keywords: Global Citizenship, Global Citizenship Education, Teacher Training, Graduate Attributes, Educational Outcomes

1. Introduction

1.1 Background to the study

The economic, social, and political disruptions brought about by globalization have required Higher Education (HE) worldwide to transform their internationalization agendas to prepare graduates to work and live in the global community. The importance of cultivating global citizenship as graduate attributes has featured prominently and vociferously in recent narratives (Arvanitakis & Hornsby, 2016; Oliver & Jorre de St Jorre, 2018). However, despite the many efforts made to delineate varied dimensions of global citizenship (GC) and global citizenship education (GCE) (see Morais and Ogden (2011), OECD (2018), UNESCO (2015)), there has been little consensus on the aims and denotation of GCE to guide implementation. GC and GCE, as a result, have become umbrella

terms for many divergent ideologies and educational practices in different educational settings (Horey, Fortune, Nicolacopoulos, Kashima, & Mathisen, 2018).

The lack of clarity on what GC denotes and what purposes GCE is for has been further confounded when local contexts and teachers are taken into the scenario. Contextually, Dvir, Shields, & Yemini (2018) suggest that GCE is highly context-dependent, and thus the same agenda can be articulated and translated differently. To further this dissenting landscape, educators integrate into GCE their identities, experiences, dispositions, and imaginaries about their students' future (Goren, Maxwell, & Yemini, 2019). This necessarily leads to a more nuanced GCE compared to what has been categorized in literature. Teachers' epistemological stances are critical in constructing graduate attributes since, as stated by Goren and Yemini (2016), they (re)configure the form and concepts of GCE to be taught and the pedagogical directions to be taken, especially when official policies related to GCE are not available.

Several attempts have been made to investigate local teachers' understandings and perceptions of GC on different contexts (as per Çolak, Kabapınar, & Öztürk (2019), Goren et al. (2019)). Still, compared with a plethora of studies focusing on GCE policies, the perspectives of individuals involved in GCE delivery have been underrated, and related inquiries are highly limited in scope to cover West Europe, East Asia and North America (Hou, 2020). This study expanded the scope of inquiry by investigating how HE teachers in Vietnam perceive GCE and its dimensions as compared with theoretical conceptualizations and discussing implications for intended graduate attributes. The following questions guide the present study:

1. How do Vietnamese HE teachers perceive GCE and its dimensions?
2. How is the teachers' perception of GCE compared with the theoretical conceptualizations in the literature?

This paper contributes to the ongoing discussion on GCE implementation in two ways. Firstly, it addresses a potential gap in GCE implementation that might subvert the intended outcomes outlined in the agenda. Specifically, it helps to redirect attention to teachers' understanding as a disruptive force in GCE. Secondly, it contributes to the nascent body of work on GCE reconceptualization in non-Western contexts. The value of this should not be underestimated, due to the culturally inclusive and decolonizing currents that are presently promoted in GCE (Dreamson, 2018).

1.2 Vietnam Context

In alignment with its commitment with United Nations Educational, Scientific and Cultural Organization (UNESCO) (Nguyen, 2017), Vietnam has recently set out to integrate GCE across different education levels, and many HE institutions have announced GC as graduate attributes in their agendas. However, GCE-related policies in Vietnamese HE has remained generic, and according to Truong-White and Ho (2020), teacher training programs in Vietnam need improvement to better prepare teachers for GCE.

The literature on GCE implementation in the Vietnam context has been scarce, especially in relation to HE graduate attributes therein. Despite being underrepresented, Vietnam poses an interesting case to investigate GCE implementation, given "its socialist political organization, open market economy, and Confucian-Buddhist cultural heritage" (Truong-White & Ho, 2020, p. 179). Moreover, there exist varied ideologies within the country due to its historical background of imperialism and colonialism and its permeating nationalist and collectivist stances.

1.3 Divergent Conceptualizations of GCE

Although GCE has been embraced as a globally-oriented education trend worldwide, its development has not involved consistent understandings, practices, and politics. Attempts to categorize divergent directions of GCE have culminated in two popular approaches.

The binary approach towards GCE classification has coined dichotomies of terms to contrast varied currents. For example, Dill (2013) distinguished between two overarching, yet dissenting, currents of global competencies and global consciousness, with the former approach focusing on necessary skills for students to survive and compete in the global market and the latter cultivating students towards humanistic values and assumptions. In a similar way, Andreotti (2006) provides a bifurcation for GCE under two umbrella terms of ‘soft’ and ‘critical’ GCE. While ‘soft’ GCE emphasizes on the knowledge about the world and humanitarian and moral norms to guide attitudes and actions, ‘critical’ GCE calls for a deeper level of engagement and informed actions guided by social justice.

Other works acknowledge the pluralistic nature, rather than the duality, of GCE with multiple conceptualizations (see Oxley and Morris (2013); Pashby, Costa, Stein, & Andreotti (2020); Veugelers (2011)). In one of the most comprehensive classifications, Oxley and Morris (2013) developed a typology consisting of eight different conceptions of GC to denote complicated, overlapping, and flexible outcomes of GCE. These categories are spread along two domains: cosmopolitanism and advocacy. Despite multiple approaches towards GCE classification, three facets of conceptions emerge as theoretical foundations for GC/ GCE. Among this, neoliberalism is premised on market-based economic rationales and free-trade globalization, with an emphasis on social justice as individual freedom to participate in global economy (Rizvi, 2009). As a result, education is meant to prepare students for this neoliberal knowledge society by possessing ‘strategic economic possibilities’ and cultural flexibility and adaptability (Rizvi, 2009, p. 268). This agenda orientates towards individual and national economic prosperity and subsumes the modernist form and human capital perspective of education (Evans, Ingram, MacDonald, & Weber, (2009)). The second agenda, namely liberal humanist approach, is rooted in the idea of common humanity, human rights as universal values, and moral responsibilities of GC (Dill, 2013). This agenda aims to cultivate better understanding, empathy, and appreciation of differences, and create moral imperatives for students to challenge global poverty and oppression (Stein, 2015). Predominant discourses as they are in the field of GCE, neoliberal and liberal humanist approaches have been criticized for enforcing hegemonic power relations built upon the superiority of Western voices that they are supposed to address (Andreotti, 2006; Borkovic, Nicolacopoulos, Horey, & Fortune, 2020). These modernist discourses of education necessarily entail certain forms of exclusion and marginalize voices of global ‘Others.’

The third wave – critical approach – is widely supported by many theorists and practitioners (see Anderson (2019), Andreotti (2015b)) as a way to challenge social injustice and hegemony. This approach of ‘critical’ GCE, which is also coined as post-colonial and post-critical GCE, extrapolates on power relations inherent in the global system and the domination of Western power, ideologies, and imaginaries about global ‘Others.’ Andreotti urges that GCE should equip students with skills and literacy to ‘unlearn’ their hard-wired assumptions, engage in critical reading of the world, and disrupt the status quo. The critical approach towards GCE is also reverberated in many other works on transformative/ alternative approaches such as in Bruce, North, & FitzPatrick (2019), Truong-White and McLean (2015).

In this study, I took on the triad of neoliberal, liberal humanist, and critical approaches as theoretical framings against which teachers’ understandings were compared and analyzed.

2. Method

Due to the exploratory nature of this research and the purpose therein, a qualitative method involving principally in-depth interviewing was employed to elicit relevant data.

2.1 Participants

Fourteen teachers participated in the study. Purposeful sampling method was used as the basis for selection based on the following criteria: (1) having at least 3 years’ teaching experiences at HE institutes, and (2) having integrated or having the intention to integrate GCE in their teaching. A private university was chosen for this study due to the inherent integration of GC in its educational outcomes and its heterogenous student populations. Prior to selecting the participants, approval was first sought from the four faculty heads. Following this, a recruitment email and an information sheet were sent out to prospective participants, outlining the purpose and the extent of

involvement required for the study. A total of 23 teachers replied to the call for participation. Following a brief screening process, 14 teachers volunteered to participate in the study.

Prior to the interview, a survey was delivered to the participants to collect relevant background information. Demographic information related to age, gender, courses of teaching, years of teaching experiences, and experiences in GCE integration were collected. The participants were also asked to list their international or intercultural experiences such as their overseas education or working or intercultural interactions. Out of the 14 participants, 8 were females and 6 were males, with ages ranging from 28 to 45. All the participants were involved in teaching for students from varied backgrounds. The following table summarizes the background information of the participants.

Table 1: Participant details

Pseudonyms	Years of teaching experiences	Disciplines	Outstanding international/ intercultural experiences
Tam	12	ESOL*	Working with UK and Australian counterparts
Suong	8	ESOL	6-month exchange program in Singapore
Thuong	7	ESOL	2-year master in England
Long	5	ESOL	Participating in joint international research projects
Chi	6	Economics	Working for international companies
Hieu	12	Economics	4-year PhD in Malaysia
Huan	20	Economics	4-year PhD in England
Mai	15	Economics	Working with German and Japanese counterparts
Tri	3	Tourism	Participating in international projects
Phong	5	Tourism	International travel
Hanh	8	Tourism	Participating in international projects
Thu	18	Social sciences	International travel
Phan	6	Social sciences	International travel
Ha	15	Social sciences	Participating in international projects

*ESOL: English as the second language

2.2 Data collection

Semi-structured interviews were employed to provide the teachers with the opportunities to expound and reflect on their personal views as much as possible without losing the focus of the conversation. Moreover, semi-structured interviews, with the retained elements of reflexivity and openness, would offer chances for further probes and follow-up questions, which facilitate clarifications for an in-depth understanding (Wellington, 2000). Participants were asked to give the definition of GC and elaborate on what GC meant to them, what rationales underlie GCE, and who they think would be more inclined to become GC. They were also requested to elaborate two important aspects of GC: diversity and social responsibilities.

The interview protocols followed the following procedures. First, a list of interview questions was distributed to the participants so that they could have some time to reflect and feel more comfortable with the questions. Following that, interviews were conducted in-person in Vietnamese and recorded with the participants' consent. Each interview lasted for approximately 60 minutes. After initial analysis, follow-up questions were sent to teachers via emails to ascertain data that were vague and ambiguous.

2.3 Data analysis

All the recordings were transcribed, and pieces of quoted data were translated forth and back into English and Vietnamese to maintain the original meaning and intentions of the participants. Efforts were made to maintain the veracity of the participants' responses and to minimise any misinterpretations that might arise.

The analysis followed the procedures of grounded theory analysis, as suggested by Thornberg and Charmaz (2014). The interview data were first explored via open coding to identify emergent codes. Thereafter, they were

grouped under overarching categories. For selective coding, I sorted and analyzed data in reference to GCE conceptions in literature and the initial categories. I also employed constant comparative approach to identify similarities and differences within and across teachers' narratives. To ensure reliability in the coding process, the emergent codes were cross-checked by two of the researcher's colleagues who had prior experience with qualitative coding. Any disagreements were discussed until congruence was reached.

3. Results and discussions

The analysis reveals that teachers' understandings of GC are divergent and overwhelmingly nuanced in accordance with the specific context within which it is delivered.

3.1 *Ambiguous and Divergent Understanding of GC*

Findings show that GCE notion remained a gray area despite the official claim of GC as graduate attributes. Many participants emanated lack of confidence and certainty in defining GC, with spotted concern about whether their understanding is the 'right' GCE that should be delivered, as can be seen in the following excerpt.

TAM: It's hard for me to say that on the top off my head ...uhm... I know it is included as the learning outcomes of the program here, but I don't know whether what I understand is right or not.

Some participants attributed the lack of GC cognizance to insufficient guidelines from the school and department about what they should strive for. Interestingly, this deficiency provided a lens into how contextual factors might shape GC understandings. Specifically, despite a general convergence on certain GC aspects such as intercultural communication, global employability, global issues, and English language competence, the teachers tended to affiliate GC with their professional domains. For example, three ESOL teachers mentioned "tolerance for global Englishes" and "respect for cultural differences" to illustrate intercultural skills, whereas Economics teachers emphasized on the ability to function well in multicultural working environment for the same notion. Furthermore, the terms justice, war, and peace were identified in two Social Sciences teachers' responses on global issues, while the Tourism teachers discussed more intensively on cultural and environmental preservation.

In addition, GC was also understood based on teachers' engagement in international experiences, community projects, and personal beliefs. In his narrative, HUAN framed his understanding of GC from his 4-year experience of in UK, where the completely new culture disrupted his identity and life perspective. TRI described how his volunteerism to a mountainous region in Southwestern Vietnam helped him understand roots of poverty. Surprisingly, one participant associated the unfamiliar notion of GC with familiar concepts in Buddhism: "I believe all human beings are equal, and the same, regardless of race, nationality, and gender, just as in Buddhism. We are all brothers and should treat each other with kindness, empathy, and forgiveness."

The lack of clarity regarding the term GC among teachers has been documented in varied studies (see Cotton, Morrison, Magne, Payne, & Heffernan (2019)). However, as mentioned in the introduction, many HE institutions have not addressed this shortfall. The analysis redirects attention to this issue by emphasizing the implication of this ambiguity for educational outcomes. Evidently, the inclusion of the term alone in policy documents cannot guarantee a consonant understanding of what to include in the classroom, given the contested nature of GCE, and thereby cannot bridge the gap between policy and practice. This reason might explicate fractured efforts to find positive students' outcomes that are correlated to curricular transformations in GCE (as per Jones and Killick (2013)).

The intertwined nature of GC understandings and contextual factors strongly connects to Goren and Yemini (2016)'s study of Israel's teachers and to Rapoport (2010)'s investigation on Indiana teachers. Both studies highlight the dependence of teachers' understandings on their personal experiences, national contexts, and even school contexts. This part of the analysis expands this conversation by adding in aspects of personal beliefs and values and raising an interesting question concerning the validity of employing the term GC to direct educational outcomes. However, while Goren and Yemini and Rapoport state that intercultural engagement alone cannot guarantee GC understanding, this finding suggests that oriented and selective international and community

experiences can help to foster a more critical perspective towards GCE. These results have important implications for developing a curriculum to cultivate GC among students.

3.2 Triple Helix of Rationales

An overwhelming impetus for GCE integration engrained in teachers' narratives was national and individual economic thrive. From the national perspective, GCE was considered as a means for Vietnam to gain higher status in global arena, emulate other 'advanced' or 'developed' countries, and eventually claim global leadership. The following narrative demonstrates the typical perception of the importance of GCE.

LONG: Our students should strive to be a global citizens (→ global citizens) , having the skills and competencies to be able to compete in the global market [...] It'll mean our country can have higher position in the world, become richer, gain global prestige, and achieve the things that we cannot achieve now.

Individually, GC was considered as a tool for empowerment and improving graduates' employability and mobility in the global market. Some teachers also believed GCE could motivate students and help them experience a "more meaningful education journey" as "many students don't know why they need to take university education."

These conceptions of GCE, when mapped with those in the literature, reveal two major orientations. Firstly, the predominant impetus for GCE is couched within neoliberalism. This approach considers economic advantage as an important tool to fulfill human rights, and the role of GCE as preparing students to function well in the global knowledge-based economy (Pais & Costa, 2020; Shultz, 2007). Secondly, the narratives reflect a teleological approach to the world and human development, which converges all progress under Western modern metropolitan and technological societies (Bruce et al., 2019; Wright, 2012), which is a major thread of cosmopolitanism. In general, teachers adopted utilitarianism towards GCE, promoting national and individual aims, rather than advocating for those marginalized by the status quo as expressed in the critical approach.

Although this findings echo those from previous studies (e.g Cho (2016)), the analysis also reveals a novel helix underlying rationales for GCE: the nexus of national pride and inferiority complex. On the one hand, teachers admitted the inferior position of Vietnam by placing significant value on Northern-based knowledge and applying binary thinking to compare Vietnam with others (i.e. 'poor' vs. 'wealthy,' 'backward' vs. 'advanced,' and 'developing' vs. 'developed'). An English teacher, described the time when she studied a short course in Singapore with an Australian instructor: "I was exposed to different theories and different ways of looking at English language and pedagogies. I believe I couldn't have got all of these if I had just stayed in Vietnam". HA also reflected on her root of inferiority:

HA: My father used to tell me Vietnam reigned the Southeast Asian countries in his time; we dominated in many fields: manufacturing industry, education, and healthcare [.....]. I feel it's a shame now we cannot compete with them anymore- we are still a developing country.

From a different angle, teachers expressed their belief in the future of the country and the great potential of Vietnamese human resources. HUAN posited that Vietnamese students possessed great dispositions such as diligence and tolerance, and as such GCE could offer them opportunities to prove themselves in the global market and make their name and national identity is seen in the global arena.

This outcome does not support previous research which reported overwhelming ethnocentrism in GC/ GCE understanding (Evans et al., 2009; Kim, 2015). In this context, there is a tendency to appreciate 'Northern-based' norms, and a desire to internalize these norms to better national standards. This finding points to an interesting implication for decolonizing study: imaginaries about global 'South' are not only pertinent to the Northern world, but also engrained in the Southerners' perception. The acceptance of Northern domination might explain the persisting North-South divide, and propose a new way to look at the issue of self, identity, and social justice in non-Western contexts.

3.3 *Juxtapositions of GCE Imaginaries*

3.3.1 Difference and Sameness

Narratives surrounding the diversity dimension of GCE reveal the tension between difference and sameness, and between universality and uniqueness. On the one hand, most educators agreed that human beings share universal basic values that make all of us the same by nature, regardless of race, nationality, or skin color. In this light, global citizens should strive to straighten out these disparities with ‘acceptance,’ ‘tolerance,’ and ‘understanding.’ The following narrative emphasizes sameness over differences and tends to simplify, or even nullify, the disparities among people and cultures.

TRI: We are all the same – people all over the world. We all share the same need: food, clothes, good education, air to breathe, love, and dignity. We all share the same humanity and values. So why different? All the differences are external and artificial: white skin or dark skin, Christian, Muslim, or Buddhist....

The tendency to simplify cultural differences strongly relates to works of Campbell and Walta (2015) and Kirk, Newstead, Gann, & Rounsaville (2018). However, while Kirk et al. (2018) attributed teachers’ overlook of diversity to insufficient intercultural interactions, this study emphasizes that diversity cognizance might not correlate to intercultural exposure. This finding also casts doubt on whether teachers have already been in a good position to prepare students to engage with others and cope with differences.

On the opposite end of the spectrum, some teachers acknowledged the complexity of differences and the challenge of reconciling clashing cultural norms. HIEU, an economic lecturer, stated how expectations for differences, rather than similarities, should guide intercultural encounters.

HIEU: When I studied in Malaysia, many of my friends were from India, Singapore, China, Philippines, Indonesia.....Initially, I found it embarrassing to see my classmates worship cows while I ate beef. And then others found it uncomfortable to watch me eating pork. We didn’t accept each other fully, inside. I feel it’s hard sometimes for these differences to be negotiated. But then we learn to respect these things ...

Similarly, two participants construed diversity beyond the notion of acceptance to encompass the possibility to reflect on personal values and learn from each other. The previous analysis reveals liberal humanistic understanding of GC, which emphasizes sameness and minimizes differences (Bauman, 1995) and applies universal norms for human values (Fendler & Popkewitz, 1999). The predominance of liberal humanism among practitioners is not unknown (see Bruce et al. (2019)), yet teachers in this context did reveal sporadic criticality in their reflection of self and others and a deeper engagement with aspects of diversity, a result which has not been previously described in the literature.

3.3.2 Ideal Inclusion and Hidden Exclusion

Another important thread in participants’ narratives is the hidden exclusion in tandem with the inclusive ideal of GCE. Some teachers admitted that those with international experiences or coming from wealthier families seemed to appreciate GCE better. In their observation, economic constraints seemed to reduce students to practical concerns, making them reject the notion of GC as irrelevant. However, other participants expressed a differing viewpoint, highlighting inclusivity dimension of GCE and its potential to foster active agency among students. For example, in the following quotation, the teacher indicated how global knowledge and skills could help underprivileged students get beyond their limitations and imagine otherwise.

MAI: I think all students benefit from global knowledge and skills – the good students and weaker students, rich and underprivileged students.....Underprivileged students can understand that their situation is not fixed, it can be changed, and they can open their horizons and think about a different future for themselves and their families...

This finding partly accords with earlier observations, which reported a strong relationship between students’ social background and teachers’ perception of their mobility and imagined future (Goren & Yemini, 2016, 2017). According to these studies, students’ social-economic status might shape how teachers perceived the relevance of different GCE skills and the inclusion of these skills in their classes. Nevertheless, one significant discrepancy

found in our study is the thread of narratives which supported the teaching and learning of GCE skills beyond social-economic considerations. This critical discourse is very encouraging, although future research will need to focus more on how this perspective can be translated into practice to endorse a more justice-oriented education.

3.4 Social Responsibilities: Global and Local Nexus

In describing social responsibilities of global citizens, most participants emphasized environment protection as the major tenet that should be fostered in GCE. Iterations of environmentalist ideas such as saving our environment, alleviating air and water pollution, reversing climate change, or using biodegradable packaging were noticed across the responses. These notions seemed to trigger active citizenship and a sense of global interconnectedness among the teachers, as they added in aspects of individual complicity, concerted efforts on the global scale, and individual active participation to address this issue. The following quotation represents most of the teachers' responses.

TRI: People are both victims and culprits of severe pollution and widespread climate change today. In some of my lessons, I showed my students how we are all responsible [...]. As a global citizens, students should learn to work with people around the world to solve this [...] Individuals should also contribute to this in many ways

However, while environmentalist discourses pervaded many narratives, little was mentioned about other human rights issues such as wars, international conflicts, or unequal power relations. When asked about this, most educators were not very willing to share their opinions and explained this as irrelevant in Vietnam. Furthermore, although individual active participation was drawn into the discussion, global-scale social and political activism was sparsely mentioned. For some participants, it would not be much help to include global issues which were beyond students' experiences. "We can only ask students to be responsible for things that are somehow relevant to them, their family, and at most their country," as one of the teachers admitted. Apparently, global issues, except for environmentalism, were perceived from the local perspective, and 'being relevant' was one important criterion to include a global issue into the curriculum.

This finding is consistent with much of the literature on teachers' hesitation in introducing controversial topics in the classroom (see Cotton (2006)). Complementary to this, our research found that teachers' hesitation, or even complete avoidance, in GCE may originate from their evaluation of local relevance. The incomplete introduction of GCE among HE students raises the question of what attributes will be cultivated among graduates. Furthermore, in Andreotti (2015a)'s rendition, the awareness of political complicity is important for critical GCE to foster social justice; therefore, incomplete understanding of this progression may lead to the subversion of GCE aims.

4. Conclusion

This explorative study set out to discover distinctive features and nuances couched in Vietnamese HE teachers' understanding of GC as graduate attributes. Despite its established position in many educational agendas, our → my research uncovers ambiguity and considerable variations associated with GC meaning, which is configured by different personal and contextual factors. Broadly speaking, in the context whereby official guidance for GCE implementation is not provided, teachers tended to frame the notion within their intercultural experiences, social engagements, personal values, and professional background. Furthermore, their interpretations are shaped by juxtapositions of conflicting yet incomplete imaginaries of GC/ GCE. Concerns thereby are raised on what attributes will be inculcated among graduates, and whether these outcomes are to serve national or global aims.

Similar to other internationalization agendas, the integration of GC into graduate outcomes can be problematic due to its complex nature. Taken together, the findings of this study draw attention to a significant gap in the implementation of GCE which lies in the volatility of the vocabulary used in policy documents. Inherently, since teachers are major agents in curriculum enactment, they should be equipped with clear-defined goals and an elaborate guidance on what to be expected among graduates. To resonate with the message: "We cannot teach what we don't know" in Rapoport (2010), this paper suggests the role of clarity over terms, in order to foster pedagogical transformation and teacher agency. Lack of clarity may result in hesitation, avoidance, or even

aversion to teaching. This study also strengthens the idea that sufficient training should be offered to both pre-service and in-service teachers regarding GCE integration in their discipline. Reilly and Niens (2014) point out how teachers' experiences and perspectives can substantially impact educational outcomes, regardless of the presence of policy. Therefore, if one of the major aims of HE is to create global citizens, practitioners should be well-informed about what global knowledge, skills, and competencies should be fostered in the classroom.

As one of the preliminary reports on GCE implementation gap in Vietnamese HE, this study adds to the growing body of research into GCE implementation in non-Western contexts and the contextual forces that shape GCE realization. A key significance of the present study lies in the in-depth investigation and analysis of teachers' understandings, thus shedding light on contextual nuances that contributes to theoretical framings of GCE. However, the in-depth data also means the negotiation of the sample size in this research, which makes the generalizability of these results difficult and limited. Therefore, further studies need to be conducted to corroborate findings from different populations of teachers, encompassing wider consideration of social, cultural, and political factors.

References

- Anderson, A. (2019). Advancing Global Citizenship Education Through Global Competence and Critical Literacy: Innovative Practices for Inclusive Childhood Education. *SAGE Open*, 9(1), 2158244019826000.
- Andreotti, V. (2006). Soft versus critical global citizenship education. In *Development education in policy and practice* (pp. 21-31). Palgrave Macmillan, London.
- Andreotti, V. (2015a). Critical and transnational literacies in international development and global citizenship education. *Sisyphus - Journal of Education*, 2(3), 32-50.
- Andreotti, V. (2015b). Global citizenship education otherwise: pedagogical and theoretical insights. In *Decolonizing global citizenship education* (pp. 221-229). Brill Sense.
- Arvanitakis, J., & Hornsby, D. (2016). *Universities, the citizen scholar and the future of higher education*. Springer.
- Bauman, Z. (1995). *Life in fragments: Essays in postmodern morality*.
- Borkovic, S., Nicolacopoulos, T., Horey, D., & Fortune, T. (2020). Students positioned as global citizens in Australian and New Zealand universities: A discourse analysis. *Higher Education Research & Development*, 39(6), 1106-1121.
- Bruce, J., North, C., & FitzPatrick, J. (2019). Preservice teachers' views of global citizenship and implications for global citizenship education. *Globalisation, Societies and Education*, 17(2), 161-176.
- Campbell, C. J., & Walta, C. (2015). Maximising intercultural learning in short term international placements: Findings associated with orientation programs, guided reflection and immersion. *Australian Journal of Teacher Education (Online)*, 40(10), 1-15.
- Cho, H. S. (2016). The Gaps between Values and Practices of Global Citizenship Education: A Critical Analysis of Global Citizenship Education in South Korea.
- Çolak, K., Kabapınar, Y., & Öztürk, C. (2019). Social Studies Courses Teachers' Views on Global Citizenship and Global Citizenship Education. *Egitim ve Bilim*, 44(197).
- Cotton, D. R. (2006). Teaching controversial environmental issues: Neutrality and balance in the reality of the classroom. *Educational research*, 48(2), 223-241.
- Cotton, D. R., Morrison, D., Magne, P., Payne, S., & Heffernan, T. (2019). Global Citizenship and Cross-Cultural Competency: Student and Expert Understandings of Internationalization Terminology. *Journal of Studies in International Education*, 23(3), 346-364.
- Dill, J. S. (2013). *The longings and limits of global citizenship education: The moral pedagogy of schooling in a cosmopolitan age*. Routledge.
- Dreamson, N. (2018). Culturally inclusive global citizenship education: Metaphysical and non-western approaches. *Multicultural Education Review*, 10(2), 75-93. <https://doi.org/https://doi.org/10.1080/2005615X.2018.1460896>
- Dvir, Y., Shields, R., & Yemini, M. (2018). Three faces of global citizenship education: IB Schools' self-representations in four local contexts. *British Journal of Educational Studies*, 66(4), 455-475.
- Evans, M., Ingram, L. A., MacDonald, A., & Weber, N. (2009). Mapping the "global dimension" of citizenship education in Canada: The complex interplay of theory, practice and context. *Citizenship Teaching and Learning*, 5(2), 17-34.
- Fendler, L., & Popkewitz, T. S. (1999). *Critical theories in education: Changing terrains of knowledge and politics*. Routledge.

- Goren, H., Maxwell, C., & Yemini, M. (2019). Israeli teachers make sense of global citizenship education in a divided society-religion, marginalisation and economic globalisation. *Comparative Education*, 55(2), 243-263.
- Goren, H., & Yemini, M. (2016). Global citizenship education in context: Teacher perceptions at an international school and a local Israeli school. *Compare: A Journal of Comparative and International Education*, 46(5), 832-853.
- Goren, H., & Yemini, M. (2017). The global citizenship education gap: Teacher perceptions of the relationship between global citizenship education and students' socio-economic status. *Teaching and Teacher Education*, 67, 9-22.
- Horey, D., Fortune, T., Nicolacopoulos, T., Kashima, E., & Mathisen, B. (2018). Global citizenship and higher education: A scoping review of the empirical evidence. *Journal of Studies in International Education*, 22(5), 472-492.
- Hou, Y. (2020). Comparative Global Citizenship Education: A Critical Literature Analysis. *Beijing International Review of Education*, 2(4), 537-552.
- Jones, E., & Killoch, D. (2013). Graduate attributes and the internationalized curriculum: Embedding a global outlook in disciplinary learning outcomes. *Journal of Studies in International Education*, 17(2), 165-182.
- Kim, G. (2015). *Global citizenship in the South Korean school geography curriculum: A post-structural perspective* [Doctoral dissertation, University of Sheffield].
- Kirk, S. H., Newstead, C., Gann, R., & Rounsaville, C. (2018). Empowerment and ownership in effective internationalisation of the higher education curriculum. *Higher Education*.
- Morais, D. B., & Ogden, A. C. (2011). Initial development and validation of the global citizenship scale. *Journal of Studies in International Education*, 15(5), 445-466.
- Nguyen, L. A. (2017, February 8). Vietnam as a pioneer country in GCE. *Global commons*, 9-14.
- OECD. (2018). Preparing Our Youth for an Inclusive and Sustainable World: the OECD PISA Global Competence Framework. <http://www.oecd.org/pisa/Handbook-PISA-2018-Global-Competence.pdf>
- Oliver, B., & Jorre de St Jorre, T. (2018). Graduate attributes for 2020 and beyond: Recommendations for Australian higher education providers. *Higher Education Research & Development*, 37(4), 821-836.
- Oxley, L., & Morris, P. (2013). Global citizenship: A typology for distinguishing its multiple conceptions. *British Journal of Educational Studies*, 61(3), 301-325.
- Pais, A., & Costa, M. (2020). An ideology critique of global citizenship education. *Critical Studies in Education*, 61(1), 1-16.
- Pashby, K., Costa, M., Stein, S., & Andreotti, V. (2020). A meta-review of typologies of global citizenship education. *Comparative Education*, 56(2), 144-164.
- Rapoport, A. (2010). We cannot teach what we don't know: Indiana teachers talk about global citizenship education. *Education, Citizenship and Social Justice*, 5(3), 179-190.
- Reilly, J., & Niens, U. (2014). Global citizenship as education for peacebuilding in a divided society: Structural and contextual constraints on the development of critical dialogic discourse in schools. *Compare: A Journal of Comparative and International Education*, 44(1), 53-76.
- Rizvi, F. (2009). Towards cosmopolitan learning. *Discourse: Studies in the cultural politics of education*, 30(3), 253-268.
- Shultz, L. (2007). Educating for global citizenship: Conflicting agendas and understandings. *Alberta Journal of Educational Research*, 53(3).
- Stein, S. (2015). Mapping global citizenship. *Journal of College and Character*, 16(4), 242-252.
- Thornberg, R., & Charmaz, K. (2014). Grounded theory and theoretical coding. *The SAGE handbook of qualitative data analysis*, 5, 153-169.
- Truong-White, H., & Ho, T. N. (2020). Global Citizenship Education in Teacher Education in Asia: A Case Study From Vietnam. In *Global Citizenship Education in Teacher Education* (pp. 179-200). Routledge.
- Truong-White, H., & McLean, L. (2015). Digital Storytelling for Transformative Global Citizenship Education. *Canadian Journal of Education/Revue canadienne de l'éducation*, 38(2), n2.
- UNESCO. (2015). Global citizenship education: topics and learning objectives. <http://unesdoc.unesco.org/images/0023/002329/232993e.pdf>
- Veugelers, W. (2011). The moral and the political in global citizenship: Appreciating differences in education. *Globalisation, Societies and Education*, 9(3-4), 473-485.
- Wellington, J. (2000). Educational research: contemporary issues and practical approaches: London. *England: Continuum*.
- Wright, C. (2012). Postcolonial cosmopolitanisms: towards a global citizenship education based on 'divisive universalism'. In *Postcolonial perspectives on global citizenship education* (pp. 59-79). Routledge.

Appendix A**Main questions for semi-structured interviews:**

1. How do you define global citizenship as graduate attributes at your university?
2. Personally, how do you understand global citizenship? What knowledge, skills, and values should be fostered?
3. Do you think global citizenship education is important? Why or why not?
4. Do you think global citizenship education is for all students, or is more relevant to some than others?
5. How do you understand diversity as a dimension in global citizenship education?
6. How do you understand social responsibilities as a dimension in global citizenship education?



Examination of Classroom Teacher's Experiences Regarding Mathematics Courses Taught through Distance Education throughout the COVID-19 Pandemic Period

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Abstract

The aim of this study is to investigate the experiences of teachers regarding online primary school mathematics courses throughout the pandemic period. In this respect, the teachers were examined about the efficiency of distance education during the course sessions, the activities that involve the student, its positive and negative aspects, the utilized materials, portals, websites, the situation of students embodying the concepts, the extent to which they maintained the assessment, the difficulties they encountered within the process, as well as their suggestions. In the study, it was seen that teachers had both positive and negative views on distance education. The participant teachers in the study utilized different portals and websites throughout the distance education process. The majority of those teachers had the opinion that the methods used in mathematics courses through distance education assisted students in learning the concrete concepts. In the study, suggestions were made to enhance the efficiency of the mathematics courses along with distance education.

Keywords: Distance Education, Mathematic Courses, 21st-Century Skills, COVID-19 Pandemic

1. Introduction

Coronavirus (COVID-19), which emerged in Wuhan, the capital of the Hubei region of China on December 1, 2019, has caused quite crucial changes and impacts on health, education, economy, and social life all around the world, and the World Health Organization (WHO, 2020) declared a global pandemic on March 11, 2020. The first infection case in Turkey was announced by the Ministry of Health on March 11, 2020, and it had significant impacts in various fields, including education. The impact of the COVID-19 pandemic on education has been worldwide and almost entire schools and universities have been closed down in the hope of reducing the risk of infection.

Education is the most fundamental phenomenon that shapes the future of countries and enables people's mental development. Conventional education cannot offer equal opportunities and facilities to everyone due to adverse

conditions in geographical, cultural, and economic terms. By courtesy of distance education, these limitations are eliminated to a large extent. Distance education has been one of the systems that would contribute to lifelong learning so that society may keep up with the ever-changing and developing world (Özbay, 2015). Distance education is an education system in which learners are located far from each other as well as learning resources in the context of time and space. The aim of distance education is to conduct educational activities without being affected by time and space utilizing the developing technology, upon mitigating the time and geographical barriers that cause the disruption of education.

Bozkurt (2020), who interpreted the pandemic as a storm, stated that after the storm, one's perspective on education and the way one would perceive education might have changed. Along with the altered perspective, concepts such as flexible working hours, working at home, and distance education have entered everyone's daily lives. Due to the pandemic, education has been maintained remotely, not face-to-face. Distance education has significant advantages, especially in comparison to face-to-face education. Distance education provides a large number of audiences with access to information regardless of time and place limitations. It provides diversity and flexibility to educational processes, reduces training costs, and offers a flexible and objective assessment and evaluation (Elitaş & Devran, 2017). Also, distance education is an educational method that provides learners with the opportunity of education by using printed, audio-visual and electronic materials when there are no other means of education due to various reasons such as age, illness, geographical distance, family situations, time, and money shortages (Demiray, 1999). Distance education, which is carried out more widely due to pandemic conditions, also contains certain disadvantages. The most important problem for distance education is the decrease in student motivation due to the lack of face-to-face interaction. When the students interact with their teachers, what is meant to be expressed would be better understood. In distance education, the teacher needs to make much more effort for the students to attend and continue the course sessions (Gürer, Tekinarslan, & Yavuzalp, 2016). Moreover, distance education may cause the learner to become asocial due to the lack of group study discipline and the lack of interaction. It may fall short in teaching the courses or subjects that require practice. There may be a risk of technology addiction and reliability of measurement and evaluation (Demiray, 1999).

Mathematics is a branch of science that is, in a certain order, founded on concepts and operations within logical integrity. What is expected from students in mathematics education is to figure out the order specified in this branch of science, discover, and make sense of it. The fact that students study mathematics is associated with their ability to enjoy mathematics and express sympathy and a positive attitude towards mathematics. Mathematics courses given in elementary schools are of great importance in order to impose the mentioned behaviors (Yaşar and Papatğa, 2015). The education system in Turkey aims at raising individuals who have the knowledge, skills, and behaviors integrated into competencies. Competencies, which are the required skill of the students' personal, social, academic, and business lives at both national and international levels, have been determined in the Turkish Qualifications Framework (TQF). It is seen that one of the competency titles in the TQF, which is categorized into eight items, is "Mathematical Competence and Competence in Science/Technology," and another title is "Digital Competence" (MoE, 2018).

Mathematical competence and core competencies in science/technology: Mathematical competence is the development and practice of mathematical thinking to solve a range of problems encountered in daily life. The process, activity, and knowledge built on a solid arithmetic skill are emphasized. Mathematical competence includes the ability and willingness to use mathematical modes of thinking and presentation to different degrees.

Digital competence: It involves the safe and critical use of information and communication technologies for business, daily life, and communication. Such competence is supported through basic skills such as using computers for accessing and assessing, storing, producing, presenting, and exchanging information, as well as participating in common networks and communicating via the internet (MoE, 2018).

It is essential that technology is integrated with mathematics courses depending on the determined competencies. Educators need to determine how to render technological capabilities compatible with good mathematics teaching upon form the course content (Cullen, Hertel, & Nickels, 2020). It is seen that the teaching of mathematics through distance education has been transferred to a different dimension due to the pandemic conditions.

Although mathematics is a course that students have difficulty with, it may be overcome with the help of teachers and effective learning activities be developed. Successful communication techniques are thought to be among the means of teaching the mathematics course through the distance education system with success and productivity. The role and importance of the teacher, who generates suitable learning environments for students through the distance education system, in which the students are at the center, has increased even more during this pandemic process that shook the world. The characteristics of teachers, who have a role of guiding students, such as facilitating the learning processes through distance education, their perspectives on distance education, and their experience of teaching with distance education affect the efficiency of the education process (Harris and Krousgill, 2008). Teachers need to maintain the distance education process, over which they do not have as much control as face-to-face education. Therefore, it is crucial to determine teachers' perspectives on distance education and develop suggestions in compliance with the findings obtained in order to maintain the distance education process effectively and efficiently (Balaman & Hanbay Tiryaki, 2021).

Recently, many studies have been conducted to examine the opinions of teachers, as well as teacher candidates and academicians, regarding online courses. Başaran, Doğan, Karaoğlu, and Şahin (2020) stated that distance education was beneficial in order for teachers not to disrupt training during the COVID-19 pandemic process, but it should have been developed and improved in terms of infrastructure, content, material, and inequality of opportunity. Individuals who are unfamiliar with technology had difficulties throughout the distance education process. Can (2020) stated in his study that both teachers and students were insufficient in utilizing information technologies. Metin, Gürbey, and Çevik (2021) stated that teachers experienced difficulties especially in maintaining classroom control, communicating effectively with students, increasing students' motivation towards the courses, and ensuring students' participation in the course sessions. Besides, it was observed that both students and teachers were inadequately equipped in terms of their ability to use technological instruments and software during distance education. It was found that some teachers had positive opinions on distance education as well as emphasizing problems such as network problems, education, and awareness (Arora and Srinivasan, 2020). More students were not satisfied with the education (Hebebe, Bertiz, & Alan, 2020; Gillies, 2008). Wang, Stein, and Shen (2021) indicated that teachers could have paid more attention to the following dimensions to improve students' learning experience: making macro-level comments on courses, designing instructional methods, providing formative feedback for homework and discussions, and making full use of technological tools in teaching.

Although there are studies in the literature aiming at determining the attitudes or experiences of students, teachers, and instructors towards distance education, these studies are mostly based on undergraduate and graduate students (Karakuş, Cheapsatar, Karacaoğlu, Esendemir & Bayraktar, 2020; Duban & Şen, 2020; Kırtak, 2020; Duzgun and Sulak, 2020). There is a limited number of studies examining the opinions of primary school teachers on the mathematics courses they lectured during the pandemic period. Batdal Karaduman, Akşak Ertaş, and Duran Baytar (2021) stated in their study that classroom teachers thought that the mathematics studies conducted within the distance education process would have contributed to the students, and the feedback from the parents regarding the process was, in general, positive. Classroom teachers, who stated that no contribution was made to the students, emphasized not being able to receive feedback from the students, insufficient equipment, and technical problems. Aldon, Cusi, Schacht, and Swidan (2021), in their study on teachers from different branches, came across findings such as lack of interaction of classroom teachers with students during the pandemic, parents' prominence, increased student responsibility, and teachers' stress due to lack of time. Kalogeropoulos, Roche, Russo, Vats, and Russo (2021) indicated that both teachers were concerned about effectively catering for all students and assessing student progress as well as engagement with the tasks. Survey data revealed that most students exhibited positive engagement with remote learning experiences, except for the lack of opportunity to learn mathematics with and from their peers.

The aim of this study is to examine the experiences of teachers regarding elementary school-level mathematics courses through distance education. In this regard, it was tried to reveal the teachers' efficiency during the course sessions, their attitudes, the activities that involve the students in, the materials and websites they use, the situations of the students embodying the concepts, the extent to which they perform the assessments, the difficulties and suggestions experienced in throughout the process.

2. Methodology

In the research, a case study, one of the qualitative research patterns, was used in order to obtain information about teacher experiences of primary school level mathematics courses conducted through distance education. The case study is a qualitative research approach in which the researchers examine one or more limited situations over time with data collection tools (observations, interviews, audio-visuials, documents, reports) that includes multiple sources, and define situations and themes depending on the situation (Creswell, 2007). The case study provides an in-depth analysis of events. Therefore, the employment of the case study research design is deemed appropriate in this study.

2.1 Study Group

Classroom teachers constitute the participants of the research study, a total of 10 teachers (9 female and 1 male) selected by purposive random sampling method. Purposive random sampling is the purposeful classification of systematic and randomly selected case samples in compliance with the purpose of the research study (Marshall & Rossman, 2014). The researcher first determines a sample group out of the population employing random methods and then selects a small subgroup from this group that is thought to contribute the most to the research study (Tashakkori & Teddlie, 2010). Purposive sampling enables the selection of cases with abundant information for in-depth studies (Patton, 2002). Voluntary participants of the study consist of 10 classroom teachers (9 female and 1 male).

2.2 Data Collection Tools

The data are collected by the researcher via semi-structured interview forms. Upon preparing the interview forms, firstly, the existing literature on the subject is reviewed. A question pool, from which the question lists are selected, is generated to be used in the research study. A draft interview form is prepared. Opinions of expert academicians in their fields regarding the interview form are taken into account. Interviews are conducted with 5 teachers, a pilot application of the interview form is conducted and the clarity of the questions is tested. Expert opinions, the results of the pilot interviews, necessary checks, and formal arrangements are made and the interview form is finalized. The semi-structured interview form prepared to determine the distance education experiences of teachers during the COVID-19 epidemic process consists of 11 open-ended questions.

Appointments were made for 10 classroom teachers who accepted to participate in the interview. Interviews were held via Zoom Video Conferencing Platform in May 2021. The interviews, which lasted approximately 45 minutes for each teacher, were recorded. During the interviews, attention was paid not to guide the participants and any intervention that would have caused them to change their opinions was avoided. Following those interviews, the responses of the teachers were transcribed and deciphered. Besides, to ensure the reliability of the research, the same questions were asked to each teacher, and only volunteering teachers were included in the study. The consistency between the answers given by the participants was checked and the results of the research were shared with the teachers participating in the study.

2.3 Data Analysis

The obtained data are evaluated employing the content analysis method. Content analysis is the interpretation of the study conducted by generating different themes regarding the phenomenon or event and determining codes under these themes. In other words, it is the systematic review of printed or visual materials and thematic analysis in terms of certain categories (Yıldırım & Şimşek, 2011). The data obtained through the content analysis are classified between each other and certain themes, thus revealing the relationships among the data. From another perspective, content analysis is the task of recognizing the patterns of similar themes, such as recurring texts, in qualitative analysis, and revealing these previously unknown patterns with an inductive approach (Patton, 2002). During the data analysis process, all the data obtained from the interview forms and the notes taken during the interviews are revealed. The data are carefully read by the researcher, and first of all, codes are constituted. Themes

are generated by examining the codes. The generated codes and themes are examined and compared, the data are re-examined, and subsequently, the codes and themes are finalized. Then, the generated codes and themes are checked so that the reliability of the research is tried to be enhanced. Frequency values of the opinions of the participants are determined and quotations from the responses given by the participants of the research are presented in the relevant places.

For confirmability, the entire analysis process has been conducted one month again after analyzing the obtained qualitative data. Miles and Huberman's (1994) coding reliability coefficient, which is found to be 0.92, is utilized by the encoder to calculate internal consistency.

3. Findings

In this part, the opinions of the classroom teachers regarding the mathematics courses held online during the pandemic period are investigated. The obtained findings are presented in tables. Classroom teachers participating in the study are encoded such as T1, T2, T3, ..., T22, and T23.

3.1. An examination of the positive and negative aspects of distance education regarding the conducted mathematics courses

As a result of the semi-structured interviews with the classroom teachers, all of the participants stated both positive and negative statements about the mathematics courses. In Table 1, the positive aspects of distance education are presented for the mathematics courses conducted during the pandemic period.

Table 1: Teachers' opinions on the positive aspects of education in mathematics courses taught through distance education

Positive aspects	Number	Interviewees
Increasing interest of students in mathematics courses	6	T3, T4, T5, T6, T8, T10
Conducting group study more convenient and organized through portals (Teams, meeting rooms, Zoom, Google Classroom)	3	T4, T6, T10
More comfortable use of materials such as figures, graphics, pictures, blackboards	2	T3, T8
Attaining easy access to applications serving multiple learning theory	1	T5

According to Table 1, 6 teachers state that the interest of students in mathematics has increased. One of these teachers, T3, makes the following statement: *"As children get more active in the chat section, their interest has increased even more. It takes us a great deal of time when we write down a figure, graphic or a problem in our normal classrooms, whereas the process progresses quickly in distance education."* 3 teachers state that group study is more comfortable. 2 teachers mention that materials such as graphics and figures are used more easily in distance education. One of the teachers states that there are more easy-to-use platforms that would help multiple learning in online applications.

Table 2: Teachers' views on the negative aspects of education in mathematics courses taught through distance education

Negative aspects	Number	Interviewers
The plan prepared for the course does not progress in the desired direction.	8	T1, T2, T5, T6, T7, T8, T9, T10
Easily distracted students and having trouble concentrating	5	T1, T2, T3, T5, T8
Students experiencing technical problems in using computers and being inadequate in distance education	4	T2, T6, T7, T8
Experiencing problems in teaching abstract mathematics concepts	3	T1, T7, T9
Low level of participation in mathematics courses	3	T2, T3, T5
Encountering problems in measuring and assessing students' achievements	3	T5, T8, T9
Difficulties in receiving feedback from students	2	T7, T9
Ambiguity in understanding whether students listen to the teacher	1	T5
Having problems with technological self-confidence	1	T5
Learning by touching is out of the question	1	T1
Low level of using Web 2.0 tools by students	1	T10

In Table 2, the negative aspects of distance education, in general, are presented by considering the responses of the teachers obtained in the study. According to this table, the most negative statement is that the plan and schedule of the course do not progress in the desired direction (8 Teachers). 5 teachers mention that students get distracted quickly during the mathematics course sessions and they have problems in attracting students' attention to the course. 4 teachers mention that students have problems using computers. It is also stated that students who have not received any training in distance education have problems in this regard. 3 teachers state that they had problems in measuring and assessing the mathematics courses. 3 teachers state that they have problems in teaching abstract concepts. Among these teachers, T1 claims that *"There are difficulties in terms of receiving feedback in distance education. Since they are in the concrete operational period, they learn kinesthetically, and we cannot achieve this through distance education."*

2 teachers mention that they have difficulties in receiving feedback from the students.

One of the teachers mentions the problem of self-confidence in distance education. T5 makes the following statement: *"I have the problem of technological self-confidence in distance education, I am an active teacher, I cannot move physically in distance education, I cannot check my notebooks, merely talking on the screen is against my comprehension of teaching."*

3.2. Methods, techniques, and strategies used by primary school teachers in mathematics courses

Table 3: Methods, techniques, and strategies used in mathematics course sessions along with distance education practices

Methods, techniques, and strategies	Number	Teachers
Game-based Teaching	5	T2, T6, T7, T8, T9
Realistic Mathematics Teaching	4	T1, T2, T4, T5
Collaborative Learning	4	T6, T7, T9, T10
Q & A	2	T2, T8
Experiment-based Teaching	1	T1
Drama-based Teaching	1	T1
Problem-based Learning	1	T8

The methods, techniques, and strategies used by the classroom teachers in the mathematics course sessions along with the distance education applications are presented in Table 3. 5 teachers state that they utilize it in game-based teaching classes. Teachers state that they utilize various digital games such as adventure games, sports games,

strategy games, and puzzle games during their mathematics teaching. T6's statement on this matter is as follows: "We will hold a contest through games instead of saying 'let's solve problems now,' but I remind the students that a game exists here, I explain how the students should behave even if they are defeated, then I encourage them to collect the most points by responding to very good questions in the game they play." 4 teachers employ the realistic mathematics teaching method in their course sessions with computer support. On this subject, T8 makes the following explanation: "We thought about what we can buy for breakfast on an online shopping site, we determined the amount together with the students, we decided how much we need, and we also talked about weight here, for instance, they used their multiplication and addition skills such as 1 kg of cucumber and 2 kg of tomatoes, then I wanted them to make a salad with their families and I wanted the students to choose the salad ingredients first at the market, to determine the amount themselves and to calculate the amount, at the same time, I wanted them to make comparisons. I try to conduct activities during which they can use mathematics in daily life as if 1 kg of tomato is comprised of 5 pieces." One teacher states that he/she uses drama and experiments in their course sessions. This teacher makes the following explanation: "Children cannot sit in front of the computer for long hours due to their ages. Since I am a dancer myself, I use a lot of activities such as drama and dancing which both aim at expending students' energy and attracting their attention that day, especially in introductory activities on that subject."

3.3. Activities used by classroom teachers to enhance the efficiency of mathematics course sessions

In Table 4, the activities conducted by teachers to enhance students' participation in mathematics courses and to enable them to take an active role in the classroom are presented in Table 4.

Table 4: Studies that involve students in mathematics courses through distance education and their reasons

<i>Activities</i>	<i>Reasons</i>	<i>f</i>	<i>Teachers</i>
Virtual applications	Many practices that cannot be performed in the physical classroom environment can be conducted comfortably in the virtual environment and attract the attention of the students.	6	T3, T8, T9, T5, T4, T6
Game	Making the course session much more fun, attracting more interest in the classroom, especially in younger age groups	5	T2, T4, T7, T8, T9
Group studies	Increased interest in the course sessions when students study together	3	T1, T6, T9
Examples of concrete experiences	Since certain subjects are associated with real-life, examples and animations related to real-life enable students to participate more in the course sessions.	3	T1, T7, T10
Homeworks	Include homework in order to enhance students' participation in the course and render learning permanent.	3	T4, T6, T7, T9
Q & A	Frequently asked questions to students enable them to become more active in the classroom.	2	T2, T8

Upon examining Table 4, 6 teachers state that they enabled students to become active during the course sessions by utilizing virtual applications. These practices enhance students' interest in the course and participation in the classroom. 5 teachers state that using games in mathematics courses enables students to become effective in the course sessions. T1, T6, and T9 state that they conduct group studies; T1, T7, and T10 state that they use examples from concrete experiences; T2 and T8 state that they utilize Q&A; whereas T4, T6, T7, and T9 utilize homework and activities that involve students in mathematics courses. Working together during group study increases the interest and participation in the classroom, with examples from concrete experiences, overcoming the screen difficulty, and real-life experiences enhance the excitement of the students and their willingness to participate in

the course, the students comprehend the subject better by animating with the scenario, and learn by having fun, especially in the younger age groups. It is stated by the teachers that the activities that cannot be carried out in the classroom can be conducted easily using virtual applications and that the interest in the course may be enhanced by rendering learning permanent through homework.

3.4. Materials used by classroom teachers in mathematics courses

The materials used by the teachers in the distance education mathematics courses are presented in Table 5.

Table 5: Materials used by teachers in mathematics courses through distance education

<i>Code</i>	<i>f</i>	<i>Teachers</i>
Accessible Materials (Paper, cardboard, ruler, colored pencils, play dough, ...)	6	T1, T5, T7, T8, T9, T10
Social content	4	T3, T5, T9, T10
Ready materials (Tangram, Fraction cards, symmetry mirror,...)	2	T2, T6
Reference books	1	T4

Upon examining Table 5, it is stated that T1, T5, T7, T8, T9, and T10 used materials such as paper, cardboard, ruler, and play dough to concretize mathematical concepts in their course sessions. Teachers state that they prepare models that could help to understand the concept by utilizing these materials in distance education. T3, T5, T9, and T10 state that they utilize ready-made materials such as social content (Word Wall, Morpa Campus, Flip grid videos, games, Bitmoji classes, Carnins app); whereas T2 and T6 utilize tangram, fraction cards, and symmetry mirror unit cubes in their course sessions. It is observed that T4 prefers to use reference books.

3.5. Websites/educational applications that classroom teachers use in their mathematics courses

The websites/educational applications used by the teachers in the mathematics courses taught through distance education are presented in Table 6.

Table 6: Websites/educational applications used in mathematics courses through distance education and their frequency of usage

<i>Code</i>	<i>f</i>	<i>Teachers</i>
Word Wall	8	T2, T3, T4, T5, T6, T8, T9, T10
Learning Apps	3	T6, T9, T10
Z Book	2	T2, T5
Morpa Campus	2	T2, T9
Eğitici Uygulamalar	2	T4, T5
Web 2.0 tools	2	T6, T10
Kahoot	2	T6, T7
Google Classroom	2	T6, T9
Okulistik	1	T2
Ata Publication	1	T3
Gregtangmath.com	1	T8
Bitmoji Classrooms	1	T10
Padlet	1	T10

Upon examining Table 6, it is seen that 8 teachers (T1, T2, T3, T4, T5, T6, T8, and T9) utilize Word Wall; 3 teachers (T6, T9, and T10) use Learning App; T2 and T5 use Z Book; T2 and T9 use Morpa Campus; T4 and T5

use Educational Applications; T6 and T10 utilize Web 2.0 tools; whereas T10 uses Bitmoji Classes and Padlet. It is determined that T1 rarely utilizes websites/educational applications, while other teachers frequently utilize them.

3.6. Evaluation techniques used by classroom teachers in mathematics courses

Table 7: Types of assessment in the mathematics course lectured through distance education

Assessment Types	Number	Teachers
Classical written exams	4	T1, T3, T9, T10
Questions during the course session	3	T2, T4, T5
Homeworks	2	T2, T6
Assessment through games	1	T8
Multiple choice tests prepared by nin hazırladığı çoktan seçmeli testler ile	1	T3
Assessment tools on Eba platform	1	T4
Web 2.0 tools	1	T10
Google clasroom	1	T7

Table 7 presents the assessment process of teachers in mathematics courses through distance education applications, where T1, T3, T9, and T10 prefer the classical exams prepared by themselves; T2, T4, and T5 prefer questions to the students during the course sessions; T2 and T6 prefer homework; T3 prefers multiple-choice questions prepared by him/herself; T4 prefers the assessment tools on Eba platform; T7 prefers the assessment activities in the Google classroom; T8 prefers assessments through the game played during the course sessions; whereas T10 prefers Web 0.2 tools.

3.7. Difficulties experienced by classroom teachers in mathematics course sessions

Table 8: Difficulties experienced by teachers in mathematics courses through distance education

Experienced difficulties	Number	Teachers
Difficulties in access to the Internet	6	T2, T3, T4, T5, T6, T7
Difficulties in teaching abstract concepts	3	T6, T7, T9
Lack of digital competence	1	T3, T10
Difficulties in finding materials	1	T7

As a result of the interviews held with the classroom teachers, the difficulties experienced by the teachers in the mathematics courses taught through distance education are presented in Table 8. According to the table, T2, T3, T4, T5, T6, and T7 state that they experience internet access problems. T6, T7, and T9 assert that they have problems in concretizing abstract mathematical concepts, in preparing or finding appropriate online content. T3 and T10 claim that their digital competencies are low. T7 has problems in finding and preparing materials online.

3.8. Classroom teachers' suggestions for enhancing the quality of mathematics courses

Table 9: Teachers' suggestions for increasing the quality of the mathematics courses conducted through distance education

Solution suggestions	Number	Teachers
Offering training on distance education and digital competence to teacher candidates in education faculties	3	T1, T3, T4
Access to more online games should be provided	2	T2, T5
More materials should be utilized	2	T4, T7
Motivational reinforcers should be used	1	T6
There should be more fruitful content on the Eba platform	1	T8
Seminars should be held on the introduction and utilization of Web 2.0 tools	1	T3
Guidance should be provided for the utilization of mind and intelligence games in the course sessions.	1	T7
Teachers and students should be provided with media literacy education	1	T9

Visual content should be used even more	1	T10
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In the research study, the participating teachers make various suggestions for the mathematics course through distance education. In Table 9, as a result of the analysis of the interviews held with the classroom teachers, the suggestions of the teachers to enhance the quality of the mathematics courses carried out through distance education are presented. Here, 3 teachers assert that teacher candidates should be provided with digital competence and distance education in their faculties. The opinions of the teachers regarding the suggestions are presented below.

T1: "Since prospective classroom teachers have not received any training about distance education in their faculties, they are unprepared in this process and encounter various problems when all of the courses are scheduled for distance education. Before starting teaching, training on distance education and digital competence can be included in the curriculum for teacher candidates in education faculties."

T2: "Students have more enjoyment and active participation in teaching through games in mathematics courses taught through distance education, the efficiency of the courses can be enhanced by using more online games in online mathematics courses."

T9: "Student is not aware of the fact that courses are taught online as in the school environment, they are not aware that they have to attend the online courses on time, they are not aware that they should be seated and keep their notebooks open as in the classroom environment. Therefore, teachers and students should be provided with media literacy training as soon as possible."

3.9. Comprehension of the concepts in mathematics courses

Table 10: Comprehension of the concepts in mathematics courses through distance education

Theme	Yes	No	Indecisive
Concretizing the concepts	8 (T1, T2, T3, T4, T6, T8, T9, T10)	1 (T5)	1 (T7)
Helping in learning the concepts	7 (T1, T3, T4, T6, T8, T9, T10)	2 (T2, T5)	1 (T7)

Upon examining Table 10, 8 teachers (T1, T2, T3, T4, T6, T8, T9, and T10) state that students could concretize mathematical concepts through distance mathematics courses, whereas merely T5 claims that students could not concretize the concepts. T7 states that he/she could not measure the courses since the courses are taught through distance education. T5 asserts that since the students are within the concrete operations stage, they cannot measure in the courses taught through distance education in the teaching of abstract concepts and be productive. When the teachers are asked whether the students tend to learn mathematical concepts through distance education courses, T1, T3, T4, T6, T7, T8, T9, and T10 assert that students learn the concepts; T2 and T5 state that students do not learn the concepts; whereas T7 is indecisive. T2 reports that students are unable to learn since the number of participants in distance education courses is quite low and there is no follow-up to the courses; T5 claims that students cannot reach the equipment required for distance education, there is a lack of infrastructure, they cannot create the necessary environment for teaching; whereas T7 asserts that he/she is not sure whether or not the students could learn since teachers could not deal with the students one-on-one.

3.8. Attitudes of classroom teachers towards mathematics courses

Table 11: Attitudes of teachers towards the mathematics courses carried out through the distance education application

Attitude	Reasons	Number	Teachers
I feel comfortable	Effective use of Web 2.0 tools in classrooms and their adaptation to mathematical concepts	3	T4, T6, T8
	Students are not distracted due to the absence of adverse situations such as noise during online course sessions.	2	T4, T7
	Practical use of visuals that would attract the attention of students within the online environment	2	T1, T9

	Students get accustomed to the process	2	T9, T10
	Enhancing digital competencies and adapting to technology	1	T1
I do not feel comfortable	Lack of accurate measurement and assessment	2	T3, T7
	The student does not respond to my questions even though he/she appears in the classroom (Student does not participate in the course session)	2	T2, T3
	Some students cannot attend course sessions due to infrastructural, internet, hardware, and family reasons.	1	T5
	Failure to check students' notebooks	1	T8
	Difficulty in finding online content pertinent to the concept	1	T1
	Problems arising from the use of technology and most of the online platforms are in English	1	T10

According to Table 11; T4, T6, and T8 stated that they utilized Web 2.0 tools effectively, keeping students' attention intact and using such tools effectively for mathematical concepts. T4 and T7 claimed that they taught more comfortably due to the absence of noisy environments during online sessions. T1 and T9 state that they are content with the fact that there are a lot of visuals that would attract the attention of students in online environments. T9 and T10 claim that students get used to the online process.

In addition to all these, T3 and T7 feel inadequate in measuring students' achievements in mathematics. In this regard, T3 states that "*I have an inadequacy in measuring, I cannot have an idea about the fact that all students learn the subject well.*" T2 and T3 observe that some students appear in the classroom, but do not respond to the questions asked. They state that they feel uncomfortable with this situation. T5 asserted that some students are unhappy that they do not attend the courses due to the lack of technological infrastructure. T1 claims that teachers have difficulty in finding online content, and T8 states that they cannot check the drawings and notebooks of the students. T10 expresses that he/she feels inadequate about the technology use and that he/she has difficulties in using the applications because they are in English.

The reasoning of the two teachers who do not feel comfortable involves the fact that not all of the students can attend the course sessions due to the absence of internet access and computers, and that they do not measure and assess the extent to which their students learn correctly.

4. Conclusion, Discussion, and Suggestions

Following the outbreak of the Coronavirus epidemic, which was eventually declared as a pandemic, changes have occurred in all areas and new trends have emerged. In the field of education, which was directly affected by this change, face-to-face education was suspended due to the pandemic, and education was initiated through distance education. Nonetheless, such a sudden transition has caused restlessness in all teachers. However, the circumstances and the developing world conditions have placed distance education at the center of our lives. Therefore, there is a need for assessments pertinent to the functioning of the system. In this sense, teachers' opinions on distance education are crucial. Within the scope of the study, the opinions of the classroom teachers on their experiences in the mathematics course sessions conducted through distance education throughout the pandemic period are examined and their experiences regarding the distance education process are tried to be interpreted. In this part of the study, the results obtained in accordance with the data analyses based on the opinions of the classroom teachers are presented.

During the pandemic period, one of the positive opinions of the classroom teachers regarding the online mathematics courses is the increase in the interest and motivation of their students towards the course. The computer-based methods used in the online mathematics courses may have attracted the attention of the students.

Moreno-Guerrero, Aznar-Díaz, Cáceres-Reche, Alonso-García (2020) obtained a result similar to that of the study. Teachers state that group studies were carried out more comfortably and efficiently over the portals in the mathematics courses. Azita Binti, Intan Shariena Binti, Ea Suk (2019) stated that the distance learning portal had a quite high level of usability and the use of the portal could have significantly improved students' achievement in distance subjects. The learning portal can help provide learning materials that combine different types of media such as texts, animations, graphics, audio, and video to retain students' attention on the course and enhance their success levels. In the study, it is seen that materials such as figures, graphics, pictures, and blackboards have been used more easily in the online environment.

One of the negative aspects of distance education in the study is that the schedule prepared for the courses could not be conducted effectively. It is stated by the teachers that the attention of the children sitting in front of the computer has been distracted quite quickly. Similar findings have also been expressed by Sadeghi (2019), Dhull (2017), and Nazarlou (2013). This may be due to the fact that students have not been provided with a good enough education and students have stood in front of the computer for a long time. Students were likely to experience technical problems during the distance education process. This situation posed plenty of problems for teachers. Alsaaty, Carter, Abrahams, and Alshameri (2016) came across such a finding in their study. Mathematical concepts consist of abstract concepts. In elementary schools, students are required to concretize abstract concepts. One of the difficulties experienced by teachers in the study involves the problem of concretizing abstract concepts. Accurately planned materials to be used in the classroom during face-to-face education are effective for concretization. Nevertheless, there may be problems in utilizing such materials during online education. In online teaching, there may be doubts about whether or not students follow the course sessions. This situation is expressed by a teacher in the study. Friedman, Rodriguez & McComb (2001) stated that the academic achievement of the students who attended the course sessions regularly and who are active in the classroom was high.

One of the most common teaching techniques used by classroom teachers in mathematics courses is game-based teaching. This may be attributed to the fact that elementary school students love games due to their age. Teachers have utilized digital games in their course sessions by associating them with mathematical concepts. Various studies have proven the benefits of game-based learning or digital game-based learning (Kurkovsky, 2013). The practice of game-based learning may cause students to become more enthusiastic and motivated to learn. Along with games, students are also more likely to be enthusiastic and active in learning.

Another teaching method that teachers use in their classrooms is realistic mathematics teaching. The teacher's presentation of more significant materials to the students with a realistic mathematical approach and concretization of the concepts play an important role in the employment of this method. Teachers who can prepare materials that help concretize abstract mathematical concepts and prepare educational films may also utilize these materials in virtual meeting applications such as Zoom Meeting and Google Meet. Drijvers (2015) indicated that the realistic mathematics teaching approach supported the requirements for effective digital learning resources, enabling them to develop constructive learning activities. In the study, it is comprehended that teachers used the online collaborative learning method in their classrooms. In this method, which provides the formation of knowledge under the guidance of the teacher, the students studied together in coordination. Ünal, Özdiñç (2019) stated that the learning environment designed in the online environment, using technology and collaborating, improved pre-service teachers' ability to use technology in their professional lives and to design and develop the teaching materials required by the learning-teaching process.

The teachers participating in the study used virtual applications, games, group study, activities associated with real-life, activities such as homework, and Q&A in their course sessions in order to enable the students to take an active role in the online mathematics teaching process. All these activities are based on effective communication between the student and the teacher. It is essential to use fruitful communication channels to improve the social existence between the student and the classroom content (Kelly & Westerman, 2016).

The teachers used accessible concretized materials, social contents, ready-made materials, and a reference book in the mathematics course sessions conducted with the distance education method. It is seen that the teachers utilize a variety of materials. These materials can be effective in the formation of abstract mathematical concepts.

Özdemir Bakive Çelik (2021) observed that at the secondary school level, the teachers utilized all the resources, similar to this study, and also used materials such as whiteboards, graphic tablets, and smart notebooks.

During the pandemic period, teachers used a wide variety of websites and educational applications in their mathematics course sessions. The majority of the teachers who participated in the study utilized the Word Wall software. Applications such as learning apps, Z book, Morpha Campus, Web 2.0 tools, Kahoot, Google Classroom, Okulistik, Gregtannmath.com, Bitmoji classes, and Padlet have also been utilized by teachers in their course sessions. Albelbisi & Yusop (2019) and Irfan, Kusumaningrum, Yulia & Widodo (2020) reported that the majority of these applications have been utilized by the teachers.

Classroom teachers who participated in the study have used a wide variety of assessment methods to evaluate student achievement in mathematics courses. These include the classical written examinations, asking questions during the course sessions, homework, the games played during the course, multiple-choice tests, evaluation content in the Eba platform, Web 2.0 tools, and Google Classroom. Batmaz, Cevahir Batmaz, and Kılıç (2021) stated that classroom teachers made assessments in the Life Science course through Q&A, textbook activities, homework, Eba platform, educational platforms, and students' participation in the course process.

Throughout the distance education process, the difficulties encountered by teachers in mathematics courses include internet access problems, problems in teaching abstract concepts, digital competence, and problems in finding materials. There are few studies in the literature stating the difficulties encountered by classroom teachers in mathematics courses. Özüdoğru (2021) mentioned problems such as internet access problems and digital incompetence. Avcı and Akdeniz (2021) defined the difficulties experienced by teachers during online courses as technological infrastructure problems, students' lack of concentration and attendance, insufficient support from parents, teachers' digital inadequacies, and teachers' lack of experience. Batmaz et al. (2021) found that teachers encountered various problems regarding the teaching of Life Sciences during the pandemic process but especially faced the problems of not being able to use concretized materials due to insufficient internet access opportunities.

In order to solve the problems encountered in the distance education process and to enhance the quality of the course sessions, the teachers made suggestions such as scheduling seminars on the use of digital technology, providing more access to online games, using more materials in the course sessions, using motivating reinforcers, and having more visual contents. Demir and Özdaş (2020) asserted in their study that teachers made various suggestions concerning the distance education system, such as strengthening the EBA infrastructure and providing teachers and students with infrastructure support. Duman (2020) stated that it would be more effective to maintain face-to-face education concurrently with distance education. Educational programs should include more information about pandemics, parents should be included in the process, and students should receive high-speed internet access (Yıldırım, 2021). Similar findings are obtained in the study.

Suggestions made in compliance with the results of the research study are presented below:

Teachers and students should be provided with detailed information about distance education. Computer-based materials should be prepared to help the concepts become concretized in mathematics teaching, and teachers should be trained on how to utilize these materials. Each student's internet infrastructure and technologies such as computers and tablets that get connected to the internet should be strengthened. Students should receive free internet access during the pandemic process. Teachers' transition to faster internet infrastructure should be ensured. More frequent feedback should be given to students in online courses. Teachers should be informed about how to make assessments and measurements effectively in online environments. Appropriate portals should be prepared to enhance the effectiveness of online mathematics courses. Parents should be included in the distance education process. Face-to-face training should also be included in the pandemic process. It should not be one-sided merely with distance education.

References

- Alakoç, Z. (2001). *Uzaktan Öğretim ve Bir Uygulama*, İstanbul Üniversitesi, Sosyal Bilimler Enstitüsü. Basılmamış Doktora Tezi. İstanbul.
- Albelbisi, N. A., & Yusop, F. D. (2019). Factors Influencing Learners' Self-Regulated Learning Skills in a Massive Open Online Course (MOOC) Environment. *Turkish Online Journal of Distance Education*, 20(3), 1-16.
- Aldon, G.; Cusi, A.; Schacht, F.; Swidan, O. (2021). Teaching Mathematics in a Context of Lockdown: A Study Focused on Teachers' Praxeologies. *Educ. Sci.* 11(38), 1-21.
- Alsaaty, F.M.; Carter, E.; Abrahams, D. & Alshameri, F. (2016). Traditional Versus Online Learning in Institutions of Higher Education: Minority Business Students' Perceptions. *Bus. Manag. Res.* 5, 31.
- Arora, A. K., & Srinivasan, R. (2020). Impact of pandemic COVID-19 on the teaching-learning process: A Study of Higher Education Teachers. *Prabandhan: Indian Journal of Management*, 13(4), 43-56.
- Arora, A. K., & Srinivasan, R. (2020). Impact of pandemic COVID-19 on the teaching-learning process: A Study of Higher Education Teachers. *Prabandhan: Indian Journal of Management*, 13(4), 43-56.
- Avcı, F. & Akdeniz, E. C. (2021). Koronavirüs (Covid-19) Salgını ve Uzaktan Eğitim Sürecinde Karşılaşılan Sorunlar Konusunda Öğretmenlerin Değerlendirmeleri. *Uluslararası Sosyal Bilimler ve Eğitim Dergisi.* 3(4), 117-154.
- Azita Binti, A., Intan Shariena Binti, A.R. & Ea Suk, Y. (2019) The effect of using learning portal on primary school students in the subject of design and technology, 7(12A): 68-74.
- Bakar, A., Tüzün, H., & Çağiltay, K. (2008). Öğrencilerin eğitsel bilgisayar oyunu kullanımına ilişkin algıları: Sosyal bilgiler dersi örneği. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 35, 27-37
- Balaman, F, Hanbay Tiryaki, S. (2021). Corona Virüs (Covid-19) Nedeniyle Mecburi Yürütülen Uzaktan Eğitim Hakkında Öğretmen Görüşleri. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi*, 10 (1), 52-84.
- Başaran, M., Doğan, E., Karaoğlu, E. & Şahin, E. (2020). Koronavirüs (Covid-19) Pandemi Sürecinin Getirisi Olan Uzaktan Eğitimin Etkililiği Üzerine Bir Çalışma. *Academia Eğitim Araştırmaları Dergisi*, 5 (2), 368-397.
- Batdal Karaduman, G., Akşak Ertaş, Z. & Duran Baytar, S. (2021). Uzaktan Eğitim Yolu İle Gerçekleştirilen Matematik Derslerine İlişkin Öğretmen Deneyimlerinin İncelenmesi. *International Primary Education Research Journal*, 5 (1), 1-17.
- Batmaz, O., Cevahir Batmaz, M. & Kılıç, A. (2021). Covid-19 Salgın Döneminde Sınıf Öğretmenlerinin Hayat Bilgisi Dersi Öğretimine Yönelik Görüşleri. *Manas Sosyal Araştırmalar Dergisi*, 10(3), 1665-1677.
- Batmaz, O., Cevahir Batmaz, M. & Kılıç, A. (2021). Covid-19 Salgın Döneminde Sınıf Öğretmenlerinin Hayat Bilgisi Dersi Öğretimine Yönelik Görüşleri. *Manas Sosyal Araştırmalar Dergisi*, 10(3), 1665-1677.
- Bozkurt, A. (2020). Koronavirüs (Covid-19) pandemi süreci ve pandemi sonrası dünyada eğitime yönelik değerlendirmeler: Yeni normal ve yeni eğitim paradigması. *Açık Öğretim Uygulamaları ve Araştırmaları Dergisi (AUAd)*, 6(3), 112-142.
- Can, E. (2020). Koronavirüs (Covid-19) pandemisi ve pedagojik yansımaları: Türkiye'de açık ve uzaktan eğitim uygulamaları. *AUAd*, 6(2), 11-53.
- Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Sage Publications, Inc.
- Cullen, C. J., Hertel, J. T., & Nickels, M. (2020). The roles of technology in mathematics education. *Educational Forum*, 84(2), 166-178.
- Demir, F. & Özdaş, F. (2020). Covid-19 sürecindeki uzaktan eğitime ilişkin öğretmen görüşlerinin incelenmesi. *Milli Eğitim Dergisi*, Salgın sürecinde Türkiye'de ve dünyada eğitim, 273-292. doi: 10.37669/milliegitim.775620
- Demiray, U. (1999). Bir çağdaş eğitim modeli olarak uzaktan eğitim uygulaması. *Jandarma Dergisi*, 85, 46-52.
- Dhull, P.I. & Sakshi, M. (2017). Online learning. *Int. Educ. Res. J.*, 3, 32-34.
- Drijvers P 2015 Digital Technology in Mathematics Education: Why It Works (Or Doesn't) Selected Regular Lectures from the 12th International Congress on Mathematical Education ed S J Cho (Cham: Springer International Publishing) pp 135-51
- Duban, N. & Şen, F. G. (2020). Sınıf öğretmeni adaylarının COVID-19 pandemi sürecine ilişkin görüşleri. *Turkish Studies*, 15(4), 357-376.
- Duman, S. (2020). Salgın döneminde gerçekleştirilen uzaktan eğitim sürecinin değerlendirilmesi. *Milli Eğitim Dergisi*, Salgın Sürecinde Türkiye'de ve Dünyada Eğitim, 49, 95-112. DOI: 10.37669/milliegitim.768887
- Düzgün, S., & Sulak, S. E. (2020). Öğretmen adaylarının covid-19 pandemisi sürecinde uzaktan eğitim uygulamalarına ilişkin görüşleri. *Milli Eğitim Dergisi*, 49(1), 619-633
- Elitas, T. & Devran, Y. (2017). Yeni İletişim Teknolojilerinin Uzaktan Eğitime Entegrasyon Sürecinde Sanal Sınıf Ortamları: ATAUZEM Örneği. *MANAS Sosyal Araştırmalar Dergisi*, 6 (2) , 213-225 .

- Erbil, D. G., Demir, E. & Armağan Erbil, B. (2021). Pandemi sürecinde uzaktan eğitime yönelik sınıf öğretmenlerinin görüşlerinin incelenmesi. *Turkish Studies - Education*, 16(3), 1473-1493.
- Friedman, P., Rodriguez, F. & McComb, J. (2001) Why Students Do and Do Not Attend Classes, *College Teaching*, 49(4), 124-133.
- Gillies, D. (2008). Student perspectives on video-conferencing in teacher education at a distance. *Distance Education*, 29(1), 107-118.
- Gürer, M., Tekinarslan, E. & Yavuzalp, N. (2016). Opinions of Instructors Who Give Lectures Online About Distance Education. *Turkish Online Journal of Qualitative Inquiry*, 7 (1), 47-78.
- Harris, D. A., & Kroussgrill, C. (2008). Distance Education: New Technologies and New Directions. *Proceedings of the IEEE*, 96(6), 917-930.
- Hebebcı, M. T., Bertiz, Y., & Alan, S. (2020). Investigation of views of students and teachers on distance education practices during the Coronavirus (COVID-19) Pandemic. *International Journal of Technology in Education and Science (IJTES)*, 4(4), 267-282.
- Irfan, M., Kusumaningrum, B., Yulia, Y., & Widodo, S. A. (2020). Challenges during the pandemic: Use of e-learning in mathematics learning in higher education. *Infinity*, 9(2), 147-158.
- Kablan, (2010). Öğretim Sürecinde Bilgisayara Dayalı Alıştırma Amaçlı Oyun Kullanılmasının Eğitim Fakültesi Öğrencilerinin Akademik Başarısına Etkisi. *Kuram ve Uygulamada Eğitim Bilimleri / Educational Sciences: Theory & Practice* 10 (1), 335-364.
- Kalogeropoulos, P., Roche, A., Russo, J., Vats, S., & Russo, T. (2021). Learning Mathematics From Home During COVID-19: Insights From Two Inquiry-Focussed Primary Schools. *Eurasia Journal of Mathematics, Science and Technology Education*, 17(5), em1957.
- Karakuş, N., Ucuzsatar, N., Karacaoğlu, M.Ö., Esendemir, N. Ve Bayraktar, D. (2020). Türkçe öğretmeni adaylarının uzaktan eğitime ilişkin görüşleri. *Rumeli Dil ve Edebiyat Araştırmaları*
- Karakuş, T., İnal, Y., & Çağıltay, K. (2008). A descriptive study of Turkish high school students' game-playing characteristics and their considerations concerning the effects of games. *Computers in Human Behavior*, 24(6), 2520-2529.
- Kelly, S., and Westerman, D. K. (2016). "New technologies and distributed learning systems," in *Handbooks of Communication Science, Vol. 16, Communication and Learning*, ed P. L. Witt (Boston, MA; Berlin: DeGruyter Mouton) 455-480.
- Kırtak Ad, N. (2020). Fizik Öğretmen Adaylarının Uzaktan Eğitime Dair Görüşleri. *Eğitim ve Teknoloji*, 2 (2), 78-90.
- Kurkovsky, S. (2013). Mobile game development: improving student engagement and motivation in introductory computing courses, *Computer Science Education*, 23(2), 138-157.
- Marshall, C. & Rossman, G. B. (2014). *Designing Qualitative Research*. New York: Sage.
- Tashakkori, A. & Teddlie, C. (2010). *Sage Handbook of Mixed Methods in Social & Behavioral Research* (2nd Ed.). Thousand Oaks, CA: Sage.
- Metin, M., Gürbey, S. & Çevik, A. (2021). Covid-19 Pandemi sürecinde uzaktan eğitime yönelik öğretmen görüşleri. *Maarif Mektepleri Uluslararası Eğitim Bilimleri Dergisi*, 5(1), 66-89.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded Sourcebook*. (2nd ed). Thousand Oaks, CA: Sage.
- Milli Eğitim Bakanlığı (MEB). (2018). "Öğretim Programlarını İzleme ve Değerlendirme Sistemi—Öğretim Programları". <http://mufredat.meb.gov.tr/Programlar.aspx>.
- Moreno-Guerrero, A.J., Aznar-Díaz, I., Cáceres-Reche, P. & Alonso-García, S. (2020). E-Learning in the Teaching of Mathematics: An Educational Experience in Adult High School. *Mathematics*, 8, 840.
- Nazarlou, M.M. (2013). Research on Negative Effect on E-Learning. *Int. J. Mob. Netw. Commun. Telemat.* 3, 11-16.
- Özbay, Ö. (2015). Dünyada ve Türkiye'de uzaktan eğitimin güncel durumu. *Uluslararası Eğitim Bilimleri Dergisi*, 5, 376-394.
- Özdemir Baki, G. & Çelik, E. (2021). Ortaokul matematik öğretmenlerinin uzaktan eğitimde matematik öğretim deneyimleri. *Batı Anadolu Eğitim Bilimleri Dergisi*, 12 (1), 293-320
- Öztürk, L. (2005). Türkiye'de dijital eşitsizlik: Tübitak-bilten anketleri üzerine bir değerlendirme. *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 24, 111-131.
- Özudođru, G. (2021). Problems faced in distance education during Covid-19 Pandemic. *Participatory Educational Research*, 8 (4), 321-333. DOI: 10.17275/per.21.92.8.4
- Patton MQ. (2002). *Qualitative Research & Evaluation Methods*. (3rd Edition). Thousands Oaks: Sage.
- Sadeghi, M. A. (2019). Shift from Classroom to Distance Learning: Advantages and Limitations. *Int. J. Res. Engl. Educ.*, 4, 80-88.
- Sindiani, A.M., Obeidat, N., Alshdaifat, E., Elsalem, L., Alwani, M., Rawashdeh, H., Fares, A., Alalawne, T., Tawalbeh, L. İ. (2020). Distance education during the COVID-19 outbreak: A cross-sectional study among medical students in North of Jordan. *Annals of Medicine and Surgery*, 59, 186-194. doi: <https://doi.org/10.1016/j.amsu.2020.09.036>

- Ünal, E. & Özdiñ, F. (2019). Teknoloji Destekli İşbirliğine Dayalı Öğrenme Sürecine İlişkin Öğretmen Adaylarının Deneyimlerinin İncelenmesi, *Manas Sosyal Araştırmalar Dergisi*, 8 (Ek Sayı 1): 794-810
- Wang, Y., Stein, D. & Shen, S. (2021). Students' and teacher' perceived teaching presence in online courses, *Distance Education*, 42(3), 373-390.
- Wheeler, S. (2002). Student perceptions of learning support in distance education. *Quarterly Review of Distance Education*, 3(4), 19-29.
- Yaşar, Ş. ve Papatğa, E. (2015). İlkokul matematik derslerine yönelik yapılan lisansüstü tezlerin incelenmesi. *Trakya Üniversitesi Eğitim Fakültesi Dergisi*, 5(2), 113-124.
- Yıldırım, B. Preschool Education in Turkey During the Covid-19 Pandemic: A Phenomenological Study. *Early Childhood Educ J* 49, 947–963 (2021).
- Yıldırım, A., & Simsek, H. (2011). *Sosyal Bilimlerde Nitel Arastırma Yöntemleri* (8th ed.). Ankara: Seckin Yayınevi.
- World health statistics, (2020). Monitoring health for the SDGs, sustainable development goals. Geneva: World Health Organization.

The paper starts with a literature review connecting RtI with juvenile detention centers. The conceptual framework describes the theory underlying the study, and then the methodology, sample, and results present a narrative of the action research. Afterward, a discussion and conclusion explore how to apply action research in general and RtI as a practice to improve teaching and learning.

2. Literature Review

Educators and scholars hailed the promises and potential of RtI, but there was a dearth of randomized-controlled trials (RCTs) and large-scale, longitudinal studies. While RtI was supposed to be evidence based, as a system, the evidence was and continues to be lacking. Danielson et al. (2007) and others stated there were many questions left unanswered, but the state of knowledge seems stuck in time. RtI lacks a coherent, universal definition and implementation, and many researchers found RtI transformed the nature of diagnoses of learning disabilities (Hendricks & Fuchs, 2020). Within juvenile detention centers, delinquents have poor behavior and academic performance which affect outcomes across the lifespan, but the causality or direction of each was not clearly defined (Katsiyannis et al., 2008; Kulkarni et al., 2020).

Research in short-term juvenile detention centers continues to be ignored. Short-term juvenile detention centers in the United States are akin to adult jails; when a juvenile is charged with a crime, and before adjudication of delinquency (guilt) or nondelinquency (not guilty), youths typically aged 10-21 reside in a local juvenile detention center. If the child is adjudicated delinquent, he might be released on probation, sentenced to time locally, sent to a treatment or rehabilitation center, or moved to a state facility (similar to a prison in the adult system). The average stays are often 1-30 days, though students can stay much longer for serious offenses. Juveniles rarely stay for status crimes; typically crimes which would be felonies as an adult are the reasons for delinquency. Macomber et al. (2010) barely mentioned RtI, and other researchers and programs focused on long-term facilities (e.g., McDaniel et al., 2011; Pederson et al., 2020; Snow et al., 2015).

Balu et al. (2015) presented one of the few large-scale, longitudinal studies about the efficacy of RtI: RtI not only lacked positive effects in student achievement, some cohorts suffered from being placed in the program. Many researchers were not dissuaded before or after. For example, one study proclaimed, "Rigorous research clearly shows that implementing the four essential RTI components with fidelity is an effective strategy to improve schools and increase student learning" (McInerney & Elledge, 2013, pp. 4). Yet, the McInerney study failed to mention the rigorous research; one must take as a given RtI was effective. Others (e.g., Fuchs & Fuchs, 2017) claimed if only there was fidelity; how or why no one can get it right never gets addressed, and no one was found to commission research which provided the evidence in evidence-based.

The following study sought to establish and improve RtI practices in a short-term juvenile detention center in the United States. Research often failed to translate, and action research sought to move from a top down, bureaucratic program to practitioner centered (Manfra, 2019). Most students arrived with severe social, emotional, and academic problems, so the research question asked: How and what can be done to transform RtI to improve student learning? Action research was mapped as a process to implement, understand, and improve RtI. The findings give insight into short-term juvenile detention centers, fidelity issues, and leadership concerns.

3. Conceptual Framework

The strategic framework centered on the components of adaptive leadership. Adaptive leadership was apt to the situation because the initiative was new, created tension by challenging norms, and expected behaviors and outcomes stretched the current capacity (Heifetz et al., 2009). A novel way to apply adaptive leadership can be generated from the application of the care of chronic illness, where the professional and the receiver—the teacher and the student in the current situation—coproduce and co-respond to situations which move beyond the technical (Anderson et al., 2015). Characteristics of adaptive leadership can be broken down to continuous diagnosis, experimentation, honoring the past, developing multiple perspectives, and time (Heifetz et al., 2009) to fluidly adapt to the education of juvenile delinquents.

4. Methodology

To analyze the data, there were observations, direct participation, training sessions, review of documents, and interviews of participants. The project involved participatory action research to implement, manage, and evaluate an RtI program in a regional juvenile detention. Action research tests and applies theory to practical situations within an organization with an iterative process (Avison et al., 1999). There was an attempt to go beyond the literal to developing inferences and conjectures which could create significant, lasting understandings and improvements (Susman & Evered, 1978).

Sagor (2000) and Norton (2018) proposed using theory as a means to identify problems, develop possible solutions, and evaluate results in a spiral fashion. Unlike traditional research, the researcher was a part of the process and enacted changes throughout the process. Coker (2020a) proposed three improvements in conducting and reporting action research: compositing, ghosting, and unbracketing. All three methods were employed with HIRA (hypothesis, inquiry, response, and analysis):

1. Hypothesis: What were the causes of student failures? Students who were behind academically or had behavioral problems needed education and support; students do poor work or misbehave because of deficits in knowledge and ability. By accelerating growth with high-intensity tutoring—as opposed to remediation or enabling—students can make significant improvements in targeted interventions. Marzano’s commercially available program, *RtI at Work*, supported and influenced the implementation.
2. Inquiry: What was the situation at the school, the classroom, the staff members, and the students? The problem was many students—typically 20-60%—failed to respond to classroom instruction and support by behaving appropriately but refusing to complete work. Staffing was in a rut, doing what it had always done, so a change was needed to improve student success. Finances were not a problem, so new programs or initiatives could be financed. The time frame was to implement a new program within three months after a year of training and planning. Business-as-usual approaches must be discontinued, so an effective and efficient RtI program was planned to solve the problem of student failure. Examining different perspectives, of staff members and outside experts, made the process iterative and continuously revised.
3. Response: How can we create a better practice to improve student achievement? First, one must answer what will each person do differently. There was a plan for focused interventions tailored to the needs of each student which demonstrated mastery and, or improvement of skills and knowledge. Especially perplexing was what to do about student apathy, or students who were well behaved and compliant but refused to work. Teachers would become interventionists, who planned and delivered instruction collaboratively and conducted regular formative assessments beyond the traditional classroom during intervention periods.
4. Analysis: How do we know we made a difference? Where do we go from here to continue improvement? The first measurement was improvement of students’ academics and behavior. Direct observations, review of records, and student demonstrations were measured. Reducing apathy was measured by improved grades and compliance. The second measurement was process oriented toward staff collaboration. Daily and weekly meetings, as well as weekly training sessions, allowed for continuous reassessments.

Participatory action research examined teachers’ positionality by four units of analysis: personal, professional, colleague, and global membership within the profession. Using a matrix analysis within action research, the four roles gave insight into the different motivations and expectancy of participants—both teachers and students—with an intersection with the five spokes of adaptive leadership: diagnosis, experimentation, honoring the past, multiple perspectives, and time to implement. The coding schema utilized a macrocoding schema: generating a matrix of summaries (in vivo, descriptive, and interpretative), answering how/what/why, and a constant comparison of divergences and discrepancies. The conceptual framework was used abductively to develop metamessages which were grouped as themes which were continually tested throughout the time of the action research. To complement the qualitative research, there was a comparison to efficacy of RtI within the school district adjoining the detention center. A quantitative analysis of test scores after the implementation of RtI

within the school district of the juvenile detention center was conducted with repeated measures ANOVA using JASP (JASP Team (2020). JASP (Version 0.14.1)[Computer software]).

Lennie's (2006) guidelines were followed to increase trustworthiness and credibility, with multiple data sources and methodologies and reviews of evaluations and results in an iterative fashion with participants. There was a check for dysfluency and disagreements to minimize bias. Yin (2017) directs case study research to systematically search for and consider disconfirmation as a means to generate multiple, plausible alternatives and theories. A narrative described key findings and themes using first person.

5. Sample and Setting

The author's school was the site of the action research project. There was an RtI program in place, but the school leader and teacher—the author—wanted to improve interventions and transform collaboration. The school was in the Midwest of the United States in a short-term juvenile detention center. As a short-term juvenile detention center, most students enrolled for approximately 25 school days with a ratio of four students to one teacher; the school operated on a block schedule, with individual tutoring the primary teaching method. Mostly all students were boys in high school with extensive histories of failure. Computer programs were used for electives and extra assistance. There were five teachers present: one had over 40 years of experience and an elementary teaching certificate; one had over 20 years of experience as a special education teacher; another had over 40 years of experience as an elementary teacher; a teacher with over 30 years of experience as a high school teacher; and the lead teacher with 20 years of experience in regular and special education, an adjunct professor, and researcher.

6. Results

With COVID-19, the plans to reinvent the RtI program were put off by over a year. The school had weekly training sessions and discussions, with the announcement the program would be implemented and “learn as you go.” Like the reminder to the students, staff members were told there would be mistakes and missteps, and a continuous improvement cycle of planning, doing, studying, and acting meant the program might look different day to day or week to week. Everyone was encouraged to share work products, plan together, and directly observe each other.

As someone who teaches and consults with others on strategic leadership, many best practices were used. Besides training, staff members were disarmed to believe there would be mistakes and problems; the author frequently led first with his own failings and misunderstandings. There was no weekly professional learning community (PLC) schedule, so the weekly training sessions could target needs as they arose. Staff members were also instructed the author would help with any planning or delivery at any time. Non-confrontational approaches with students were emphasized, with each RtI session “planting the seed” and allowing for a follow up for students to accomplish the desired objectives.

To conduct an RtI program, teachers had to identify students in need. All students who entered underwent a comprehensive case study which included assessing behavior, reading, and mathematics with qualitative and quantitative measures. Inventories were implemented, to be reviewed weekly to determine student weaknesses. Staff members were instructed to be on the lookout for academic and behavioral problems from reviewing records daily.

Curricular planning, instructional delivery, and formative and summative assessments were the guidelines developed and issued, but the author reminded staff members that students' needs always dictated planning and delivery. To guide delivery, the author's instructional coaching framework was used: Distributed, Repetitive, Compare/Contrast, Higher-Ordered Thinking Skills, Interleave & Interactive, Goal Setting, and Graphical representation or DR. CHI²GG as a checkup for implementing evidence-based instruction (Beauchamp & Kennewell, 2010; Cook et al., 2013; Gettinger et al., 1982; Kozlowski & Bell, 2006; Krug et al., 1990; Lin et al., 2013; Rau et al., 2015; Schunk, 1990; Taylor & Rohrer, 2010). As shown in Figure 2, staff were instructed to

follow the I-We-You format, with admonitions for variety to generate interest and the inclusion of high school level work, even if the students were very far behind. Some other methods were vocabulary instruction (SEA or synonyms, examples/nonexamples, and antonyms) and making learning active, such as simulations and skits. Teachers were told RtI was *never* students learning on their own but a teacher using direct instruction and monitoring results.

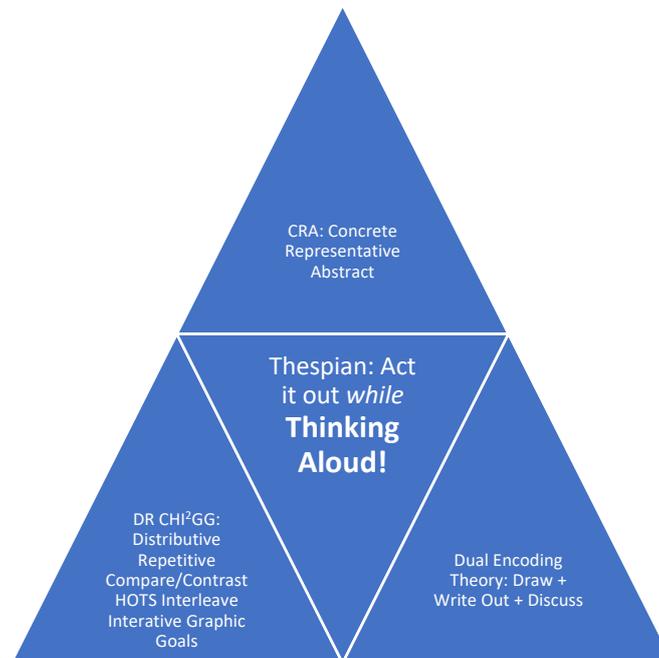


Figure 1: Instructional components of RtI.

The initial program included a checklist to ensure fidelity. There were directions and initial meetings to plan curriculum and instruction around reading and math interventions because most students lacked proficient reading skills (Coker, 2021). Inventories plus a qualitative analysis of student work suggested RtI curriculum and instruction for students. RtI could be used to either improve poor skills or an elaboration and expansion of students without difficulties. Staff members were advised to center activities around think alouds with rich discussions, writings, and graphical representations and a liberal use of interdisciplinary connections. Start off slow and build back better was the slogan. Focusing on essential skills and limiting vocabulary to manageable proportions were recommended. Concrete-Representational-Abstract (CRA) was formally taught to staff members for use in mathematics, as well as co-planning model lesson plans. Five themes emerged around instruction and strategic planning: lack of research-based instructional strategies, poor teacher preparation, fidelity and shortcuts, reflective ability, and strategic planning which led to an incorrect diagnosis.

Lack of research-based instructional strategies. One would assume with a staff where the junior member had 23-years of experience, with two members of the staff former principals, research-based instructional strategies would be a foregone conclusion. A variety of activities around the pyramid were proposed to include simulations and a gamification to increase interest. Staff members observed the author present lesson plans around writing constitutional amendments as a simulation and another finding the main idea, with acting out the lessons and modeling I-We-You. Initially, everything seemed fine, and the author assisted and monitored planning and execution. Soon, many problems ensued.

Teachers did not know evidence-based instructional strategies. First, there were lessons which only followed worksheets. Teachers were told to move beyond worksheets and use either a student's assigned work or higher-level work to teach the skills. One teacher immediately changed to all worksheets; matching, multiple choice, and fill-in-the-blank were the order of the day. Retrospectively, the teacher was known to use all worksheets all

the time—all her colleagues in regular school derided her as the “packet queen.” CRA was also replaced with standard worksheets of fill-in-the-blank.

Not all teachers were so myopic. Under guidance, a teacher’s reading about digestion was reformulated into a simulation of following a cheeseburger traveling through the alimentary canal. Another teacher who could not see how elementary math skills could be applied to high school was told to look at velocity problems in science. There was the reminder staff members should also try to build the second goal of students reading and acquiring high school-level skills and knowledge.

An anchor of read-write-discuss was added to build authentic learning. Teachers still clung to worksheets. Some examples show how poor the situation was when unsupervised. One student read the definition of skimming and scanning but never did the activity. Staff member struggled with the entire pyramid, and though the student was rated as reaching his goal for skimming and scanning, the first time he did it was with me, and he had little competence. The doing part could not be constructed beyond following a worksheet.

Authentic education was always problematic, but the many scenarios clarified the situation. Fake was not the word—contrived was. All the worksheets were clear cut and easy; the nouns and adjectives were always the same pattern, as well as main idea, inferences, and fractions, etc. Yet, natural work, from reading Shakespeare to a biology textbook to other stories meant the teacher had to authentically think aloud and figure out what was done. Teachers were scared and shocked, and they spent an inordinate amount of time finding worksheets where they knew the answers and could control the pace. Reading a worksheet about the vocabulary of how to find the main idea was easier. Teachers lacked evidence-based instructional practices and proceeded to teach the way they either had been taught or liked. When I was not present, many students stated they did not want to attend school because they felt the teachers did not help.

Two more problems were common: inappropriate work and enabling. Teachers picked remedial work most of the time, and even when they were instructed to pick high school-level work, they chose the instructional pages in the textbooks. Shanahan (2020) was taught as a guide to include a variety of reading levels, but teachers were uncomfortable teaching high school-level skills beyond surface knowledge. Cueing has little efficacy (Davis et al., 2021; Hemenstall, 2017), and in the current situation, it served as an example of enabling (for example, if a student did not know a word, teachers would act it out, like for a student who did not know the word recline, or another example in math started with “You know,” and then pointing out what area looked like, etc.).

The problem of apathy was perplexing; students were well behaved, but many students completed little work. Some stated they never worked in school and passed no matter what, something which records confirmed. These same students then thought doing little—more than one had ever done before—should result in passing. Social promotion was probably a key factor, as students who missed sometimes 90% of school passed most classes and even graduated. Goal setting for completing work was conducted with each student struggling each period (with discussions and formally writing goals). There was positive progress for most students.

Lack of teacher preparation. If teachers thought talk alouds and acting out were impossible, the reason for all worksheets became clear: lack of teacher knowledge. Alternative schools in the state under study allowed any teaching certification to teach all subjects regardless of preparation. Planning took an inordinate amount of time because the teachers did not know the curriculum and lacked subject-matter proficiency. There was difficulty with breaking down skills into steps. How can one teach what one does not know? For example, inferences were a nebula when presented to students. Propaganda vocabulary was unknown by the teachers. An egregious example was a teacher presenting how to read timelines drew all the pictures and demonstrated four years to be twice as long as eight years and slightly longer than five years. She was extremely proud of the neat pictures, though the construction was clearly erroneous and included all the errors I warned her about before teaching the activity. Another teacher claimed impeachment *must* follow all rules of criminal law. Another teacher did not even attempt to explain independent and dependent variables, calling me to assist. Enabling was common unless watched closely—even the special education teacher wanted to read for poor readers and reduce requirements.

Reading strategies and how to teach vocabulary were nonexistent in the repertoire of the teaching staff beyond reading a worksheet.

Teachers rolled their eyes, outright did the opposite when no one was present, or stated they did not have the personality. The methods proposed were tested with colleagues in other buildings, and read-write-discuss and other methods were considered factors which could be easily implemented. Any excuse possible was proffered by worksheets and little authentic learning were necessities. Possibly staff members thought the students had no future and were not worth the time and effort; an alternative, supported by Flores and Barahona-López (2021), might be teachers see the same students return regularly, feel stressed from being in an environment which might be dangerous and chaotic, and little progress seems to be made. How could one not feel powerless and helpless? Even the examples of student excitement and requests for more assistance did not persuade teachers.

Fidelity and shortcuts. The student-to-teacher ratio was 4:1 or less. There was ample time to conduct all planning. Evidence was teachers either enabled or did most of the work assigned when not observed. There was little diagnosis or a qualitative review of student work, as probes were often wrong. Teachers would often plan the same activity for all students regardless of need. Instead of dynamic interventions—with staff members reminded students had tried death-by-worksheet as an approach for nine to ten years of schooling—staff members could not figure out how to read, write, and discuss without a worksheet. The problem of lack of vocabulary follows students throughout life (Beck et al., 2013), but teachers persisted in avoiding rich writings and discussions with graphical representations. Identifying new needs did not regularly happen *sua sponte*.

Reflective ability. The author teaches graduate students how to reflect, using coaching, modeling, and guidance to find problems, a gap, and develop an action plan (Coker, 2020b). Teachers did not show an inability—they showed an unwillingness. They all except one had reached a point where there was simply nothing new to learn or do. The most important aspect was teacher management, not student learning. Any recommendation or criticisms—the hallmark of effective feedback by considering multiple perspectives and alternatives—were considered a threat to the self, one's professional identity, and one's worksheet-centered view of education. Instead of collaborating, staff members lobbied others to resist. Covering the curriculum and getting the right answer were what mattered.

Strategic leadership. There would have been a qualitative literature review, but there were few systematic, national, or randomized control trials as evidence RtI and, or differentiated instruction produced a positive effect (Sparks, 2015). Another research question was added during the process: What were the strategic implications needed for success? Admittedly, the author who teaches strategic leadership at the graduate level and has worked on a myriad of strategic plans, was blindsided. Read-write-discuss sounded easy. Outside colleagues never identified any potential problem. Yet, the entire process almost capsized from teachers who resisted and worked to sabotage the entire process. There were three primary reasons: lack of belief in the process, lack of the author forecasting the change in one's sense of professionalism, and a failure to break down the process by individual need.

All schools in my district have school improvement plans (SIPs), like most every school in the nation. Like most every school in the nation, the SIPs were paper-only plans: There was no real purpose or work toward systematic improvement. As shown in Table 2 for eight diverse K-8 schools (student $N = 4700$) in my district for PARCC results from 2015-2018 using repeated measures ANOVA (Mauchly's test of sphericity ($\chi^2(2) = 8.55, p = 0.132$) was not significant), the SIPs and RtI were endeavors which *never* produced any meaningful change. There was a medium effect size, and a post hoc test using Holm correction revealed a significant drop in test scores between 2015 to 2016 and 2017. For a school district which used 30 minutes per day for RtI—8.33% instructional time and approximately 10% of staff salaries—no effects beyond all the promises of great articles, training sessions, and experts occurred. RtI produced no visible results. Indeed, some might claim a net negative. The yearly professional development plans also seemed to make no difference in student achievement. My teachers expected the results to be the activity.

Table 2: PARCC Test Results 2015-2018: Within Subjects Effects

Cases	Sum of Squares	Df	Mean Square	F	p	ω^2
RM Factor 1	212.750	3	70.917	4.619	0.011	0.037
Residuals	368.500	24	15.354			

Note. Type III Sum of Squares

Perhaps no greater failure in RtI existed than not identifying the change in teacher work from reformulating existing RtI practices. I have headed controversial decisions with little support, and yet none received the pushback of asking staff members to “just sit and do some work with students.” Unlike all strategic plans in my district and the vast majority I run across, my staff members had to become someone different. Ask most any teachers about the goals in the school improvement plan, and not only does no one know them, no one does anything different. Any strategic plan which requires staff members to abandon past practices and adopt new ones needs a plan to acclimate and support changes. Sabotage, satisficing, and focusing on what the teacher wanted became common to ward off threats to self. There was a continuum, from no change to a total transformation, and as one moved toward transformation, one’s sense of professionalism and possible self will be challenged and eroded. Inexperienced teachers would have been easier to deal with, and sadly, two teachers were better than three.

Some staff members were receptive. Hanlon’s razor was applied to the problem: Never attribute to malice which you can incompetence. Starting small, one staff member was approached and mollified before moving on to another. Following the guidelines of Kamil et al. (2008), the process was reverse engineered to build competence and confidence by teaching and modeling concrete reading strategies to be used in all interventions. Starting small as a pilot, a teacher was asked to work with a student by asking “Who did what?,” draw pictures with explanations during the I-We-Do, and write a title while sharing personal knowledge and inquiring about what a student liked, knew, or thought. Then the teacher, after sharing the results, was told the findings of Kamil et al. (2008) were the basis, and a thinking routine of a SMidGe was used (summarization, main idea, and graphical representation) while activating background knowledge. The think aloud was a huge success, and a similar activity with SMG was used with starting an IV (inferences and vocabulary) to improve the reading comprehension health: inferences by asking “Why/What next?” and “If so, then” and specific vocabulary techniques. The constructive conversations algorithm was also added as a process to make the change concrete (Zwiers et al., 2015). The PLCs happened at any time as true instructional coaching and support, and strategies and methods were operationalized into a concrete action. Staff members began to feel much more comfortable with the entire process.

Action research produced macrochanges within the school with three new mental maps: a.) Action research was recast as a spider web, with the entire process fractured and multidirectional at all times; b.) RtI served as a vehicle to implement and improve robust evidence-based teaching practices centered around creating value in student learning; c.) Strategic leadership became infused with action research, and as one breaks from the past and experiences role ambiguity and transformation, the personal effects became a centerpiece of all further deletions, changes, and adoptions of new programs. Building absorptive capacity which created new norms, values, and behaviors inherently created friction and must be considered from the angst experienced as plans changed one’s definition of self as professional.

7. Discussion

The transformation of an RtI program in a short-term juvenile detention center proved to be difficult and gave insight into a multitude of problems, some of which were unexpected. Schools adopted RtI programs or some iteration for almost twenty years; even within the current study, RtI had been practiced and planned for about 15 years. A number of insights were gained: RtI lacks a coherent research base and fails to translate; poor teacher preparation both instructionally and within the content areas render many interventions useless; and strategic planning must consider adoptions of new programs which interfere with role stability as a main concern.

RtI programs failed to translate into valuable practices in most schools despite many small-scale studies claiming effectiveness (Gersten et al., 2017; Smale-Jacobse et al., 2019). The claims were far flung, especially with small samples and singular programs, but National Assessment of Educational Progress (NAEP) scores not only failed to show improvements, but growth also slowed (Ferguson, 2020). Another downside was the fundamental nature of learning disabilities changed, with students with difficulties dumped into the label (Kranzler et al., 2020). At a national, state, and local level, RtI programs failed to replicate, with most schools not seeing positive results.

Schmoker (2010) lamented differentiated instruction proved unworkable and resulted in students no longer learning a common curriculum. As found in the current study, providing and delivering a rigorous, relevant curriculum with adequate support can alter the trajectory of school performance (Goodwin, 2000). Lack of student engagement should be reimagined to increase student interactivity and achievement (Chi & Wylie, 2014). Most RtI studies cling to what people liked (e.g., Thomas et al., 2020) as the measure of student success, as value-added improvements remained elusive. What Works Clearinghouse and others failed to demonstrate randomized-controlled trials or longitudinal data despite two decades of implementation,

Within the current study, which could be extrapolated to other research, findings showed lack of evidence-based research teaching strategies and poor content preparation. Teachers often teach the way they like to learn and which was the easiest to implement, despite Hattie (2012) and Marzano (2007) regurgitating highly effective, low-cost methods to improve student achievement: specific goals and objectives, direct instruction, and frequent checks for understanding, etc. Teacher preparation in the content area also improves student learning (e.g., Bastian & Janda, 2018; Clotfelter et al., 2007), but teachers in many states, such as the current study, can teach any subject within an alternative school setting. Lack of knowledge meant many teachers were stuck at a superficial level, were clearly erroneous in concepts, and often glossed over topics because they did not know enough to teach the subject matter. There was a glaring discrepancy which suggested advanced education degrees often did not posit an instructional advantage which translated into improved student achievement (Badgett et al., 2014). One could add another caveat to the action research study from the repeated measures ANOVA findings and other studies: Professional development was neither professional nor development.

Action research should include strategic planning as a formal mechanism when there was the expectation of a change in one's role. Read, write, and discuss. Follow DR CHI²GG. Use SMG and IV. Yet, the resistance was of epic proportions, and there was a failure to anticipate noncompliance and sabotage. Heifetz et al. (2009) stated honoring the past while developing new processes must be considered; when there were changes, the change created role ambiguity, which led some to become protectionistic over one's sense of self. There was little concern for one's effectiveness or lack thereof, and students were ignored. Strategic planning must include training and support, with the admonition of piecemeal implementation and winning confederates over as early adopters.

A failure to anticipate problems resulted from an incorrect diagnosis assuming teachers would want to improve their teaching and their students' learning. A number of fixes could avoid problems in the future. First, improved communication and distributed leadership can develop understanding and ownership throughout the process (Pitelis & Wagner, 2019). Secondly, instead of getting bogged down in the political, resistance should be incorporated into strategic action research with a focus on positive outcomes (Delprino, 2013). Thirdly, as Mintzberg (1994) stated a long time ago, strategic planning cannot adequately expect obstacles and downsides, as many leaders focus solely on the subject. Strategic action research changed the focus from the subject (RtI) to a focus on the subject and the vehicle (the personnel implementing the plan). A lack of push down and push up of planning was a failure of leadership.

8. Limitations

A strength of action research was also a limitation: An iterative process, grounded in the minute-by-minute, day-by-day implementation, rarely saw one variable changed. The results meant sometimes false causations and attributions could be common, regardless of success of the initiative. Another limitation was social desirability: Members were aware of acting appropriately and professionally within interviews and conversations, so there

might be other reasons or concerns which were hidden. Lastly, all action research suffers from a generalizability problem, as the bounded study might neither replicate nor be reproducible.

9. Conclusion

“While the advantage was not statistically significant, the researcher felt that results of this study supported the effectiveness of a Response to Intervention program” (Hite & McGahey, 2015, pp. 39). NAEP scores have not shown RtI to have a positive effect (Borders, 2019) in the face of almost universal adoption. RtI lacks evidence when translated at the school and classroom level, leading researchers to make claims of effectiveness despite the lack of visible, value-added results. Savage and Ellis (2019) reported differences in academic achievement between violent and nonviolent offenders when controlling for other variables, making the case for targeted interventions. Students in juvenile detention centers experience a multitude of problems which create a cascade of failure throughout the entire system, but applying RtI and differentiated instruction have not produced the desired results.

Recasting RtI as a means to focus PLC meetings on lesson studies, specific student needs, and reflection-in-action moves beyond a one-dimensional aspect of intervention for struggling students. Students with academic and behavioral problems benefit from systematic, direct instruction (Mather et al., 2001), but teachers have for decades, like the current study, lacked the prerequisite skills and attitudes. Collaboration within a safe environment could alter the landscape, but there must be active leadership focused on the goals as well as the support for the personnel to accomplish them (Edmonds, 1979; Fullan, 2011). Maintenance, or combatting entropy of the system with continuous refinement of operations, must be a vigilant practice with any change initiative.

Schmoker (2019) suggested fads and novel solutions were not the answer to what ails schools, and a sound curriculum with reading, discussion, and writing at the center were evidence-based ways to improve teaching and learning. Yet, schools continue to be plagued by activities which promise little, such as group work, worksheets, and other banal activities. Strategic action research, using HIRA, a matrix, and the formal inclusion of strategic planning which considers threats to the self and sense of professionalism, could strengthen PLCs and professional development around the praxis of instruction and student learning. Action research can be cathartic as well as a systematic way to reflect-in-action where professional development becomes a journey and not a destination.

References

- Anderson, R. A., Bailey, D. E. Jr., Wu, B., Corazzini, K., McConnell, E. S., Thygeson, N. M., & Docherty, S. L. (2015). Adaptive leadership framework for chronic illness: framing a research agenda for transforming care delivery. *ANS. Advances in Nursing Science*, 38(2), 83-95. <https://dx.doi.org/10.1097%2FANS.0000000000000063>
- Avison, D. E., Lau, F., Myers, M. D., & Nielsen, P. A. (1999). Action research. *Communications of the ACM*, 42(1), 94-97. <https://doi.org/10.1145/291469.291479>
- Badgett, K., Decman, J., & Carman, C. (2014). The influence of teacher graduate degrees on student reading achievement. *AASA Journal of Scholarship & Practice*, 11(1), 4-25. Retrieved from <http://www.aasa.org/jsp.aspx>
- Balu, R., Zhu, P., Doolittle, F., Schiller, E., Jenkins, J., & Gersten, R. (2015). Evaluation of response to intervention practices for elementary school reading. NCEE 2016-4000. *National Center for Education Evaluation and Regional Assistance*. Retrieved from <http://ies.ed.gov/ncee/>
- Bastian, K. C., & Janda, L. (2018). Does quantity affect quality? Teachers' course preparations and effectiveness. *Journal of Research on Educational Effectiveness*, 11(4), 535-558. <https://doi.org/10.1080/19345747.2018.1483455>
- Beauchamp, G., & Kennewell, S. (2010). Interactivity in the classroom and its impact on learning. *Computers & Education*, 54(3), 759-766. <https://doi.org/10.1016/j.compedu.2009.09.033>
- Beck, I. L., McKeown, M. G., & Kucan, L. (2013). *Bringing words to life: Robust vocabulary instruction*. Guilford Press.

- Borders, D. G. (2019). Assess and document professional learning's impact. *The Learning Professional*, 40(6), 8-14. Retrieved from <https://www.learningforward.org/>
- Chi, M. T., & Wylie, R. (2014). The ICAP framework: Linking cognitive engagement to active learning outcomes. *Educational Psychologist*, 49(4), 219-243. <https://doi.org/10.1080/00461520.2014.965823>
- Clotfelter, C. T., Ladd, H., & Vigdor, J. L. (2007). How and why do teacher credentials matter for student achievement? *NBER*. Retrieved from <https://doi.org/10.3386/w12828>
- Coker, D. C. (2020a). Action research in a juvenile detention school: New processes, paradigms, and possibilities. *Education Quarterly Reviews*, 3(3), 411-430. <https://doi.org/10.31014/aior.1993.03.03.149>
- Coker, D. C. (2020b). Reflections in the educational leadership internship: Bridging theory and practice. *Journal of Education, Society and Behavioural Science*, 72-88. <https://doi.org/10.9734/jesbs/2020/v33i930261>
- Coker, D. C. (2021). Noncognitive factors affecting academic achievement of juvenile delinquents. *International Journal for Innovation Education and Research*, 9(3), 341-368. <https://doi.org/10.31686/ijer.vol9.iss3.3012>
- Cook, D. A., Hamstra, S. J., Brydges, R., Zendejas, B., Szostek, J. H., Wang, A. T., ... & Hatala, R. (2013). Comparative effectiveness of instructional design features in simulation-based education: systematic review and meta-analysis. *Medical Teacher*, 35(1), e867-e898. <https://doi.org/10.3109/0142159X.2012.714886>
- Cowan, C., & Maxwell, G. (2015). Educators' perceptions of response to intervention implementation and impact on student learning. *Journal of Instructional Pedagogies*, 16. Retrieved from <http://www.aabri.com/copyright.html>
- Danielson, L., Doolittle, J., & Bradley, R. (2007). Professional development, capacity building, and research needs: Critical issues for response to intervention implementation. *School Psychology Review*, 36(4), 632-637. <https://doi.org/10.1080/02796015.2007.12087922>
- Davis, D. S., Jones, J. S., & Samuelson, C. (2021). Is it time for a hard conversation about cueing systems and word reading in teacher education? *Reading & Writing Quarterly*, 37(4), 301-316. <https://doi.org/10.1080/10573569.2020.1792813>
- Delprino, R. P. (2013). The human side of the strategic planning process in higher education. *Planning for Higher Education*, 41(4), 138-154. Retrieved from <https://www.scup.org/learning-resources/planning-for-higher-education-journal/>
- Edmonds, R. (1979). Effective schools for the urban poor. *Educational Leadership*, 37(1), 15-24. Retrieved from <https://www.ascd.org/>
- Engstrom, R. S., & Scott, D. (2020). Juvenile institutional misconduct: Examining the role of educational attainment and academic achievement. *Crime & Delinquency*, 66(5), 663-686. <https://doi.org/10.1177%2F0011128719901113>
- Ferguson, M. (2020). Washington view: What the NAEP reveals. *Phi Delta Kappan*, 101(5), 62-63. <https://doi.org/10.1177%2F0031721720903832>
- Fletcher, J. M., & Vaughn, S. (2009). Response to intervention: Preventing and remediating academic difficulties. *Child Development Perspectives*, 3(1), 30-37. <https://doi.org/10.1111/j.1750-8606.2008.00072.x>
- Flores, J., & Barahona-López, K. (2021). Correctional education and the impact on educators' lack of training. *Curriculum Perspectives*, 41(2), 237-244. <https://doi.org/10.1007/s41297-021-00147-3>
- Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly*, 41(1), 93-99. <https://doi:10.1598/RRQ.41.1.4>
- Fuchs, D., & Fuchs, L. S. (2017). Critique of the national evaluation of response to intervention: A case for simpler frameworks. *Exceptional Children*, 83(3), 255-268. <https://doi.org/10.1177%2F0014402917693580>
- Fullan, M. (2011). *Change leader: Learning to do what matters most*. John Wiley & Sons.
- Gersten, R., Jayanthi, M., & Dimino, J. (2017). Too much, too soon? Unanswered questions from national response to intervention evaluation. *Exceptional Children*, 83(3), 244-254. <https://doi.org/10.1177%2F0014402917692847>
- Gettinger, M., Bryant, N. D., & Fayne, H. R. (1982). Designing spelling instruction for learning-disabled children: An emphasis on unit size, distributed practice, and training for transfer. *The Journal of Special Education*, 16(4), 439-448. <https://doi.org/10.1080/02702711.2010.545260>
- Goodwin, B. (2000). Raising the achievement of low-performing students. *McREL Policy Brief*. Retrieved from <https://www.eric.ed.gov/>
- Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning*. Routledge.
- Heifetz, R. A., Grashow, A., & Linsky, M. (2009). *The practice of adaptive leadership: Tools and tactics for changing your organization and the world*. Harvard Business Press.
- Hempenstall, K. (2017). The three-cueing system in reading: Will it ever go away? *National Institution for Direct Instruction Blog*, 29. Retrieved from <https://www.nifdi.org/>

- Hendricks, E. L., & Fuchs, D. (2020). Are individual differences in response to intervention influenced by the methods and measures used to define response? Implications for identifying children with learning disabilities. *Journal of Learning Disabilities, 53*(6), 428-443. <https://doi.org/10.1177/0022219420920379>
- Hite, J. E., & McGahey, J. T. (2015). Implementation and effectiveness of the response to intervention (RTI) program. *Georgia School Counselors Association Journal, 22*, 28-40. Retrieved from <http://www.gaschoolcounselors.com>
- Kamil, M. L., Borman, G. D., Dole, J., Kral, C. C., Salinger, T., & Torgesen, J. (2008). Improving adolescent literacy: Effective classroom and intervention practices. IES Practice Guide. NCEE 2008-4027. *National Center for Education Evaluation and Regional Assistance*. Retrieved from <http://ies.ed.gov/ncee/pubs/>
- Katsiyannis, A., Ryan, J. B., Zhang, D., & Spann, A. (2008). Juvenile delinquency and recidivism: The impact of academic achievement. *Reading & Writing Quarterly, 24*(2), 177-196. <https://doi.org/10.1080/10573560701808460>
- Kozlowski, S. W., & Bell, B. S. (2006). Disentangling achievement orientation and goal setting: Effects on self-regulatory processes. *Journal of Applied Psychology, 91*(4), 900-916. <https://doi.org/10.1037/0021-9010.91.4.900>
- Kranzler, J. H., Yaraghchi, M., Matthews, K., & Otero-Valles, L. (2020). Does the response-to-intervention model fundamentally alter the traditional conceptualization of specific learning disability? *Contemporary School Psychology, 24*(1), 80-88. <https://doi.org/10.1007/s40688-019-00256-x>
- Krug, D., Davis, T. B., & Glover, J. A. (1990). Massed versus distributed repeated reading: A case of forgetting helping recall? *Journal of Educational Psychology, 82*(2), 366. <https://doi.org/10.1037/0022-0663.82.2.366>
- Kulkarni, T., Sullivan, A. L., & Kim, J. (2020). Externalizing behavior problems and low academic achievement: Does a causal relation exist? *Educational Psychology Review, 1*-22. <https://doi.org/10.1007/s10648-020-09582-6>
- Lennie, J. (2006). Increasing the rigour and trustworthiness of participatory evaluations: learnings from the field. *Evaluation Journal of Australasia, 6*(1), 27-35. <https://doi.org/10.1177%2F1035719X0600600105>
- Lin, C. H., Chiang, M. C., Knowlton, B. J., Iacoboni, M., Udompholkul, P., & Wu, A. D. (2013). Interleaved practice enhances skill learning and the functional connectivity of fronto-parietal networks. *Human Brain Mapping, 34*(7), 1542-1558. <https://doi.org/10.1002/hbm.22009>
- Macomber, D., Skiba, T., Blackmon, J., Esposito, E., Hart, L., Mambrino, E., ... & Grigorenko, E. L. (2010). Education in juvenile detention facilities in the state of Connecticut: A glance at the system. *Journal of Correctional Education* (Glen Mills, Pa.), 61(3), 223-261. Retrieved from <https://ceanational.org/journal/>
- Manfra, M. M. (2019). Action research and systematic, intentional change in teaching practice. *Review of Research in Education, 43*(1), 163-196. <https://doi.org/10.3102%2F0091732X18821132>
- Marzano, R. J. (2007). *The art and science of teaching: A comprehensive framework for effective instruction*. ASCD.
- Mather, N., Bos, C., & Babur, N. (2001). Perceptions and knowledge of preservice and inservice teachers about early literacy instruction. *Journal of Learning Disabilities, 34*(5), 472-482. <https://doi.org/10.1177%2F002221940103400508>
- McDaniel, S., Heil, K. M., Houchins, D. E., & Duchaine, E. L. (2011). A guide to implementing response to intervention in long-term residential juvenile justice schools. *Journal of Correctional Education, 51*-68. Retrieved from <https://ceanational.org/journal/>
- McInerney, M., & Elledge, A. (2013). Using a response to intervention framework to improve student learning: A pocket guide for state and district leaders. Implementing ESEA flexibility plans. *American Institutes for Research*. Retrieved from <http://www.air.org>
- Mintzberg, H. (1994). Rethinking strategic planning part I: Pitfalls and fallacies. *Long Range Planning, 27*(3), 12-21. [https://doi.org/10.1016/0024-6301\(94\)90185-6](https://doi.org/10.1016/0024-6301(94)90185-6)
- Norton, L. (2018). *Action research in teaching and learning: A practical guide to conducting pedagogical research in universities*. Routledge.
- Pederson, C. A., Fite, P. J., Weigand, P. D., Myers, H., & Housman, L. (2020). Implementation of a behavioral intervention in a juvenile detention center: do individual characteristics matter? *International Journal of Offender Therapy and Comparative Criminology, 64*(1), 83-99. <https://doi.org/10.1177%2F0306624X19872627>
- Pitelis, C. N., & Wagner, J. D. (2019). Strategic shared leadership and organizational dynamic capabilities. *The Leadership Quarterly, 30*(2), 233-242. <https://doi.org/10.1016/j.leaqua.2018.08.002>
- Rau, M. A., Aleven, V., & Rummel, N. (2015). Successful learning with multiple graphical representations and self-explanation prompts. *Journal of Educational Psychology, 107*(1), 30-46. <https://doi.org/10.1037/a0037211>
- Sagor, R. (2000). *Guiding school improvement with action research*. ASCD.

- Savage, J., & Ellis, S. K. (2019). Academic achievement, school attachment, and school problems in the differential etiology of violence. *Journal of Developmental and Life-course Criminology*, 5(2), 243-265. <https://doi.org/10.1007/s40865-018-0090-0>
- Schmoker, M. (2010, September 27). When pedagogic fads trump priorities. Mike Schmoker. Retrieved from <http://mikeschmoker.com/pedagogic-fads.html>
- Schmoker, M. (2019). Focusing on the essentials. *Educational Leadership*, 77(1), 30-35. Retrieved from <https://www.ascd.org/>
- Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist*, 25(1), 71-86. https://doi.org/10.1207/s15326985ep2501_6
- Shanahan, T. (2020). Limiting children to books they can already read: Why it reduces their opportunity to learn. *American Educator*, 44(2), 13-17;39. <https://www.aft.org/ae>
- Smale-Jacobse, A. E., Meijer, A., Helms-Lorenz, M., & Maulana, R. (2019). Differentiated instruction in secondary education: A systematic review of research evidence. *Frontiers in Psychology*, 10, 2366. <https://doi.org/10.3389/fpsyg.2019.02366>
- Snow, P. C., Sanger, D. D., Caire, L. M., Eadie, P. A., & Dinslage, T. (2015). Improving communication outcomes for young offenders: a proposed response to intervention framework. *International Journal of Language & Communication Disorders*, 50(1), 1-13. <https://doi.org/10.1111/1460-6984.12117>
- Sparks, S. (2015). Study: RTI practice falls short of promise. *Education Week*, 35(12), 1. Retrieved from <https://www.edweek.com/>
- Susman, G. I., & Evered, R. D. (1978). An assessment of the scientific merits of action research. *Administrative Science Quarterly*, 582-603. <https://doi.org/10.2307/2392581>
- Taylor, K., & Rohrer, D. (2010). The effects of interleaved practice. *Applied Cognitive Psychology*, 24(6), 837-848. <https://doi.org/10.1002/acp.1598>
- Thomas, E. R., Conoyer, S. J., & Lembke, E. S. (2020). Districtwide evaluation of RTI implementation: Success, challenges, and self-efficacy. *Learning Disabilities Research & Practice*, 35(3), 118-125. <https://doi.org/10.1111/ldrp.12226>
- Yin, R. K. (2017). *Case study research and applications: Design and methods*. Sage Publications.
- Zwiers, J., O'Hara, S., & Pritchard, R. (2015). Conversing to fortify literacy, language, and learning. *MinneTESOL Journal*, 2015 (Spring/Summer 2015). Retrieved from <https://conservancy.umn.edu/>



Examination of Education Quality Perceptions of Physical Education and Sports School Students (Bayburt University School of Physical Education and Sports Example)

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Abstract

This study aims to measure the perceptions of students of Bayburt University School of Physical Education and Sports about the quality of education at the institution where they study and to investigate whether there is a difference between perceptions of students about the quality of education concerning different variables. This study is a descriptive study designed using the scanning model. The study population consists of 673 students continuing their education in 2020-2021 at Bayburt University School of Physical Education and sports. The sample consists of 276 students studying in this institution. The scale Physical Education and Sports Sciences Performance in Universities Providing Physical Education and Sports Education (PESPERF) developed by Paktaş (2015) for the School of Physical Education and Sports students was used for the study. The analysis of data was carried out using SPSS 25.0 package program. The significance tests were based on a significance level of 0.05 (p). Independent samples t-test (Independent Samples T-test), one-way analysis of variance (One Way ANOVA) for unrelated samples with more than two means, and tests for correlation analysis were used to analyze the data concerning the sub-dimensions. Before the research was carried out, permission was obtained from Ethics Committee of Bayburt University. As a result of the analysis, a significant difference was found in favor of male students in all sub-dimensions except manager's vision according to the gender variable. Consequently, it can be said that the variable of gender, have a significant influence on individual perceptions of educational quality

Keywords: Physical Education and Sports, Education, Quality, Education Quality

1. Introduction

If we examine the origin of the word education, it is the equivalent of the Latin words 'educare' and 'educere' (Billington, 1997). In our country, the term 'education' has been used since the first quarter of the 20th century with words such as instruction, training, and schooling (Başaran, 1984). In examining the literature, Ertürk (1979) defined the concept of education as the process that brings about desired changes in a person's actions

and attitudes through his own life (Ertürk, 1979). In addition, Şişman (2001) defines education as a set of planned effects that contribute to achieving specific improvements in the individual's behavior based on the principles established at the beginning, while Özden (2002) defines it as an education that contributes to social competence and ideal personal development through the effect of a particular and controlled environment. One of the most important branches of this education is physical education.

In this interaction, the combination of physiological, social, and psychological movements and physical education is defined as the element that serves as a tool rather than a goal (Kul, 2008). Yaylacı (1998) defined this element as ensuring the individual's physical, emotional, and mental development following the Basic Principles of National Education. Physical education is not only an integral and inseparable part of education but also of personality education. Considering the individual differences, physical education is a vital tool to educate individuals with healthy, happy, moral, compassionate, constructive, creative, productive, national cultural values and behaviors necessary for a democratic life (Güneş, 2004).

The strength of a country is as great as the abilities of the people who live in it. In this context, the higher the quality of education in the society, the greater the country's capacity. Therefore, the vision of educational institutions increases the quality of services they provide to individuals (Keskin and Keskin, 2005). We can define quality as "an institution's awareness of what service it provides to whom and its continuous improvement to raise the quality of that service to the level of the best examples in the world and even beyond" (Demirhan, 2011). On the other hand, quality in education is the realization of education following its goals and conditions. Knowing the needs of students and implementing programs that are aligned with those needs. It is the result of educators' ability to co-create education and future lives of students. (Egitimpedia, 2021). The quality of education can be improved through collaborative programs in technology, social and cultural environments, human resources, and student support. (Adatepe, 2018).

The opportunities and chances given to students in educating our youth, who are the guarantee of our future, are of great importance to the quality of education. In this direction, the study aims to carry out activities to increase the quality of education, such as identifying the current situation and recommendations with the studies to be carried out in this area.

2. Methodology

2.1. Study Objective

This study aims to measure the perceptions of students of Bayburt University School of Physical Education and Sports about the quality of education at the institution where they study and to investigate whether there is a difference between perceptions of students about the quality of education concerning different variables.

2.2. Research Model

This study is a descriptive study designed using the scanning model. Karasar (2014) referred to the survey model as a research approach that aims to describe a past or present situation as it is.

2.3. Research Sample

The study population consists of 673 students continuing their education in 2020-2021 at Bayburt University School of Physical Education and sports. The sample consists of 276 students studying in this institution.

2.4. Data Collection Tools and Procedure

The scale Physical Education and Sports Sciences Performance in Universities Providing Physical Education and Sports Education (PESPERF) developed by Paktaş (2015) for the School of Physical Education and Sports students was used for the study. The Cronbach Alpha value of the PESPERF scale developed by Paktaş (2015)

was reported as 0.908. Looking at the sub-dimensions, there was a value of $\alpha=0.840$ for the sub-dimension Physical Conditions (question 5, 12, 15, 17, 23, 39), a value of $\alpha=0.940$ for the sub-dimension Leadership Characteristics (question 2, 8, 20, 27, 38, 41, 42, 46, 50, 56, 59, 61, 64), a value of $\alpha=0.910$ for the sub-dimension vision of the manager (question 1, 9, 10, 28, 60), a value of $\alpha=0.940$ for the sub-dimension trainer's characteristics (question 4, 16, 21, 29, 34, 35, 43, 47, 49, 51, 63), a value of $\alpha=0.920$ for the sub-dimension Training Programs (question 3, 22, 26, 30, 36, 44, 45, 53, 55, 58), a value of $\alpha=0.890$ for Teaching Methods (question 6, 11, 14, 19, 33, 40, 48), a value of $\alpha=0.900$ for the measurement and evaluation sub-dimension (question 25, 32, 52, 54), a value of $\alpha=0.920$ for the support services sub-dimension (question 7, 13, 18, 24, 31, 37, 57, 62) (Paktaş, 2015).

This study reported that KMO and Barlett's test results were 0.961, and Barlett's test was significant ($p<.001$). This is the value and the test that explains whether the sample is sufficient for the analysis. When analyzing the scale's reliability, the Cronbach Alpha value $\alpha=0.981$ shows that it is highly reliable. When the Cronbach Alpha value of the sub-dimensions of the scale is examined, it indicates that Physical Conditions $\alpha=0.866$, Leadership Characteristics $\alpha=0.934$, the vision of the manager $\alpha=0.796$, characteristics of the trainer $\alpha=0.916$, training programs $\alpha=0.892$, teaching methods $\alpha=0.851$, measurement, and evaluation $\alpha=0.835$, and the support services $\alpha=0.874$.

2.5. Data Analysis

The analysis of data was carried out using SPSS 25.0 package program.

In a statistical study, the distribution should be normal or close to normal to perform many tests. Since the data is far from a normal distribution, the analysis results are wrong, and so are the interpretations. Tabachnick and Fidell (2013) assume that the distribution is normal if the skewness and kurtosis values are between +1,500 and -1,500. Since the values for skewness (-.831) and kurtosis (.954) of these scale expressions are between +1.500 and -1.500, we can say that the distribution is normal in our study. For this reason, analysis tests that can be performed with a normal distribution were performed in our research.

The significance tests were based on a significance level of 0.05 (p). Independent samples t-test (Independent Samples T-test), one-way analysis of variance (One Way ANOVA) for unrelated samples with more than two means, and tests for correlation analysis were used to analyze the data concerning the sub-dimensions.

2.6. Ethical

Before the research was carried out, permission was obtained from Ethics Committee of Bayburt University (Date: 09.06.2020, Number of Sessions: 2020/42).

3. Findings

Table 1: Frequency and Percentages of Demographic Variables

Variable	Group	N	%
Gender	Female	93	33.7
	Male	183	66.3
Grade	1st Grade	88	31.9
	2nd Grade	72	26.1
	3rd Grade	56	20.3
	4th Grade	60	21.7
Department	Physical Education and Sports Teaching	39	14.1
	Coaching Education	170	61.6
	Sports Management	67	24.3
Place of Residence	Village	46	16.7
	District	91	33.0
	Province	77	27.9
	Metropolis	62	22.5
Socioeconomic Status	Low	44	15.9
	Middle	210	76.1
	High	22	8.0
Education Status of the Mother	Primary School	196	71.0
	Secondary School	45	16.3
	High School	17	6.2
	Associate Degree	7	2.5
	Undergraduate Degree	11	4.0
Education Status of the Father	Primary School	130	47.1
	Secondary School	75	27.2
	High School	46	16.7
	Associate Degree	7	2.5
	Undergraduate Degree	16	5.8
The Type of High School of Graduation	Open Education High School	3	1.1
	Anatolian High School	101	36.6
	Anatolian Imam Hatip High School	40	14.5
	Multi-Program Anatolian High School	24	8.7
	Vocational and Technical	60	21.7
	Anatolian High School		
	Social sciences High School	1	0.4
Other	47	17.0	

Table 1 shows the frequency and percentages of students who participated in the study according to the different variables. 93 (33.7%) of the 276 students who participated in the study were female, and 183 (66.3%) were male. According to the grade variable of the students, 88 persons (31.9%) participated from 1st grade, 72 persons (26.1%) participated from 2nd grade, 56 persons (20.3%) participated from 3rd grade, and 60 persons (21.7%) participated from 4th grade). Looking at the distribution of students according to the department they study, 39 (14.1%) out of 276 students are Physical Education and Sports Teaching, 170 (61.6%) Coaching Education, and 67 (24.3%) Sports Management Department. Looking at the distribution of students according to the variable socioeconomic level, 44 students (15.9%) are at a low socioeconomic level, 210 students (76.1%) are at a medium socioeconomic level, and 22 students (8%) are at a high socioeconomic level. A high percentage of participants reported being in the middle socioeconomic status. Looking at the distribution of students according to the variable of mother's education level, 196 (71%) have primary school graduates, 45 (16.3%) have secondary school graduates, 17 (6.2%) have a high school graduates, 7 have an associate degree graduates (2.5%) and bachelor's degree graduates can be seen that there are 11 (4%) persons. Looking at the distribution of students by father's educational level, it is found that 130 (47.1%) are primary school graduates, 75 (27.2%) are secondary school graduates, 46 (16.7%) are high school graduates, 7 (2.5%) are associate degree graduates, and 16 (5.8%) are bachelor's degree graduates. Looking at the type of high school from which students graduated, there are 3 (1.1%) open high schools, 101 (36.6%) Anatolian high schools, 40 (14.5%) Imam Hatip Anatolian

high schools, 24 (8.7%) multi-program Anatolian high schools, 60 (21.7%) vocational and technical Anatolian high schools, 1 (0.4%) social science high school, and 47 (17%) graduates from other high schools. Looking at the variable of the place of residence of the students participating in the study, it is found that 46 (16.7%) live in the village, 91 (33%) in the district, 77 (27.9%) in the province, and 62 (22.5%) in the metropolitan area. It was also found that the average age of the students participating in the study is 21.97 years.

Table 2: Arithmetic Mean and Standard Deviation Values of Scale Sub-Dimensions

Sub-Dimension No	Sub-Dimension Name	n	\bar{X}	SS
1	Physical Conditions	276	3.04	1.096
2	Leadership Characteristics	276	3.51	.906
3	Manager's Vision	276	3.73	.850
4	Trainer's Characteristics	276	3.52	.880
5	Training Programs	276	3.43	.863
6	Teaching Methods	276	3.70	.831
7	Measurement and Evaluation	276	3.32	.975
8	Support Services	276	3.05	.976

When the arithmetic mean of participants' scores from the sub-dimensions of the scale is examined in Table 2, it is seen that the highest score is in the sub-dimension of "Manager's Vision."

Table 3: The t-test on Quality Perception Levels of Students by Gender Variables

Sub-Dimensions	Gender	n	\bar{X}	SS	t	P
Physical Conditions	Female	93	2.59	.949	-5.304	.000*
	Male	183	3.29	1.091		
Leadership Characteristics	Female	93	3.26	.893	-3.318	.001*
	Male	183	3.64	.889		
Manager's Vision	Female	93	3.62	.829	-1.480	.140
	Male	183	3.78	.858		
Trainer's Characteristics	Female	93	3.31	.827	-2.761	.006*
	Male	183	3.62	.889		
Training Programs	Female	93	3.18	.843	-3.554	.000*
	Male	183	3.56	.846		
Teaching Methods	Female	93	3.52	.834	-2.591	.010*
	Male	183	3.79	.817		
Measurement and Evaluation	Female	93	3.18	.900	-3.856	.000*
	Male	183	3.65	.976		
Support Services	Female	93	2.69	.803	-4.375	.000*
	Male	183	3.22	1.010		

*p<0.05

Looking at the results in Table 3, the results of the t-test for independent groups conducted to determine whether the sub-dimensions of the scale on the perception of the quality of the school that students attend have a statistically significant difference depending on the gender variable, there are statistically significant differences in the other sub-dimensions of the scale, except for the "manager's vision" ($p < 0.05$). Looking at the arithmetic means, we can say that this difference is generally in favor of the male students.

Table 4: ANOVA Test on Quality Perception Levels of Students by Grade Variable

Sub-Dimensions	Grade	N	\bar{X}	Ss	F	p	Scheffe Test
Physical Conditions	1st Grade	88	3.45	.105	7.885	.000*	1-2 1-3
	2nd Grade	72	2.86	.124			
	3rd Grade	56	2.63	.153			
	4th Grade	60	3.11	.137			
Leadership Characteristics	1st Grade	88	3.80	.724	5.632	.001*	1-3
	2nd Grade	72	3.41	.859			
	3rd Grade	56	3.21	1.087			
	4th Grade	60	3.49	.919			
Manager's Vision	1st Grade	88	4.01	.620	5.572	.001*	1-3
	2nd Grade	72	3.68	.777			
	3rd Grade	56	3.50	1.043			
	4th Grade	60	3.59	.932			
Trainer's Characteristics	1st Grade	88	3.77	.763	7.494	.000*	1-3 2-3
	2nd Grade	72	3.62	.775			
	3rd Grade	56	3.12	1.064			
	4th Grade	60	3.39	.833			
Training Programs	1st Grade	88	3.66	.817	4.779	.003*	1-3
	2nd Grade	72	3.38	.749			
	3rd Grade	56	3.12	1.019			
	4th Grade	60	3.44	.817			
Teaching Methods	1st Grade	88	3.83	.730	2.657	.052	-
	2nd Grade	72	3.70	.796			
	3rd Grade	56	3.44	1.020			
	4th Grade	60	3.75	.783			
Measurement and Evaluation	1st Grade	88	3.74	.893	5,475	.001*	1-3
	2nd Grade	72	3.47	.890			
	3rd Grade	56	3.08	1.082			
	4th Grade	60	3.52	.980			
Support Services	1st Grade	88	3.31	.975	5.138	.002*	1-3
	2nd Grade	72	2.95	.955			
	3rd Grade	56	2.68	.974			
	4th Grade	60	3.09	.906			

*p<0.05

As can be seen in Table 4, as a result of the one-way analysis of variance (ANOVA) of the PESPERF sub-dimensions with the students' grade variable, a statistically significant difference was found in the other sub-dimensions of the scale, except for "Teaching Methods" (p 0.05). Scheffe's test for multiple comparisons was used for the sub-dimensions where the difference occurred. When the results of Scheffe's test are analyzed at the sub-dimension level, the difference in the sub-dimension "Physical Conditions" between the 1st and 2nd grade ($\bar{x}=3.45 - \bar{x}=2.86$) is in favor of the 1st grade and between the 1st and 3rd grade ($\bar{x}=3.45 - \bar{x}=2.63$) is in favor of the 3rd grade. In the sub-dimension "Leadership Characteristics," a significant difference is found between 1st and 3rd grade ($\bar{x}=3.80 - \bar{x}=3.21$) in favor of 1st grade. In the sub-dimension "Manager's vision," there is a significant difference between the 1st and 3rd grades ($\bar{x}=4.01 - \bar{x}=3.50$) in favor of the 1st grade. In the sub-dimension "Trainer's Characteristics," there is a significant difference between the 1st and 3rd grades ($\bar{x}=3.77 - \bar{x}=3.12$) in favor of the 1st grade, while between the 2nd and 3rd grade ($\bar{x}=3.62 - \bar{x}=3.12$) there is a significant difference in favor of the 2nd grade. In the sub-dimension "Training Programs," there is a significant difference between 1st and 3rd grade ($\bar{x}=3.66 - \bar{x}=3.12$) in favor of 1st grade. In the sub-dimension "Measurement and Evaluation," there is a significant difference between 1st and 3rd grade ($\bar{x}=3.74 - \bar{x}=3.08$) in favor of 1st grade. In

the sub-dimension "Support Services," there is a significant difference between 1st and 3rd grade ($\bar{x}=3.31$ - $\bar{x}=2.68$) in favor of 1st grade.

Table 5: ANOVA Test Related to the Quality Perception Levels of Students According to the Variable

Sub-Dimensions	SED	N	\bar{x}	Ss	F	p	Scheffe
Physical Conditions	Low (1)	44	2.71	1.035	3.060	0.050	—
	Medium (2)	210	3.10	1.097			
	High (3)	22	3.33	1.097			
Leadership Characteristics	Low (1)	44	3.08	.878	8.611	0,001*	1-2
	Medium (2)	210	3.56	.902			
	High (3)	22	3.97	.664			
Manager's Vision	Low (1)	44	3.31	.869	7,499	.001*	1-2 1-3
	Medium (2)	210	3.78	.833			
	High (3)	22	4.04	.724			
Trainer's Characteristics	Low (1)	44	3.08	.883	7.718	.001*	1-3
	Medium (2)	210	3.58	.862			
	High (3)	22	3.83	.767			
Training Programs	Low (1)	44	2.97	.942	8.914	.000*	1-2
	Medium (2)	210	3.49	.831			
	High (3)	22	3.76	.684			
Teaching Methods	Low (1)	44	3.28	.995	8,378	.000*	1-2 1-3
	Medium (2)	210	3.75	.784			
	High (3)	22	4.04	.617			
Measurement and Evaluation	Low (1)	44	3.00	.922	9.709	.000*	1-2
	Medium (2)	210	3.54	.968			
	High (3)	22	4.03	.753			
Support Services	Low (1)	44	2.56	.902	7.371	.001*	1-3
	Medium (2)	210	3.11	.959			
	High (3)	22	3.36	1.017			

*p<0.05

In Table 5, as a result of the one-way analysis of variance (ANOVA) performed between the sub-dimensions of the PESPERF scale and the quotient variable, a statistically significant difference is found for the other sub-dimensions, except for the sub-dimension "Physical Conditions" ($p<0.05$). The Scheffé test was used for multiple comparisons to check which departments this difference exists. For the sub-dimension "Leadership Characteristics," a significant difference is found between low and medium socioeconomic levels ($\bar{x}=3.08$ - $\bar{x}=3.56$) in favor of the medium socioeconomic level. For the sub-dimension "Manager's Vision" the difference between low and medium socioeconomic levels ($\bar{x}=3.31$ - $\bar{x}=3.78$) in favor of medium socioeconomic level), between low and high socioeconomic level ($\bar{x}=3.31$ - $\bar{x}=4.04$) in favor of high socioeconomic level is significant. For the sub-dimension "Trainer's Characteristics" there is a significant difference between low and high socioeconomic levels ($\bar{x}=3.08$ - $\bar{x}=3.83$), in favor of high socioeconomic levels. For the sub-dimension "Training Programs" there is a significant difference between low and medium socioeconomic levels ($\bar{x}=2.97$ - $\bar{x}=3.49$) in favor of medium socioeconomic levels. In the sub-dimension "Measurement and Evaluation," there is a significant difference between low and medium socioeconomic levels ($\bar{x}=3.00$ - $\bar{x}=3.54$), in favor of medium socioeconomic level. In the sub-dimension "Support Services," there is a significant difference between a low and a high socioeconomic level ($\bar{x}=2.56$ - $\bar{x}=3.36$) in favor of the high socioeconomic level.

Table 6: Correlation Analysis of Students' Age Variable and Sub-Dimensions of the Scale

N=276	Age	Physical Conditions	Leadership Characteristics	Manager' s Vision	Trainer's Characteristics	Training Programs	Teaching Methods	Measurement and Evaluation	Support Services
Age	1	.049	.005	-.061	-.029	-.003	.053	.030	.044
p		.420	.931	.315	.634	.963	.376	.615	.468

As shown in Table 6, the Pearson correlation analysis conducted to determine the relationship between the sub-dimensions of the PESPERF scale and the students' age variable did not reveal a statistically significant relationship between age and all sub-dimensions on the scale ($p < 0.05$, $p < 0.01$).

Table 7: Correlation Analysis of the location of the Student Residence Variable and the Sub-Dimensions of the Scale

N=276	Place of Residence	Physical Conditions	Leadership Characteristics	Manager' s Vision	Trainer's Characteristics	Training Programs	Teaching Methods	Measurement and Evaluation	Support Services
Place of Residence	1	.122*	.082	.085	.060	.040	.106	.050	.052
p		.043	.176	.159	.324	.510	.079	.406	.385

* $p < 0.05$, ** $p < 0.01$

As can be seen in Table 7, as a result of the Pearson correlation analysis conducted to determine the relationship between the sub-dimensions of the PESPERF scale and the variable of the student's location, a positive, weak, and positive statistically significant relationship was found only for the sub-dimension "Physical Conditions ($r = .122$, $p < 0.05$)" which is one of the sub-dimensions of the scale.

4. Discussion, Conclusion, and Recommendations

Examination of the student's responses to the scale concerning the sub-dimensions revealed that the mean scores ranged from 3.04 to 3.73. From this point of view, it can be said that the student's perception of the quality of education is at a medium level.

It was found that there was a difference in favor of male students in the sub-dimensions Physical Education and Sports Sciences Performance Scale for Physical Education and Sports School students. The gender variable was obtained in the sub-dimensions physical conditions, leadership qualities, trainer's characteristics, training programs, teaching methods, measurement and evaluation, and support services. It can be said that male students place more importance on the quality of education they receive than female students. Considering the studies that reached similar results to our study, Adatepe and Kul (2021) in their study found a difference in favor of male students in the sub-dimensions of physical conditions and assessment and evaluation. Çavuşoğlu and Sağlam (2021) also found a difference in favor of male students in the sub-dimension of physical conditions. On the other hand, Paktaş (2015), Boz and Kiremitçi (2018) did not find any significant difference in their studies concerning the variable of gender. Cohen et al. (1996) state that the physical environment is the skeleton of learning and can promote learning and hinder learning (cited by Polat and Discovery-Kırıkkaya, 2004). Being competent means that the leader has the necessary knowledge, skills, and attitudes to perform his/her tasks following organizational goals (Kayıkçı, 2001; Onural, 2005). Reviewing the literature, one finds that there are

studies that aim to determine the quality of education in higher education institutions by considering one or more of these variables (Ensari and Onur, 2003; Tüzün and Devrani, 2008; Şahin, 2009; Sökmen, 2011). In these studies, it has been shown that teacher quality has an essential place in the quality of education (Yıldırım et al., 2018). Qualified programs are needed to increase the quality of education in the field of education. In universities, lecturers have the task of educating their students through educational programs with the quality required by society (Kalaycı, 2008). According to Temel (1988), teaching methods, one of the curriculum elements, occupy an important place in the efficient implementation of teaching and learning activities (cited in Yüksel, 2008). Undoubtedly, there has been a need for measurement and assessment in every period of education, and attempts have been made to determine student achievement with committee decisions, teacher opinions, examinations, portfolios, and many other instruments we cannot name (Başol et al., 2013). Measurement and evaluation, an integral part of the teaching process, is used to determine student achievement and deficits, understand the effectiveness of teaching methods, and reveal the curriculum's strengths and weaknesses (MEB, 2004; Birgin & Gürbüz, 2008). On the other hand, support services can be defined as "any service that facilitates learners' work at any stage of a curriculum" (Bozkurt, 2013). Based on this information, it can be said that male students care about some details of the physical conditions and pay attention to the qualifications of the head of the institution. It can be said that female students are more satisfied with the adequacy of educational programs, teaching methods used by the instructor during the course, measurement and evaluation methods used, and some support services (such as cultural and sports activities) that should be provided in educational institutions. And in this context, it can be said that the perception of the quality of education is higher.

There were between the 1st grade and the 2nd grade and the 3rd grade in favor of the first grade, between the 1st grade and the 3rd grade in the subdimension Leadership Characteristics in favor of the 1st-grade difference in the subdimension Physical Conditions between the subdimensions Physical Education and Sports Sciences Performance in Universities Providing Physical Education and Sports Education of the participants and the grade variables. In the subdimension vision of the leader between the 1st and 3rd grades, in favor of the 1st grades, in the subdimension trainer's characteristics between the 1st and 3rd grades in favor of the 1st grades and between the 2nd and 3rd grades. In the sub-dimension measurement and evaluation, there is a difference in favor of the 1st grade between the 1st and 3rd grades and a difference in favor of the 1st grade between the 1st and 3rd grades in the support services sub-dimension has been reached. It can be said that 1st-grade students have a higher perception of education quality than 2nd and 3rd-grade students. Similarly, Çavuşoğlu and Sağlam (2021) concluded in their study that 1st-grade students performed better than 4th-grade students in the Support Services sub-dimension. Adatepe and Kul (2021) found that 4th-grade students have a higher perception of quality than the other grades. In the study conducted by Paktaş (2015), the 2nd-grade students in the research group were trained in the sub-dimensions of physical conditions, leadership characteristics, leader, training programs, measurement and evaluation, and support services according to the variable "Students' Grade" which determines their perception of the quality of education. They were found to have a higher perception of quality than 3rd and 4th-grade students. It can be said that the result of our study is that first-year students are more willing because they have just started their university education and the quality of education they perceive is in line with their expectations.

In the subdimension leadership characteristics of the participants, between the subdimensions of Education Quality Scale on the Universities Providing Physical Education and Sports Education for the students of the School of Physical Education and Sports and the variable of socioeconomic level, there was a difference in favor of the medium level between the medium level and the low level. In the manager's vision sub-dimension, there was a difference between the medium level and the low level in favor of the medium level, between the high level and the low level in favor of the high level. In the trainer's characteristics sub-dimension, there was a difference between the high level and the low level in favor of the high level. In the training programs sub-dimension, there was a difference between medium and low in favor of medium, in the teaching methods sub-dimension in favor of medium, and between high and low in favor of high. In the measurement and evaluation sub-dimension, a difference was found between medium and low in favor of medium and the support services sub-dimension, between high and low in favor of high. It can be seen that 15.9% of the students who participated in our study were from low socioeconomic classes, 76.1% were from medium socioeconomic classes, and 8%

were from high socioeconomic classes. Buchta (2009), in his study, found that 12% of students who participated in physical education were from low socioeconomic class, 47% were from middle socioeconomic class, and 41% were from high socioeconomic class. Adatepe's (2018) study revealed that 8.1% of the students were from low socioeconomic class, 73.4% were from medium socioeconomic class, and 18.5% were from high socioeconomic class. Paktaş (2015), in his study, concluded that students with high socioeconomic levels have a higher perception of educational quality than other socioeconomic levels. Adatepe and Kul (2021), in their study, concluded that students with high socioeconomic status perceive the quality of education they receive at the institution where they study as higher. In line with this information, it can be said that the tendency of students with low socioeconomic status to go into business to complete their education as soon as possible and strengthen their financial situation, rather than the quality of education they receive, is the cause of this difference.

No statistically significant relationship was found between the subdimensions of Physical Education and Sports Sciences Performance in Universities Providing Physical Education and Sports Education and the age variable. In contrast to our study, Adatepe and Kul (2021) found a negative relationship between the age variable and the sub-dimensions of "Leadership Characteristics, Leader's Vision, Trainer's Characteristics, Training Programs, Measurement and Evaluation" in their study. They find that the perception of the quality of the above dimensions (Leadership Characteristics, Leader's Vision, Trainer's Characteristics, Training Programs, Measurement and Evaluation) decreases as the student's age increases. Çavuşoğlu and Sağlam (2021) find in their study that the higher age group has lower educational quality on average because they can evaluate educational programs better with increasing age and experience. In our study, it can be said that the age variable did not cause any change in students' perception of educational quality.

A positive and weak relationship was found between physical conditions and the variable of residence, which is one of the sub-dimensions of Physical Education and Sports Sciences Performance in Universities Providing Physical Education and Sports Education. Education is a multidimensional phenomenon that develops under the influence of many factors. The physical conditions of educational buildings, one of these factors, play a critical role in the quality of education (Al Şensoy & Sağsöz, 2015). According to Uludağ and Odacı (2002), "physical environment refers to the characteristics of the space reserved for educational activities. Some factors such as desks, tables, cabinets, etc., empty spaces, warmth, light, and the color scheme of the space constitute the variables of the physical environment. The relationships between teachers and students are greatly influenced by these physical variables (Aydın, 1988). According to Al Şensoy and Sağsöz (2015), it is claimed that the physical conditions of educational buildings directly or indirectly influence student performance (Lackney, 1999; Lyons 2001; Edward, 2006; Vandier, 2011). In this context, it can be said that as students move from village to district, from district to city, from province to metropolis, they begin to attach more importance to the physical environment of the institution where they study. This situation influences their perception of educational quality.

Consequently, it can be said that the variables of gender, place of residence, grade, place of residence, and socioeconomic level have a significant influence on individual perceptions of educational quality. It was found that students perceived the education they received at Bayburt University School of Physical Education and sports as mediocre in all sub-dimensions of the scale. In line with this result, it is considered that it is beneficial for the institution concerned to undertake activities to improve the quality of education to make it a point of attraction for students who may prefer that institution in the future.

References

- Adatepe, E. (2018). *Beden Eğitimi ve Spor Yüksekokulu Öğrencilerinin Eğitim Kalite Algılarının Ölçülmesi (Bartın Üniversitesi Örneği)*. Yüksek Lisans Tezi, Bartın Üniversitesi, Eğitim Bilimleri Enstitüsü, Beden Eğitimi ve Spor Öğretimi Anabilim Dalı, Bartın.
- Adatepe, E., Kul, M. (2021). *Beden Eğitimi ve Spor Yüksekokulu Öğrencilerinin Algıladığı Eğitim Kalitesinin İncelenmesi (Kitap Bölümü)*. *Psiko-sosyalden Antrenmana Spor Bilimlerinde Güncel Çalışmalar* (Editör: Ender Eyüboğu, Cem Sinan Aslan). LAP Lambert Academic Publishing.

- Al Şensoy, S., & Sağsöz, A. (2015). Eğitim Yapılarında Öğrenci Odaklı Tasarım. *Electronic Turkish Studies*, 10(11). DOI: <http://dx.doi.org/10.7827/TurkishStudies.8216>
- Aydın, A. (1988) Sınıf Yönetimi, Anı Yayıncılık, Ankara.
- Başol, G., Çakan, M., Kan, A., Özbek, Ö. Y., Özdmir, D., & Yaşar, M. (2013). Eğitimde ölçme ve değerlendirme. Ankara: Pegem Akademi Yayıncılık.
- Başaran, İ.E. (1984). Eğitime Giriş. Ankara: Sevinç Matbaası.
- Billington, R. (1997). Felsefeyi Yaşamak (Çev. A. Yılmaz). İstanbul: Ayrıntı Yayınları.
- Birgin, O., & Gürbüz, R. (2008). Sınıf öğretmeni adaylarının ölçme ve değerlendirme konusundaki bilgi düzeylerinin incelenmesi. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, (20), 163-179. Retrieved from <https://dergipark.org.tr/en/pub/susbed/issue/61796/924236>
- Boz B. & Kiremitçi, O (2018). Education Quality Perceptions of the Faculty of Sports Sciences Students: Gender, Department, Program and Ygs Achievement Level Differences. 16. International Sport Science Congress, vol.1, Antalya, Turkey, pp.432-439.
- Bozkurt, A. (2013). Mega Üniversitelerde Öğrenci Destek Hizmetleri. Akademik Bilişim Konferansı, Antalya. https://ab.org.tr/ab13/kitap/bozkurt_mega_AB13.pdf
- Buchta, K. (2009). Quality of education from the perspective of a student of university of physical education. *Pol J Sport Tourism* 16 (39), 48.
- Cohen, L., Manion, L. & Morrison, K. (1996). A Guide To Teaching Practice. Routledge, Great Britain By Clays Ltd, St Ives Plc, Fourth Edition. London ve New York.
- Çavuşoğlu, G., & Sağlam, E. (2021). Spor Bilimleri Fakültesi Öğrencilerinin Eğitim Kalite Algılarının İncelenmesi (Ondokuz Mayıs Üniversitesi Örneği). 2.Pearson Journal International Conference On Social Sciences & Humanities, Full Texts Book. June 28-29.
- Demirhan Yüksel, Y. (2011). "Kalite ve Kaliteli Üniversite" Kavramlarına İlişkin Üniversite Öğrencilerinin Algıları (Gazi Üniversitesi Gazi Eğitim Fakültesi Örneği). Yüksek lisans tezi, Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Eğitim Bilimleri Anabilim Dalı, Ankara.
- Dönmez, A., & Özoğlu, E. A., Yıldırım, N., (2018). Eğitim Fakültesi Öğrencilerinin Kalite Bağlamında Öğretim Elemanlarından Beklentileri. *Electronic Journal of Education Sciences*, 7(14), 124-138. Retrieved from <https://dergipark.org.tr/en/download/article-file/585863>
- Edwards, N. C. (2006). School facilities and student achievement: student perspectives on the connection between the urban learning environment and student motivation and performance. Doctoral Thesis, Philosophy Department of the Ohio State University, Ohio, America.
- Ensari, H. ve Onur, V. (2003). Kaliteye ilişkin öğrenci beklentileri: Eğitim fakülteleri örneği. *Amme İdaresi Dergisi*, 36 (3), 145-153.
- Erden, M. (1998). Öğretmenlik mesleğine giriş. İstanbul: Alkım
- Ertürk, S., (1979). Eğitimde Program Geliştirme. Ankara: Yelken-tepe yayınları
- Eğitimpedia. (2021). Eğitimde kalite yönetimi nedir? <https://www.egitimpedia.com/ebgitimde-kalite-yonetimidir#> Erişim Tarihi:10.02.2021
- Fraser, B. J. (1998). Classroom environment instruments: Development, validity, and applications. *Learning Environments Research*, 1, 7-33. DOI: <https://doi.org/10.1023/A:1009932514731>
- Güneş, A. (2004). Okullarda Beden Eğitimi ve Oyun Öğretimi. İstanbul: Pegem.
- Kalaycı, N. (2008). Yükseköğretimde Uygulanan Toplam Kalite Yönetimi Sürecinde Gözardı Edilen Unsurlardan" Tky Merkezi" ve" Eğitim Programları". *Türk eğitim bilimleri dergisi*, 6(2), 163-188. Retrieved from <https://dergipark.org.tr/en/pub/tebd/issue/26112/275106>
- Karasar, N. (2014). Bilimsel Araştırma Yöntemi: Kavramlar İlkeler Teknikler, Nobel Akademik Yayıncılık, 26 Basım
- Kayıkçı, K. (2001). Yönetici yetiştirme sorunu. *Milli Eğitim Dergisi*, Mart-Nisan-Mayıs :150
- Keskin. A. ve Keskin B. (2005). Eğitimde toplam kalite- Okul yönetimin kalite arayışı. Samsun: Deniz
- Kul, M. (2008). Beden eğitimi öğretmenlerinin sorunları ve performanslarına etkileri (Sakarya ili örneği). (Yüksek Lisans Tezi) Sakarya Üniversitesi, Sosyal Bilimler Enstitüsü, Beden Eğitimi ve Spor Öğretmenliği Anabilim Dalı, Sakarya.
- Lackney, J. A. (1999). Why optimal learning environment matter. Mississippi: Mississippi State University, Mississippi State Educational Design Institute.
- Lyons, J. B. (2001). Do school facilities really impact a child's education? <http://www.cefp.org:80/issuetraks.html>
- Milli Eğitim Bakanlığı (MEB) (2004). İlköğretim Okulu Matematik Dersi Öğretim Programı. Ankara: MEB. Talim ve Terbiye Kurulu Başkanlığı.
- Onural, H. (2005). Üst düzey eğitim yöneticilerinin eğitim yönetimi alanındaki yeterlik sorunu ve nedenleri. *Kuram ve Uygulamada Eğitim Yönetimi*, 41(41), 69-85. Retrieved from <https://dergipark.org.tr/en/download/article-file/108380>
- Özden, Y. (2002). Eğitimde Yeni Sistem Arayışları. Öğretmenlik Mesleğine Giriş. Ankara: Pegem

- Paktaş, Y. (2015). Öğrenci algıları çerçevesinde beden eğitimi ve spor öğretimi veren üniversitelerde eğitim kalitesi. (Doktora Tezi) Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.
- Polat, S. ve Buluş-Kırıkkaya, E. (2004). Gürültünün Eğitim-Öğretim Ortamına Etkileri. XIII. Ulusal Eğitim Bilimleri Kurultayı, 6-9 Temmuz. İnönü Üniversitesi, Eğitim Fakültesi, Malatya
- Sökmen, A. (2011). Öğrenci memnuniyetine yönelik Ankara'daki bir meslek yüksekokulunda araştırma. İşletme Araştırmaları Dergisi, 3(4), 66-79. Retrieved from <https://isarder.org/isardercom/2011vol3no4/e55.pdf>
- Şahin, A. E. (2009). Eğitim fakültesinde hizmet kalitesinin eğitim fakültesi öğrenci memnuniyet ölçeği (EF-ÖMÖ) ile değerlendirilmesi. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 37,106-122. Retrieved from <https://dergipark.org.tr/en/pub/hunefd/issue/7801/102231>
- Şişman, M. (2001). Öğretmenliğe giriş. Ankara: Pegem
- Tabachnick, B. G. & Fidell, L.S. (2013). Using Multivariate Statistics (sixth ed.) Pearson, Boston
- Temel, A., (1988). Öğretim Yöntemleri ve Değerlendirme İlişkisinde Öğretmenin Rolü. Çağdaş Eğitim Dergisi, 133, ss:11-17.
- Tüzün, İ. K. ve Devrani, T. K. (2008). Müşteri memnuniyeti ve müşteri-çalışan etkileşimi üzerine bir araştırma. Eskişehir Osmangazi Üniversitesi İİBF Dergisi, 3(2), 13-24. Retrieved from <https://dergipark.org.tr/en/pub/oguiibf/issue/56500/785705>
- Uludağ, Z. ve Odacı, H. (2002). Eğitim Öğretim Faaliyetlerinde Fiziksel Mekan. Milli Eğitim Dergisi, s. 153-154.
- Vandier, B. (2011). The impact of school facilities on the learning environment. (Doctoral Thesis) Capella University, America
- Yaylacı, F. (1998). İlköğretim Okulları Beden Eğitimi Dersi Öğretim Programının Değerlendirilmesi. Afyon Kocatepe Üniversitesi Sosyal Bilimler Dergisi, 1, 95-106.
- Yüksel, M. (2008). Öğretim Yöntem-Tekniklerinin Kullanımına Etki Eden Faktörler. Education Sciences, 3(3), 437-452.



The Effect of Human Relations and Communication Lesson on Eloquent Speaking Skill

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Abstract

In this study, the effect of human relations and communication lessons on eloquent speaking skills was examined by using the pretest-posttest control group model. 96 students studying at Hatay Mustafa Kemal University School of Physical Education and Sports participated in the research voluntarily in the spring semester of 2020-2021. The data were collected during the oral presentations made in the human relations and communication lesson with the Rating Scale to Assess Speaking Skills for Turkish Native Speakers developed by Bozkurt and Arica-Akkök (2019). Descriptive statistics were used to determine the level of speaking skills of physical education teacher candidates before and after speaking practices, and their standard deviation and arithmetic mean scores were examined. Wilcoxon Signed-Ranks Test was applied to determine whether there was a significant difference in speaking skill scores before and after the lesson. According to the research findings; while the pretest averages of the experimental group students were lower than the control group, their posttest averages were higher than the control group. It was determined that there was a significant difference between the scores of the students participating in the study before and after the experiment from the speaking skills observation form, and when the mean rank and totals of the difference scores were taken into account, it was seen that this difference was in favor of the positive ranks, that is, the posttest score. It was determined that there was no significant difference between the pre-test and post-test scores obtained from the speaking skills observation form of the students participating in the study in the control group.

Keywords: Human Relations, Communication, Eloquent Speaking, Effective Communication, Listening

1. Introduction

1.1 Introduce the Problem

People in the world are divided into two in terms of the act of speaking in every environment of their individual and social relations; speaking and listening. We express our thoughts and feelings with speech, which is the shortest and most striking way. The place of speaking, especially correct, effective and nice speaking, is very valuable in our business, social and private lives. In this process, the one who speaks well influences the listener with what she/he says (Şahzade, 2007).

Man is in communication by nature; therefore they feel the need to explain, understand, learn and interpret. This need, which we call communication, is as important as food, drink, sleep and shelter. For this reason, communication is a necessity for human beings and is a dynamic process that started with the history of humanity (Özdemir, 2017). The main purpose of communication is to survive. We communicate in order to establish relationships, to get to know people, to introduce ourselves, to obtain information, in general, to meet our personal and social needs (Erdoğan, 2011). The sounds we hear, a shape we see, an image or writing, a movement, a touch must have a common meaning. Today, letters, numbers, words, signs, graphics, images and body language elements are used in the coding system. A large part of our life; speaking, listening, reading, writing, watching, in a more general sense, is through communication. Diversifying and accelerating such an important need, finding new symbols has been one of the primary goals of people and has constantly developed communication tools by using technology. Especially with the introduction of the internet and mobile communication tools into our lives, it has become much easier to communicate more quickly with larger audiences. It is possible to classify the communication tools we use today depending on the form of communication, the nature of the message and its purpose: Natural means of communication, artificial means of communication; Personal and mass media; Written, verbal and non-verbal communication tools; such as technological and artistic communication tools (Özdemir, 2017).

The concepts of listening and hearing are often confused with each other. Hearing is the sending of sound waves perceived by the ear to the brain via nerves. Listening is a cognitive process that includes hearing (Güneş, 2007). Students who understand what they read and listen to, who have advanced analysis and synthesis skills, who can express their feelings and thoughts effectively, who have high academic success, also have high listening skills (Aktaş ve Gündüz, 2004). When something is told, it is expected to be listened to (Henderson, 2008).

From time to time, we complain about the people we communicate with because they do not understand us. At this point, you should also consider: Don't they understand us? Or do we not explain ourselves well? An effective body language means an effective expression of our feelings and thoughts. Using body language well contributes to our understanding of the body language of others. The effect of non-verbal elements in the transmission of a message is 60-65% (Navarro, 2016). Effective and eloquent speaking is speech that provides interaction between the listener and the speaker, attracts the attention and interest of the listeners, thus stimulating them in line with an active behavior; knowing what, when, where, how to say (Harkins, 2005).

It is essential for today's people to have a good expression skills. The individual's adaptation to his/her cultural environment, being successful in his/her profession, developing a solid personality; It depends on expressing his thoughts and feelings to those around him effectively and accurately. A successful speaking is a well-planned speech. The speech plan consists of the purpose of the speech, the subject of the speech and the main lines. Introduction section; It should include the purpose of the speech, a complete summary of what will be said, and then move on to the explanation section. In the conclusion part, which is the most important part of the speech; a judgment is made on the basis of what is told during the speech. The examples that the speaker will use will not only support her/his thesis but will also be useful in attracting the attention of the audience. The examples given should be taken from real life. Examples from real life always attract the attention of the audience. During the conversation, attention should be paid to: Need, language rules, avoiding waste of words, benefiting from auditory and visual effects, not being memorized, being moderate in speaking time, accuracy and sincerity, liveliness and naturalness, volume-speed-tone of voice, eye contact, smiling, feeling of confidence in speaking, being respectful and tolerant, ensuring the participation of the audience (Şahin, 2007).

Regardless of the level of education, it is an unforgivable mistake for people to use their language incorrectly. Being able to express oneself accurately, effectively and completely is the most important point of education and development. In modern education systems, detailed studies should be carried out in order to use the language carefully and correctly. From this point of view, the aim of this study is to examine the effect of human relations and communication lessons on eloquent speaking skills.

2. Method

2.1 Model of the Research

In the research designed with the quantitative research method, the experimental model with a pre-test and post-test control group was used. In this model, there are two groups formed by unbiased assignment. Measurements are made before and after the experiment in both groups (Karasar, 2014).

Table 1: Symbolic view of the model

G ₁	R	O _{1.1}	X	O _{1.2}
G ₂	R	O _{2.1}		O _{2.2}

G: Group, R: Randomness, X: Independent variable, O: Observation

2.2 Study Group

96 students studying at Hatay Mustafa Kemal University School of Physical Education and Sports participated in the research voluntarily in the spring semester of 2020-2021. Ethics committee report dated 01.09.2021 and decision numbered 2021/8/10 was obtained from Hatay Mustafa Kemal University Social and Human Sciences Scientific Research and Publication Ethics Committee.

Table 2: Frequency and percentage results of experimental and control groups according to gender variable

Group	Gender	n	%
Experimental Group	Female	20	41.7
	Male	28	58.3
	Total	48	100.0
Control Group	Female	18	37.5
	Male	30	62.5
	Total	48	100.0

According to Table 2, 41.7% of the experimental group participants were female and 58.3% male. On the other hand, 37.5% of the control group was female and 62.5% was male.

2.3 Data Collection Tools

Data were collected with the Speaking Skill Rating Scale for Native Turkish Speakers developed by Bozkurt and Arıca-Akkök (2019). Permission was obtained for the use of the scale. The scale is designed as a tool to provide feedback to the speaker in areas of strengths and weaknesses as part of the process evaluation. It consists of 30 items and sections on pronunciation, fluency, content-language use, and interaction-presentation strategies. The whole of the observation form or each part of it for the purpose can be used separately. The content validity value of all items in the observation form is over .80.

2.4 Data Collection Process

The data of the research were collected during the oral presentations made in the human relations and communication lesson in the spring semester of 2020-2021. As a result of the pre-test, the participants were divided into two as experimental and control groups. The eloquent skills of the experimental group were weaker than the control group. As a result of the experimental activity, it was aimed for the experimental group to reach or exceed the level of the control group. While training on eloquent skills was given to the experimental group in the human relations and communication lesson, no study was conducted in the control group. Human relations and communication lesson is a theoretical lesson for 2 hours per week. Pre-test presentations were made online on any topic determined by the students for 10 minutes, and during these presentations, the researcher filled in the observation form. Pre-test presentations were completed in 2 weeks, then speaking skills activities in the human relations and communication lesson were applied. Eloquent speaking activities were held for 10 weeks

within the framework of the curriculum topics of the human relations and communication lesson. At the end of ten weeks, the students were asked to make an online presentation for 10 minutes on a topic determined by the students, and the speaking skills observation form was filled again by the researcher during the presentation. Limitation of this research; Internet connection problems during online presentations.

2.5 Data Analysis

In order to determine the level of speaking skills of physical education teacher candidates before and after speaking practices, descriptive statistics were used and standard deviation and arithmetic mean scores were examined. Wilcoxon Signed-Ranks Test was applied to determine whether there was a significant difference in speaking skill scores before and after the lesson. The data were analyzed with the SPSS 22.0 computer program.

3. Results

Table 3: Descriptive statistical analysis results according to age and scale scores of the experimental and control groups

Group		Min.	Max.	X	Ss
Experimental Group	Age	19	30	22.89	2.92
	Pre-test Total	30	77	53.25	11.82
	Post-test Total	90	120	102.50	14.94
Control Group	Age	19	29	22.97	3.18
	Pre-test Total	30	120	91.25	21.42
	Post-test Total	63	117	93.12	13.54

Table 3 shows the descriptive statistical analysis results according to the age and scale scores of the experimental and control groups. While the pre-test averages of the experimental group students were lower than the control group, the post-test averages were higher than the control group. According to this, it is seen that the targeted level in the speaking skills practices applied in the human relations and communication lesson has been achieved.

Table 4: Wilcoxon signed-ranks test results for the pre and post-test scores of the experimental group on eloquent speaking skills

Post test- Pre test	n	Mean Rank	Sum of Rank	z	p
Negative Ranks	0	.00	.00	6.03*	.000
Positive Ranks	48	24.50	1176.00		
Ties	0				

* Based on negative ranks

The Wilcoxon signed-rank test results regarding whether the speaking skills of the participants before and after the experiment showed a significant difference are given in Table 4. The results of the analysis show that there is a significant difference between the pre-experiment and post-experiment scores of the students participating in the study from the speaking skills observation form, $z=6.03$, $p<.01$. When the mean rank and totals of the difference scores are taken into account, it is seen that this difference is in favor of the positive ranks, that is, the post-test score. According to these results, it can be said that the education is given in the human relations and communication lesson has an important effect on the development of students' speaking skills.

Table 5: Wilcoxon signed-ranks test results for the pre and post-test scores of the control group on eloquent speaking skills

Post test- Pre test	n	Mean Rank	Sum of Rank	z	p
Negative Ranks	28	19.73	552.50	.112*	.903
Positive Ranks	19	30.29	575.50		
Ties	1				

* Based on negative ranks

The Wilcoxon signed-rank test results regarding whether the speaking skills of the control group show a significant difference are given in Table 5. The results of the analysis show that there is no significant difference between the pre-test and post-test scores of the students participating in the study from the speaking skills observation form, $z=.112$, $p>.01$. According to these results, it can be said that there is no improvement in the speaking skills of the students who did not attend the human relations and communication lesson.

4. Discussion

In this study, in which the effect of human relations and communication courses on eloquence skills was examined; while the pre-test averages of the experimental group students were lower than the control group, the post-test averages were higher than the control group. According to this, it is seen that the targeted level in the speaking skills practices applied in the human relations and communication lesson has been achieved. It was determined that there was a significant difference between the pre-experiment and post-experiment scores of the students participating in the study from the speaking skills observation form. According to these results, it can be said that the education given in the human relations and communication lesson has an important effect on the development of students' eloquent skills. It was determined that there was no significant difference between the pre-test and post-test scores obtained from the speaking skills observation form of the students participating in the study in the control group. According to these results, it can be said that there is no improvement in the speaking skills of the students who did not attend the human relations and communication lesson.

When the studies in the literature are examined; Alan (2021) revealed that pre-service teachers' speaking self-efficacy perceptions are above the medium level, the gender variable is not a determining factor in speaking self-efficacy perceptions, and the grade level and department variables affect their speaking self-efficacy perceptions. Özdemir (2018) stated that pre-service teachers' speaking anxiety was moderate in the pre-test and low in the post-test; stated that making prepared speeches makes a significant difference in eliminating the speaking anxiety of pre-service teachers. Temiz (2015) stated that pre-service teachers who took pedagogical formation had very little speaking anxiety and that the speaking anxiety of pre-service teachers did not differ according to the variables of Turkish, Mathematics, Science and Music. Cengiz and Karabulut (2015) determined that education at the university affects the speaking skill positively, but according to the perceptions of female students, the instructors are insufficient in the development of this skill.

In the research of Sönmez (2014), it was stated that the correct and effective speaking skills could be taught to the students with the individual voice training course, but the studies could not be fully realized due to the inadequacy of the course hours; It has been revealed that the teacher should be a good role-model in teaching correct, beautiful and effective skills. Akkaya (2013) determined that pre-service teachers have psychological problems (not being able to speak in public, not speaking in one-to-one relationships), voice, tone emphasis, pronunciation mistakes, speech pause, lack of knowledge, inability to apply grammar rules, inability to focus on speaking, and speech problems arising from social obstacles due to physical reasons. Eyüp (2013)'s study revealed that although university students care about effective and eloquent speaking, they are not interested in printed products or publications related to oral expression. At the same time, the majority of the students (72%) stated that they enjoyed discussions about oral expression. This showed that university students like to share their ideas and exchange ideas. According to the opinions of Başaran and Erdem (2009) about pre-service teachers' eloquence; They think that getting a university education affects the speaking skill positively, but the oral expression course given at the university is insufficient for the development of this skill. All of the pre-service teachers have positive attitudes towards eloquence and there was no effect of class and department variables on these attitudes.

Some foreign studies have been done on speech anxiety; In the study conducted by Johnson (2012) and Loundmon (1992), gender and self-esteem were determined as important variables affecting students' speech anxiety levels. In the study conducted by Higgins (2001) it was determined that anxiety is at a high level in higher education.

As a result; It has been observed that the education given in the human relations and communication course has a significant effect on improving the speaking skills of physical education and sports teacher candidates. Observing the performances of the students and giving feedback on these performances during a course period is important for the continuation of learning. In the constructivist education system, determining the course status of the students is a task beyond grading their performance and aims to help the student see his/her strengths and weaknesses. The characteristics that develop in students can be listed as follows: Appropriate use of words, command of the subject, correct grammar, use of body language and gestures, speaking clearly and clearly, using language-style that will not disturb, enriching conversations with examples, using proverbs and idioms.

Practical courses on oral expression should be given more place in the curriculum of university students. Oral practices should be increased in human relations and communication, effective communication skills courses rather than theoretical weighting. In modern education systems, detailed studies should be carried out in order to use the language carefully and correctly.

References

- Akkaya, A. (2013). Öğretmen adaylarının konuşma sorunlarına ilişkin görüşleri/The opinions of teacher candidates about speech problems. *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 9(20), 405-420. Retrieved from <https://dergipark.org.tr/en/pub/mkusbed/issue/19549/208420>.
- Aktaş, Ş., Gündüz, O. (2004). *Yazılı ve sözlü anlatım*. Ankara: Akçağ.
- Alan, Y. (2021). Öğretmen adaylarının konuşma öz yeterlik algıları. *RumeliDE Dil ve Edebiyat Araştırmaları Dergisi*, (23), 622-635. DOI: 10.29000/rumelide.949508.
- Başaran, M., Erdem, İ. (2009). Öğretmen adaylarının güzel konuşma becerisi ile ilgili görüşleri üzerine bir araştırma. *Kastamonu Eğitim Dergisi*, 17(3), 743-754. Retrieved from <https://dergipark.org.tr/en/pub/kefdergi/issue/49068/626078>.
- Cengiz, R., Karabulut, E. (2015). Öğrencilerin algılarına göre öğretim elemanlarının iletişim ve konuşma becerileri arasındaki ilişki (Harran Üniversitesi örneği). *Uluslararası Güncel Eğitim Araştırmaları Dergisi*, 1(1), 65-73. Retrieved from <https://dergipark.org.tr/en/pub/intjces/issue/25668/270722>
- Erdoğan, İ. (2011). *İletişimi anlamak*. Ankara: Pozitif Matbaacılık. s.113.
- Eyüp, B. (2013). Üniversite öğrencilerinin konuşma becerilerini kullanmaya yönelik tutumları. *Milli Eğitim Dergisi*, 43(197), 95-113. Retrieved from <https://dergipark.org.tr/en/pub/milliegitim/issue/36167/406563>.
- Güneş, F. (2007). *Türkçe öğretimi ve zihinde yapılandırma*. Ankara: Nobel.
- Harkins, P. (2005). *Etkili konuşmanın gücü*. İstanbul: Alfa.
- Henderson, J. R. (2008). *Konuşma dediğin nedir ki*. (Çev. T. Gezer). İstanbul: Crea.
- Higgins, C. C. (2001). Factors associated with research anxiety of human resource education faculty in higher education. Proceedings of the Academy of Human Resource Development. Austin, Texas, 67-80.
- Johnson, K. H. (2012). The effect of a high school speech course on public speaking anxiety for students in a college-level public speaking class. Unpublished doctoral dissertation. University of Trevecca Nazarene. Retrieved from ProQuest Digital Dissertations.
- Karasar, N. (2014). *Bilimsel araştırma yöntemi*. (26. Baskı). Ankara: Nobel.
- Loundmon, Q. B. (1992). A comparative analysis of anxiety levels experienced by adult education students and regular education students in selected Detroit public extended day schools.
- Navarro, J. (2016). *Beden dili*. (18. Baskı). (Çev. T. Taftaf). İstanbul: Alfa
- Özdemir, M. (2017). *Hitabet: Güzel ve etkili konuşma sanatı*. Ankara: Altınordu Yayınları. ISBN: 978-605-2028-29-2.
- Özdemir, S. (2018). Türkçe öğretmeni adaylarının konuşma kaygısını gidermede hazırlıklı konuşmaların rolü. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, 18(1), 361-374.
- Sönmez, A. (2014). *Güzel sanatlar liseleri müzik bölümlerinde bireysel ses eğitimi dersinin doğru güzel ve etkili konuşma becerisine etkisi*. Yüksek Lisans Tezi. Adıyaman Üniversitesi, Sosyal Bilimler Enstitüsü.
- Şahin, S. (2007). *Güzel, etkili konuşma ve yazma sanatı*. İstanbul: İnkılap Kitabevi. ISBN-13: 978-975-10-2568-5.
- Şahzade, D. (2007). *Türkçe'yi doğru, etkili ve güzel konuşma kit-hapı!* (2. Baskı). İstanbul: Omega Yayınları. ISBN: 798-975-468-711-8.
- Temiz, E. (2015). Pedagojik formasyon alan öğretmen adaylarının konuşma kaygıları. *Turkish Studies - International Periodical for the Languages, Literature and History of Turkish or Turkic* 10(3), 985-992, ISSN: 1308-2140, www.turkishstudies.net, DOI Number: <http://dx.doi.org/10.7827/TurkishStudies.7767>, Ankara-Turkey.



Identifying Physics Concepts in *Moke* Making Process: An Ethnoscience Approach

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Abstract

The purpose of this research was to identify physics concepts embedded in *moke* making process. The research was conducted in Munerana village, Flores Island, East Nusa Tenggara province, Indonesia. The research data were mainly obtained through in-depth interviews and direct observations at the location of *moke* making process. The results showed that there are physics concepts embedded in *moke* making process that can be further explored.

Keywords: *Moke*, Ethnoscience, Physics Concepts

1. Introduction

Moke is a traditionally homemade alcoholic beverage produced mainly in Flores Island and its neighboring islands such as Solor, Lembata, and Adonara. All of these islands are located in East Nusa Tenggara province, Indonesia. This traditional drink is made from the fermentation and distillation of *nira*, a liquid substance taken from the fruits of palm trees (*Borassus flabellifer* and *Arenga pinnata*). The fermentation of *nira* occurs due to the activity of certain organisms found in *nira* (Irmayuni, Nurmila, & Sukainah, 2021) and the availability of *nira* sugar content which is the main ingredient for the fermentation process (Amema, Tuju, & Rawung, 2017). *Moke* is produced by distilling this fermented *nira*.

According to Adoe, Riwu, & Magang (2018), people in East Nusa Tenggara have been making use of palm tree fruits to produce local alcoholic beverages, namely *tuak*, *moke*, and *sopi* for such a long time. Saka & Nainggolan (2019) mentioned that *moke* is an inherited traditional drink and in the context of East Nusa Tenggara culture, offering *moke* to other people is a symbol of hospitality, friendliness, and unity. The existence of *moke* is also acknowledged in the regional government policy of East Nusa Tenggara Province (Law No. 5/2017) which categorizes *moke* as a cultural based traditional drink in East Nusa Tenggara.

Like in many other villages in Flores Island, in Munerana village, *moke* is produced by using easily accessible traditional tools. The villagers also use traditional techniques passed down from generation to generation. In this village, *moke* has become an integral part of villagers' lives and has even become part of their culture. When people are celebrating traditional ceremonies or any such parties as engagement and wedding parties, *moke* is a

must-served beverage. In addition, producing *moke* is the main source of livelihood in the village. Economically speaking, like other families in *moke* making villages in Flores Island, most families in this village heavily rely on *moke* production to fulfill their daily needs (Dentis, 2017).

As an integral part of their culture, almost all people in Munerana village are accustomed to *moke* making process, including the school aged children. These children are growing up under the palm trees. They observe on daily basis how their parents or other family members are producing *moke*. Some of them even help their parents to produce *moke* after their school time.

According to Normina (2018) and Matondang, Lubis, & Suharyanto (2018), culture and education are closely interrelated and can influence each other. Culture can influence education and vice versa. A local culture might have any local wisdom and knowledge which can be explored to contribute to our existing knowledge as well as to science being taught at schools or universities. For instance, the traditional ways of counting and native mathematical concepts embedded in traditional ceremonies, dances and traditional games used by the Palue community in East Nusa Tenggara could be explored and integrated into the mathematical learning process for elementary school children (Bunga, Zaenuri, & Isnaeni, 2018). Another example is the use of betel leaf in Nyirih tradition (this tradition exists in most religions in Indonesia, including in East Nusa Tenggara) as learning materials for physics, biology and chemistry subjects (Rizaldi, Andayani, Doyan, & Makhrus, 2021) or how scientific concepts embedded in the production of rebon shrimp paste could be used to improve students' characters and awareness of their local wisdom (Hadi, Sari, Sugiarto, Mawadda, & Arifin, 2019). These aforementioned researches are examples of efforts conducted to transform native or indigenous science into scientific science which is commonly known as ethnoscience (Sudarmin, Febu, Nuswowati, & Sumarni, 2017). According to Sumarni, Sudarmin, Wiyanto, & Supartono (2016), in the context of Indonesia, implementing learning with ethnoscience based approach is very essential as Indonesia comprises thousands tribes and cultures which could provide us with various native cultures and traditions to be explored. Besides that, implementing learning with ethnoscience based approach can help us preserve Indonesian local cultures and traditions.

Regarding the *moke* making process, it is apparent that the process involves traditional techniques, tools, and steps that can be explored for educational purposes. This research aimed to identify physics concepts embedded in the *moke* making process by adopting an ethnoscience approach. The research was guided by this research question: what embedded physics concepts can be explored from the *moke* making process? The research was worth conducting for the following reasons: firstly, the topic discussed is well known and directly experienced by school-aged children in Munerana village and also by most school-aged children in East Nusa Tenggara. This research can help to create a better learning process. Not only do students learn theories, but they can also relate theories they are learning with their direct observations and daily experiences. Secondly, the research will contribute to adding on the bank of Indonesian native or indigenous sciences which have been transformed into scientific sciences. This will eventually contribute to helping Indonesian students understand scientific concepts in the learning process.

2. Method

The research was conducted in Menerana village, Flores Island, East Nusa Tenggara province. This research used an ethnoscience approach and was a descriptive qualitative research. As a qualitative research, the researcher examines the condition of the object or phenomenon that occurs naturally and focuses in depth on the object or phenomenon being studied (Hardani, 2020). The researchers are the main instrument that can collect and interpret information needed for the research. The data of this research were obtained mainly through the in depth interviews with one respondent: a local villager who has been producing *moke* for more than thirty years, and direct observations at the location of *moke* making process. The researchers then analyzed and triangulated all sorts of data obtained during the data collection process and described in detail physics concepts embedded in *moke* making process.

3. Results and Discussion

3.1. The meaning of Moke for People in Munerana Village

In Munerana village, *moke* plays an important role culturally and economically. Culturally, *moke* is an integral part of the villagers' culture. People in this village treat *moke* as a sacred drink; they cannot proceed to conduct any traditional ceremonies without making sure that they have provided *moke*. Besides that, when people are celebrating parties such as engagement and wedding parties, *moke* is a must served drink. Viewed from the economic perspective, producing *moke* is the source of livelihood for most villagers. Economically, most people in the village earn money from *moke* production and marketing. In terms of the tools used to produce *moke*, the villagers make use of easily accessible traditional tools, mainly consisting of earthen pots, an array of bamboos, and used jerry cans. They also use certain firewood to generate heat for the heating and distillation process.

3.2. Moke Making Process and the Embedded Physics Concepts

There are three steps of *moke* making process, namely *nira* taking process, *nira* heating process and the distillation process.

3.2.1. *Nira* taking process

Nira taking process comprises three steps:

a. Clamping the ripen palm fruits

The clamping process is carried out in order to open the pores of the ripen palm fruits. It is believed that ripen palm fruits would produce *nira* better than the young ones. These ripen palm fruits are clamped using a traditional tool, called *pikut*. *Pikut* is made using a pair of wood tied at one end (see figure 1). Based on the way it works, *pikut* can be categorized as a simple machine, namely *lever*. As *pikut* belongs to a lever, the tool can generate several physics concepts which can be explored such as *classes of lever, lever arm, load force, effort force, mechanical advantage of the simple machine and torque*.

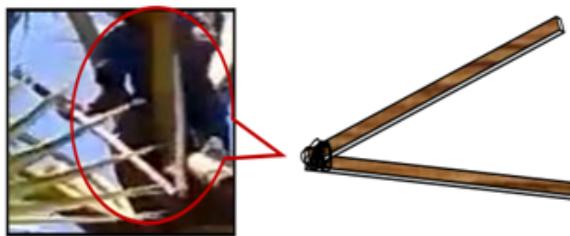


Figure 1: *Pikut*

b. Slicing the palm fruits

The clamped palm fruits are then sliced to make ways for *nira* to flow out of the palm fruits. They are sliced using a special knife (see figure 2), from which concepts related to *pressure, force and area* could be explored.

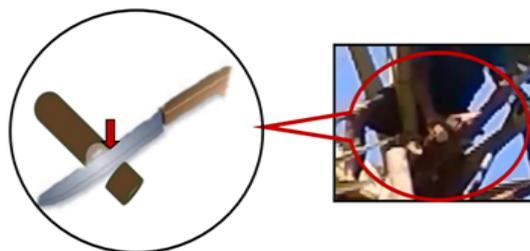


Figure 2: Special Knife used to slice the palm fruits

c. *Nira* tapping process

The flowing *nira* is tapped in a bamboo, traditionally called *teren* or a used jerry can (see figure 3). The flowing *nira* is an example of a **fluid (unsteady fluid)**. Another physics concept that can be explored is about **the fluid flow rate**.



Figure 3: *Nira* tapping process

3.2.2. *Nira* Heating Process

Firstly, the fermented *Nira* is poured into an earthen pot. The earthen pot is closely connected with the firewood generated furnace or fire stove (see figure 4). Next, the fermented *nira* is heated until it reaches the boiling point and then vaporizes. During the heating process, people must stay away from the fire stove to get rid of the heat. There are several physics concepts that can be explored from this process, namely **heat, heat transfer (conduction, convection and radiation), change of temperature, changes of state and how energy is involved in the state changes**.



Figure 4: The heating process

3.2.3. The Distillation Process

The distillation process is carried out by using array of bamboos (see figure 5). The array consists of two bamboos with different lengths. The longer bamboo is traditionally called *wewur* while the shorter one is called *mangun*.



Figure 5: Array of bamboos used for the distillation process

In the distillation process, the fermented *nira* which is continuously heated will reach the boiling point and eventually, it will vaporize. The vapor of the *nira* will flow through the *mangun* to reach the *wewur* pipe. In the *wewur* pipe, the vapor will contact with cooler surfaces and will travel longer distance to reach the other end of the pipe. And these will allow the vapor to condensate to a liquid which is called *moke* (see figure 6).

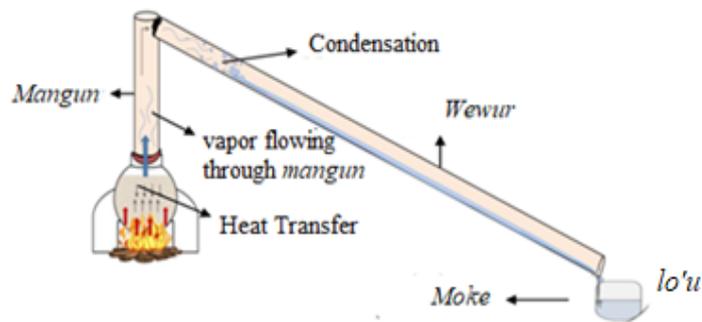


Figure 6: The distillation process

This alcoholic liquid is tapped in a container, locally called *lo'u* (*lo'u* observed in this research is a five liter used jerry can). The amount of *moke* in a *lo'u* is measured by using a traditional measuring instrument which is locally called *pele ukur*; a ruler-like instrument as depicted in picture 7. When immersed in the *lo'u* (five-liter jerry can), one scale of the *pele ukur* has been converted to be equal to 0.62 liters.

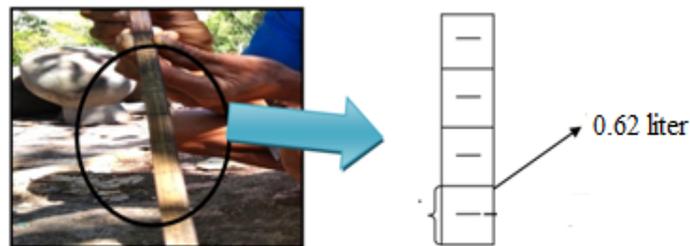


Figure 7: Peli Ukur

It is very clear that during the distillation process, **concepts related to changes of states, particularly from liquid to gas (vaporization) and from gas to liquid (condensation) can be clearly explored. In addition, concepts related to measurements such as measuring instrument and unit conversions can also be explored.**

4. Conclusion

In Munerana village, *moke* is culturally and economically important. In addition, the *moke* making process which comprises *nira* taking process, *nira* heating process and the distillation process contains several embedded physics concepts which can be further explored. In *nira* taking process, one can explore concepts related to simple machines such as classes of lever, load force, effort force, and mechanical advantage of a simple machine. Besides that, concepts related to torque, fluid, and pressure can also be explored. In *nira* heating process and in the distillation process, one can explore concepts related to heat, heat transfer, temperature change, changes of states as well as how energy is involved in temperature and states changes. In addition, concepts related to measurements such as measuring instruments and unit conversions can also be explored. It is clearly seen that *moke* making process contains important physics concepts which can be explored and transformed into our existing knowledge or sciences, particularly with sciences being taught at schools.

Acknowledgments

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References

- Adoe, D., Riwu, D., & Magang, M. (2018). Analysis of The Effect of Temperature and Time of Distillation toward Bioethanol Alcohol content of Lontar (*Borassus Flabellifer*) Fruit Mesocarp. *SNTTM XVII* (pp. 032-036). Kupang: Universitas Nusa Cendana.
- Amema, D., Tuju, T., & Rawung, H. (2017). Fermentasi alkohol dari nira aren (*Arenga pinnata* Merr) dengan menggunakan metode fed batch. *In Cocos*, 1 (9).
- Bunga, M. H., Zaenuri, Z., & Isnaeni, W. (2018). Ethno mathematical Exploration of Palue Cultural Tribe and Its Integration Toward Learning Process at Elementary School in Nusa Tenggara Timur. *Journal of Primary Education*, 64-73.
- Dentis, Y. (2017). Kehidupan Sosial Ekonomi Komunitas Penyuling Minuman Tradisional (Tu Api Tua) Di Desa Hokor Kecamatan Bola Kabupaten Sikka. *Ekspektasi: Jurnal Pendidikan Ekonomi*, 2 (1), 45-54.
- Saka, F. D. & Nainggolan, E. E. (2019). Tinjauan teori compliance tentang tradisi minum moke di Kabupaten Ende, Nusa Tenggara Timur. *Prosiding Seminar Nasional & Call Paper Psikologi Sosial* (pp. 202-208). Malang: <http://fpsi.um.ac.id>.
- Hadi, W. P., Sari, F. P., Sugiarto, A., Mawadda, W., & Arifin, S. (2019). Terasi Madura: Kajian Etnosains Dalam Pembelajaran IPA Untuk Menumbuhkan Nilai Kearifan Lokal Dan Karakter Siswa. *QUANTUM: Jurnal Inovasi Pendidikan Sains*, 45-55.
- Hardani, H. A. (2020). *Metode Penelitian Kualitatif & Kuantitatif*. Yogyakarta: Pustaka Ilmu.
- Irmayuni, E., Nurmila, A., & Sukainah. (2021). Efektivitas Air Nira Lontar (*Borassus flabellifer*) Sebagai Bahan Pengembang Adonan Kue Apem. *Jurnal Pendidikan Teknologi Pertanian*, 170-183.
- Matondang, A., Lubis, Y. A., & Suharyanto, A. (2018). Eksistensi Budaya Lokal Dalam Usaha Pembangunan Karater Siswa Smp Kota Padang Sidempuan. *Anthropos: Journal of Social and Cultural Anthropology*, 3 (2), 103-116.
- Normina, N. (2018). Pendidikan dalam Kebudayaan. *ITTIHAD*, 15 (28), 17-28.
- Rizaldi, D. R., Andayani, y., Doyan, A., & Makhrus, M. (2021). The use of Betel leaf in Nyirih tradition: Analyzing an ethnosience-based learning material. *International Journal on Education Insight*, 2 (1), 29-36.
- Sudarmin, R., Febu, R., Nuswawati, M., & Sumarni, W. (2017). Development of ethnosience approach in the module theme substance additives to improve the cognitive learning outcome and student's entrepreneurship. *Journal of Physics Conference Series*, 1- 13.
- Sumarni, W., Sudarmin, Wiyanto, & Supartono. (2016). The reconstruction of society indigenous science into scientific knowledge in the production process of Palm sugar. *Journal of Turkish Science Education*, 281-292.



Chinese Language Education in the Era of Artificial Intelligence; Innovation Development, Pedagogy & the Smart Classroom

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Abstract

This research work has a particular emphasis that deals with innovation and development of international Chinese language teaching and learning within the classroom in the new era, especially with an emphasis on AI (artificial intelligence) as well as an emphasis on the creation of smart classrooms. This paper focuses on utilizing creative pedagogy methodologies in international Chinese language classrooms especially in smart classrooms. With the use of various qualitative approaches including the utilization of media, interpreting advertisements movies, newspapers, and the utilizing of techniques such as sand blots that may be engaging in the classroom with an objective of developing pupils' second language absorbing ability. Furthermore this research paper highlights the various teaching methodologies that should be adapted and expanded upon in the classroom fittingly by understanding the absorbing capacity of pupils and their learning interest in the theatre of pedagogy.

Keywords: Chinese Language, Innovation, Pedagogy, Development, Education, New Era Smart Classroom

Introduction

Towards the end of the 20th century a new major player has gradually begun to reshape the global status quo. The shift can be seen on a multitude of fronts, which include economic, social, political, academic etc... Advancements in technology have proven to be a vital catalyst in this paradigm shift. With the rise of China's influence worldwide language has proven to be a major soft power tool that has allowed Chinese soft power to further spread worldwide.

In this new era Chinese language has become an important language with more than 1.3 billion speakers and counting. This has allowed for the spread of information contributing to knowledge and the transfer of information worldwide. Chinese language teachers are creating more and more innovative methods to teach the language in and out of the classroom effectively. To validate this, one only has to look at the rapid growth of Chinese language classrooms and institutes such as the Confucius Institute and its worldwide approach of teaching Chinese language and culture to peoples of various societies and backgrounds around the world.

The Confucius Institutes now celebrate a multiplicity and an open door policy for pupils ranging from kindergarten to graduate school students despite their culture, socio-economic status and or ability. With alterations in the construct of modern smart classrooms an expanded curriculum has been likewise adopted to meet the numerous needs of students'. With the aim being for students to grasp a deeper understanding of Chinese language and culture these Institutes have endeavored to assist their students in and outside of the classroom to acquire and develop an appropriate language learning process. With this in mind Chinese language teachers have established unique ways to incorporate different learning tools keeping in mind the effective teaching methods that are already in use.

Acquiring individuals with knowledge of Chinese language and culture is becoming an ever more important factor for many nations' development as well as for the development of individuals. To improve the communicative skills of the learners, innovative teaching methodologies should be used or introduced to make the learning process interesting. Creativity is a prime factor for any student to develop her or his lateral thinking in terms of learning a language. A Chinese learning smart classroom is essential in any language teaching institute and should be created using interesting teaching methodologies to mesmerize and encourage students to learn the second language explicitly and implicitly.

This research paper focuses on the use of creative teaching methodologies in the second language smart classroom. Using modern Chinese language programs and incorporating artificial intelligence technologies as well as innovative tasks the learning competency of language learners may increasingly be developed. It is pointed out that there are no short cuts to educational improvement. Hence it is important to use relevant and required teaching methods by evaluating students' level of understanding in learning Chinese as a second language.

Improvement of Qualities in Teaching

Smart classroom teachers are progressively possessing some of the relevant technical qualities while teaching their students. The teacher's personality, attitude, technological knowledge in handling teaching materials and knack in answering students' questions, as well as the ability to teach by using techniques instill interest among students. Traditional methods cannot be written off from the smart classroom at any point in time, but including some of the interesting and innovating teaching methodologies like the incorporation of artificial intelligence Chinese learning programs will make students to be focused on the learning process. Cognitive development teachings can be done in the class through Sandblot, newspaper, advertisement tasks etc., to develop students' problem solving ability and lateral thinking skills, otherwise students' individuality and their learning capacity might not be evaluated fully by the facilitator. It has been further emphasized that the practice of using tasks would go beyond behavior and includes various engaging activities that emphasize form-meaning and mappings for day-to-day communication.

Innovative Methodologies in Teaching Chinese Language

Teaching materials, teaching techniques should be updated to the interest of the second language learners. Innovative methodologies like the use of games, role-play, reading newspapers, watching TV, referring to dictionary etc., are used as tools in the smart classroom. The use of these techniques should be used in addition to the computer programs that students use to better their Chinese language skills in the smart classroom. Skill based learning, knowledge based learning are essential for the growth and development of students especially when incorporated with modern day cutting edge technology. The theory of second language acquisition has influenced the development of integrated institutions in the smart classrooms at all levels. There has been evidence that suggests that the second language is the most successfully acquired when the conditions are similar to those present in first language acquisition: (1) That is, when the focus of instruction is on meaning rather than on form; when language input is at or just above the proficiency of the learner; (2) when there is sufficient opportunity to engage in meaningful use of that language in a relatively anxiety-free environment. This suggests that the focus of learning a second language should improve employability skills of the learners.

Acquiring Chinese

Language through Teaching and Technology Learning Chinese is always a difficult and in many cases a tedious process to most of the second language learners. Innovative ideas, interesting teaching materials, practicing and drilling of learners in learning the second language should be done through what is considered as infotaining ways or informative entertainment. Students, especially from rural backgrounds, find it very difficult to read, write, and speak a language even though they studied the language as a second language from class one to class twelve. These students do not have enough exposure to develop or correct their language extensively. To such students and teachers' interaction is pivotal and teachers should use innovative teaching to make their students develop the second language learning process gradually. Language can be learnt only through practice. Practical knowledge of learning a language is an experimental approach for second language learners. Such learners should experiment their knowledge by communicating with others confidently. Their errors can be rectified or pruned through this practice. Teachers should develop students' confidence, independence, interest, and lead them to realize that their first language knowledge repository would be helpful to learn the second language confidently.

As Stevick (1980) pointed out those learners could 'take their knowledge of the first few words in the new language and figure out additional words by using that knowledge' (p.42). Learners' self-learning approach and understanding the learning ability in the process of learning a second language should be given primary importance in the classroom. Teachers should discover activities and tasks that are filled with edutainment. Introducing various tasks would help learners to understand the use of language in real-life situations by engaging them in doing many activities in the classroom. In the present age, students' acquisition of a language is measured in terms of their ability to communicate in the language rather than examining their grammatical skills. Many educational institutions have taken an impactful step by including a network of computers and related software, cassette players, and slide projectors as a part of the Chinese learning process. Based on the global trend the Chinese language will play an important role in every student's life directly or indirectly. Though, chalk and board method is unbeatable, using technological tools in the process of learning Chinese benefits learners immensely. Not only is Chinese considered as a subject by learners, but it is considered as a language by students, thanks to globalization.

Language, Internet & AI:

An emphasis, which formerly was on technology, has shifted to be on people and Language. And as the Internet comes increasingly to be viewed from a social perspective, the role of language becomes central. Indeed, notwithstanding the remarkable technological achievements in AI and the visual panache of screen presentations, what is immediately obvious when engaging in any of the Internet's functions is its linguistic character. If the Internet is a revolution, therefore, it is likely to be a linguistic revolution. In this increasingly competitive world, most language institutions have set up language labs and smart classrooms for their students to better learn the acquired second language. At present a multimedia lab is quite attractive in instilling the interest of pupils in learning the language. The difference between a normal language lab and a smart classroom is that the former provides audio equipment through which learners can listen to the tapes, record their voices, and communicate with the teacher, while the latter operates as a multifunction tool through which students can either listen to the tapes, watch videos and different TV channels, use computer language programs that incorporate AI in the programs and teaching techniques as well as access to internet facilitating communication with one another while the teacher can operate technical equipment to a group or a pair of students, and hold discussions within the class. It is expressed that in this technological era learners require good rapport with other learners through chatting, task performance, and virtual collaborative conversational interaction and this can only be achieved through the incorporation of a smart classroom and relevant AI language programs.

Semantic Parser: A Child's Language-Acquisition Process

Children learn language by observing their environment, listening to the people around them, and connecting the dots between what they see and hear. Among other things, this helps children establish their language word order, such as where subjects and verbs or other key elements in different languages fall in a sentence during the learning

process of a second language. In computing, learning language is the task of syntactic and semantic parsers. These systems are trained on sentences annotated by humans that describe the structure and meaning behind words. Parsers are becoming increasingly important for web searches, natural-language database querying, and voice-recognition systems such as Alexa and Siri that a classroom teacher can use to help students in learning the Chinese language (Matheson, 2018).

Matheson (2018) further explains that though gathering the annotation data can be time-consuming and difficult for less common languages; additionally, humans don't always agree on the annotations, and the annotations themselves may not accurately reflect how people naturally speak. In a paper that was presented at the Empirical Methods in Natural Language Processing Conference, Massachusetts Institute of Technology (MIT) researchers describe a parser that learns through observation to more closely mimic a child's language-acquisition process, which could greatly extend the parser's capabilities. To learn the structure of language, the parser observes captioned videos, with no other information, and associates the words with recorded objects and actions. Given a new sentence, the parser can then use what it's learned about the structure of the language to accurately predict a sentence's meaning, without the video.

This supervised approach—meaning it requires limited training data — mimics how children can observe the world around them and learn language, without anyone providing direct context. The approach could expand the types of data and reduce the effort needed for training parsers, according to the researchers. This could also be adopted by many classroom teachers for second language learners. Some directly annotated sentences, for instance, could be combined with many captioned videos, which are easier to come by, to improve performance. The parser can also help teachers of second language to better understand how young children learn language. More so, a child has access to redundant, complementary information from different modalities, including hearing parents and siblings talk about the world, as well as tactile information and visual information, [which help him or her] to understand the world. With this, one can be sure if adopted for every second language learner, will make it much easier to speak the second language being learned.

The Role of Artificial Intelligence (AI) In Second Language Acquisition

On the other hand, Campbell-Howes (2019) explained that artificial intelligence (AI) is an important paradigm that is having a powerful impact on many fields, including education. First of all, AI is a fascinating topic, and one which can provide rich discussion in conversational classes when it comes to students and teachers. There are fantastic resources online for explaining what AI really is if you want to discuss the technical implementation of tools like machine learning. Though there is a lot of confusion and misunderstanding around the term, but there are some concrete examples of how AI is being used to improve the language learning experience, and this is why it is something good for language teachers to embrace rather than fear. Most writers portrayed AI as an obligatory picture of a humanoid robot, setting up the idea that artificial intelligence is all about recreating the human brain inside a machine. However, the truth is a lot more mundane. Most artificial intelligence applications have nothing to do with robots or replicating human cognition; instead they are focused on using the vast computational capabilities of modern computers to solve single, simple problems in a much more effective way than a human can. Although human brains are capable of doing many very complicated things in much more sophisticated ways than computers, they are limited by factors such as the size of our working memory or the speed at which we can make calculations. For some tasks, especially ones involving many or complex calculations, computers are much more effective and this is where AI steps into play (Campbell-Howes, 2019). Artificial intelligence crosses many different domains, including fields such as computer vision and predictive analytics. In fact, a more helpful term for thinking about what artificial intelligence can do is machine learning. Machine learning is when humans (generally data scientists) use large data sets to train computers to make models which predict the outcome of some future event. This could be the likelihood of it being safe for a self-driving car to make a left turn, or – to use a language learning example – the likelihood that a student will know how to translate the word 'chien' into English.

Most importantly, the future of AI is about saving both learners and teachers time to focus on developing skills such as conversational fluency or confidence in communicating across cultures. The strength of AI is in creating

a personalized learning experience that allows the student to work on their personal areas of weakness and benefit from tailored feedback, rather than following along to a one-size-fits-all model of learning. If students are using AI-powered language learning tools in their own time, their classroom time can be optimized for focusing on the skills and capabilities that no machine can (yet!) deliver for them.

Glossika and The Rise of AI-Guided Language Study

Artificial intelligence (AI) has found its way into every aspect of our daily lives. From the driving of cars to the sweeping of floors, AI has left science fiction long ago to become science reality. And so it should come to no surprise that AI can help us better learn languages. AI can help one achieve basic proficiency in a new language in a few months with only 20 minutes per day of studying, all guided by AI. Glossika CEO Michael Campbell recommends that language learners focus on fluency first and on vocabulary second. Language learners require time (often a lifetime) to expand vocabulary; however building basic “fluency,” which deals with how capable language users are in manipulating sentence structures, takes far less time than building a robust collection of vocabulary.

Unlike traditional approaches which utilize lessons and weekly plans, Glossika attempts to tailor learning material to one’s specific level and needs. Users select the topics that matter most to them and work at a comfortable pace on their desktops or smartphones. Users of flashcard apps like [Anki](#) will recognize the use of spaced repetition, in which items more difficult to the learner are repeated more often while those that are learned successfully are saved for later review. Glossika further teaches by using sound patterns to mimic the way children learn a language: by listening. Frequent exposure is utilized to focus on fluency improvement. Eschewing the grammar books makes this an ideal method for those tired of traditional learning techniques; however it may prove a bit confusing to total beginners who like to start by learning all the rules.

Ultimately it seems that Glossika offers a unique learning method that’s guided by AI. AI only helps the user focus in on the most ideal lessons, ultimately saving precious learning time, but not on instruction itself. Of course, other applications are utilising such techniques as well. As time progresses, AI can help language learners save time when studying on their own, however having a human language partner or a good teacher simply can’t be beaten. Until AI reaches the capabilities of conversing intelligently with humans, it will be hard to replicate the unpredictability of real human interaction, which is ultimately the core purpose of language learning. What is certain is that such tools, especially when used in conjunction with traditional learning methods, can vastly help Chinese language learners become well-rounded in a language. Students don’t need to choose one method over another, but rather combine their most preferred method with the numerous options out there to create the best comprehensive language program for themselves.

How Artificial Intelligence Affects Higher Education

Many researchers pointed out the effects of artificial intelligence on higher education, so it was confirmed by Ma and Keng (2018) that artificial intelligence would affect higher education in two main areas: that is 1- Curricula Artificial intelligence will have a major impact on the curricula in higher education, as the power of artificial intelligence contributes to providing elements of speed and accuracy, and this requires providing training opportunities for students to enhance their skills, and technical disciplines and liberal humanities may become more popular because these areas are less vulnerable. And 2- Enrollment: We may see a sharp drop in university enrollment due to the high cost, as higher education is not affordable for many because of that cost. Among the most important effects that higher education will experience according to Fernández and Aburto is the replacement of the traditional language with the digital language. Digital language is needed for students to deal with applications of artificial intelligence. Examples for the Application of AI in the Classroom Today include: *Tutoring*: by the time AI systems are applied in academic lecture halls, classrooms, laboratories and interactive study places in colleges, institutes or other educational institutions, there will be no need for the teacher to repeat the explanation of a certain topic or a part of it and spend more time with students to understand that part; the student can now achieve that easily with AI without a lack of convenience or waste of time.

Using AI In Students' Grading

In traditional Pedagogies instructors spend a lot of time wasted on the grading process which is based on traditional exams, computer tests and others. With AI, the situation is quite different: instructors can quit grading to spend more time with students. Furthermore instructors can focus on enhancing areas in which students have weaknesses whether it be oral pronunciation or instructional.

AI has been revolutionary in improving administrative tasks in that universities and most of educational organizations around the world by virtue of AI applications have made the Chinese language classroom a possibility: AI systems supplied with instant translations and subtitles will empower a new generation of students to go beyond all borders. AI will eliminate the classrooms' walls to allow students to share knowledge and participate in different learning global environments (Boulay, 2016).

There are many previously written literature that discusses the topic of artificial intelligence and its impact on higher education, and among these studies, The Fernández, and Aburto study reviewed the impact of artificial intelligence on higher education and the study concluded that within the coming period we will witness the transition from the traditional roles of universities to new ones such as replacing the traditional language with the digital language, and the development of teaching methods in a new way which it requires enhancing students' skills to adapt to social intelligence applications. The Ma and, Keng (2018) study revealed the impact of artificial intelligence on higher education, as these effects were represented by a low dependence on human resources in education, and that new skill sets will be needed. Higher education needs the challenge of preparing students for the AI revolution and providing students with the skill sets necessary to compete in the era of artificial intelligence.

The Khare et al. (2018) study attempted to reveal the potential of artificial intelligence to positively influence a student's success, the study reviewed the form of education when applying artificial intelligence as students will rely more on administrative staff while faculty members at the Institute of Higher Education oversee management systems learning. The study concluded that the applications of artificial intelligence would increase the ability of educational institutions to perform their primary task of teaching, learning and research. The Gamoura et al. (2018) study tried to prove that the technical reality as well as the moral and technological barriers prevent and suggest the idea of absolute machine freedom in decision-making in the near future, including fears currently mounting in the media and academia, despite the characteristics of AI including automatic actions, self-development and automatic machine learning.

Given the foundations of artificial intelligence and its characteristics and some of its living models to shed light on the reality of its developments and aspirations between what it actually reached and what it hopes to reach. With AI being so effective in the impacting of knowledge through amazing skills, if adopted in the Chinese language learning programs AI will have a great learning impact in spreading the Chinese language.

References

- Allwright, D. (1984). The importance of interaction in classroom language learning. *Applied Linguistics*, 5(2), 156- 179. doi: <https://doi.org/10.1093/applin/5.2.156>
- Agullo, G. L. (2006). Overcoming age-relate differences. *ELT Journal*, 60(4), 365-373. doi: <https://doi.org/10.1093/elt/ccl027>
- Al-Saud, Sarah. (2017). Educational Applications of Artificial Intelligence in Social Studies. *Soulouk Journal*, 3, 133-163. No. 3.
- Anil, B. (2016). Top-up students second langue talk time through Vlogs. *Indonesian Journal of EFL and Linguistics*, 1(2), 129-143. doi: <http://dx.doi.org/10.21462/ijefll.v1i2.9>
- Barrett, M. (2007). *Children's knowledge, beliefs and feelings about nation and national groups*. Hove: Psychology Press.
- Bax, S. (2003). CALL: Past, present and future. *System*, 31(1), 13–28. doi: 10.1016/S0346-251X(02)00071-4
Downloaded from ijreeonline.com at 16:32 +0330 on Thursday October 31st 2019 [DOI: 10.18869/acadpub.ijree.2.2.1] Website: www.ijreeonline.com 8 Email: info@ijreeonline.com
- Black, R. W. (2009). Online fan

- Boulay, B. (2016). Artificial Intelligence as an Effective Classroom Assistant. *IEEE Intelligent Systems*, 31(6), Nov.-Dec. 2016.
- Campbell-Howes, K. (2019). Why is AI a good thing for language teachers and learners?
- Gamoura, S., Mohamed, B., & Krosh, H. (2018). Artificial Intelligence: A New Challenge of Law. *International Forum. Algeria* (26-27 November 2018).
- Khare, K., Stewart, B. & Khare, A. (2018). Artificial intelligence and the student experience: An institutional perspective. *The International Academic Forum (IAFOR)*.
- Ma, Y., & Keng, L. (2018). Artificial Intelligence Impacts on Higher Education. *MWAIS 2018 Proceedings*. 42. *Proceedings of the Thirteenth Midwest Association for Information Systems Conference*, Saint Louis, Missouri May 17-18, 2018.
- Matheson, R. (2018). Machines that learn language more like kids do



Effects of Digital Stories on the Development of EFL Learners' Listening Skill*

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Abstract

The purpose of this research was to investigate the effects of digital storytelling on listening skills of language learners and their attitudes towards the use of digital storytelling. 64 secondary school students whose degrees were 6th and 7th grade participated in the study. The study was conducted in Adana, Turkey during the fall semester of the academic year 2020-2021. Quasi-experimental design with pretest-posttest control group was employed for the research. Listening comprehension achievement test and learners' attitude scale were the data collection tools of the research. The results of the study revealed that participants had statistically significant differences in their listening skills improvement and test group had higher competency in listening activities compared to the control group. The findings also provided additional information about learners' attitudes towards digital storytelling listening activities, including their motivation level and thoughts. Students' attitudes towards digital storytelling were positive and their motivation was significantly higher.

Keywords: Digital Storytelling, Listening Skill, Foreign Language Learning

1. Introduction

In the past several decades technological advances have played a vital role in language education. The globalization of the world and developments in technology require the people to take learning into another level and not only be capable to speak English but also be proficient in using it. This creates the phenomenon of English as lingua franca, the common communication language internationally in many fields such as science, business, and technology (Kırkgöz, 2008).

In Turkey, schools provide compulsory English as a foreign language (EFL) classes starting at 2nd grade in Ministry of National Education (MoNE) schools, even earlier in private schools and kindergartens. English language plays a vital role in Turkey, as well as the rest of the world, in catching up with the changing world and keeping up with the technological growth. The necessity of knowing English has forced educators to find new

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and efficient ways to boost the language learning process and create different learning environments by using educational technology. Computer technologies can assume important roles in realisation of effective language learning besides creating a student-centered learning environment in language classrooms and reducing teacher-centeredness hence encouraging learners to practice the language without the fear of making mistakes by reducing their “affective filter” (Al-Mahrooqi & Troudi, 2014). Increasing the student-centred learning requires experienced and technological teachers to guide students. As Giles and Kent (2017) state, teachers have the responsibility to be the bridge between students and technology to combine students’ readiness about technology and how to use that efficiently for educational purposes.

1.1 Digital Storytelling and Language Learning

With the increasing use of technological tools in education, traditional ways of teaching language have evolved to technological journeys. Storytelling is a significant example of this. Stories have always been told in every culture over the centuries. Moreover, before the written era the first way of communication was oral stories by which people transmitted their cultural heritage; like their beliefs, history, traditions to next generations (Hamilton & Weiss, 1990). Besides these facts, storytelling touches our hearts, leaves a mark in our minds, enriches our emotions, makes us feel happy, sad, angry, excited etc. which together help us to store, organize and remember information. These qualities of stories make them a perfect pedagogical tool to use in language classes. Stories help children to involve themselves in the stories, build their interpreting skills and create a bond between the characters and themselves as well as being a bridge between the child’s real worlds (Brewster, et al., 1992). Storytelling also enhances visual descriptions, cultural awareness, critical thinking, and mindfulness (Miller & Pennycuff, 2008). Moreover, storytelling helps better understanding because it is easy to comprehend when what is given by the lecturer is explained in flow of epilogue, plot, and prologue.

The development of technology and the use of mass media have improved the traditional storytelling process as well, and the term digital storytelling (also stated as “DST” or “DS”) came out. Digital storytelling is one of the modern, entertaining, and useful tools that technology offers, and it is a great source of motivation for learners at any age. In DS digital content such as pictures, drawings, video clips, audio are used to create short movies. When used properly DS helps students produce and improve 21st century literacy skills also known as digital age literacies. In digital age the education process is supposed to adapt the perception of the edutainment which combines education and entertainment while accommodating learners to 21st century skills (Özer, 2016). DS is advantageous as it motivates learners, develops technological skills, improves self-esteem, and creates social learners as well as critical thinkers.

1.2 Digital Storytelling and Listening Skill

With all these benefits, DS could be most helpful for the improvement of listening skill in language education. The importance of building communicative competence and perceiving the inputs makes listening a crucial skill in language teaching. Listening is a complex process that requires learners to match the things they hear with already existing knowledge (Pangaribuan, Sinaga & Sipayung, 2017). However, teachers mostly expect the learners to build listening skills themselves by hearing things around them because listening skill was recognized as a passive skill that would improve without help. However, this notion has transformed into an active process theoretically (Walker, 2014). As learners are expected to learn as they hear the target language, the difference between hearing and listening precludes this idea. Hearing and listening are two different terms, hearing is perceiving sounds around us as sound waves and listening is paying attention to making sense of what is perceived (Imene, 2008). Thus, improving listening skills is usually ignored and students lack the skills of listening.

The development of the computer technology has enabled new methods that involve the use of multimedia and digital interaction and DS has appeared as one of those new methods which can be benefited by language learners greatly. DS activities planned for a specific purpose enrich comprehension and stimulate thinking while listening as well as reaching the target teaching aim (Datko, 2014). The occurrence of texts, sounds, graphics, and images in multi-media that provides visual, aural, and textual input raise the cognitive functioning of

learners besides provoking perception in listening (Meskill, 1996). DS improves the ability to analyse and criticize thoughts through listening and watching better than traditional storytelling and improves the quality of the sentence formation as well as guiding learners to organize their thoughts in a sequence to retell a story (A.S. Tabieh et al., 2021). DS empowers the ability to recall and comprehend information not only by listening but also with visuals which effect the permanence of the listening input (Türe Köse, 2019). Tubail (2015) states that providing a distinct method rather than traditional ones stimulates the interest of the learners and diverse use of media tools such as pictures, sounds and videos foster the listening comprehension level of students.

In their research Cığerci and Gültekin (2017) investigated the effects of digital storytelling on 4th grade primary students' mother tongue listening skills in Turkish courses. Results showed that learners exposed to digital storytelling show more interest towards the course, feel more confident in listening activities and are willing to participate in the activities. In her master thesis Türe Köse (2019) investigated the effects of digital storytelling on 60-72-month group preschool children's listening skills in their mother tongue which is Turkish. The study showed that digital storytelling is effective to improve creative, critical, emphatic, selective listening skills of kindergarten students. Verdugo and Belmonte (2007) examined the improvement of listening skills of 220 six-year-old Spanish EFL students with the aid of digital storytelling. The research was conducted with an internet-based syllabus and instructors used an internet-based activity. Based on the pre and post-tests, questionnaires and classroom observation use of technology and use of digital storytelling improved listening skills of the students in many ways. Hamdy (2017) did a research to expose the effects of DS on reading and listening comprehension of university degree students. The findings revealed that experimental group that had DS treatment outperformed control group with significant scores that confirmed the positive outcomes of DS. Loniza, Saad and Che Mustafa (2018) investigated whether digital storytelling had any effects on kindergarten students' listening skills. Students in the treatment group scored higher in the listening comprehension test than the ones in the control group.

Though there are a few studies examining the use of DS in language learning, there is still a need for such a new technique that originated from storytelling to be well analysed and investigated with all its digital promises with learners at different age groups and levels. Hence, this study aims to contribute to the literature concerning the development of language learners' listening skills with the aid of digital storytelling and learners' motivation towards use of DS in addition to providing information for the teachers to integrate digital storytelling to their classrooms. Finally, this study aims to put forward an example for integrating a digital tool into teaching process that language teachers may benefit from and adapt to their classrooms. In order to achieve the purpose of the research, this study addresses the following questions:

1. Does digital storytelling have an impact on the development of students' listening skills and if so, to what extent does it affect the development of listening skills?
2. Does digital storytelling have an impact on students' attitudes towards listening skills?

2. Method

In this research the researcher aims to find out whether digital storytelling has an impact on students' listening skills or not. Research questions of the study lead to an experimental research design which is formed with at least one group that is treated and results are compared to a control group which receives no treatment (Boone, et Al., 2014). The study has quasi-experimental design with pretest-posttest control group. Quasi-experimental designs classify a comparison group and treatment group with similar characteristics and aims to test the effects of the treatment (White & Sabarwal, 2014). Pretest-posttest designs are mainly used to compare groups or measure the change from the treatment (Dimitrov & Rumrill, 2003). Digital storytelling is applied to experimental group as treatment and control group did not receive any digital story intervention, remained on the regular storytelling instruction. The classes were assigned randomly after confirming the parental permissions and receiving the volunteering acceptance paper of students to participate in the study. Due to the privacy policies the identities of the participants are kept anonymous. The study lasted for six weeks covering one lesson hour which is decreased to thirty minutes each week for each group. The data was obtained through a listening comprehension test which includes both multiple-choice questions and true-false questions to assess the level of understanding. Also, an attitude scale was applied to understand the students' attitudes towards digital storytelling and the instructor during the experimental process. Figure 1 below shows the design of the research.

Week	Experimental Group	Control Group
1 st week	Pretest	Pretest
2 nd week	Digital storytelling implementation	Flashcard storytelling implementation
3 rd week	Digital storytelling implementation	Flashcard storytelling implementation
4 th week	Digital storytelling implementation	Flashcard storytelling implementation
5 th week	Digital storytelling implementation	Flashcard storytelling implementation
6 th week	Posttest + Learners' Attitude Scale application	Posttest + Learners' Attitude Scale application

Figure 1: Research design

2.1 Participants

Convenience sampling was applied while selecting participants however due to the pandemic restrictions and regulations volunteering was the priority while assigning groups. The study was conducted in a secondary school with 7th grade and 6th grade classes with an average of 64 students. The students participated in this study are aged between 11 and 14. The research was implemented right after the end of distance learning and because of that most of the students were absent which is why this study is limited to only one seventh grade and one sixth grade class that are divided into two groups. Sixth graders were divided into two groups of 16 students who had lessons on different days because of pandemic regulations which became practical for the researcher to conduct the research as control and test groups for one identical class. Two students from sixth grade were absent during the research process, so the participants of the sixth graders were 30 students in total. Seventh graders are also divided into two groups of 17 students for the same reason and 34 students of seventh graders participated in the study in total.

2.2 Data Collection Tools

The data was collected through a listening comprehension test and attitude scale in this study. "Tests are generally used for knowledge-based questions." (Barkman, 2002, p.12). To understand the efficiency listening comprehension test included knowledge-based and vocabulary knowledge questions about the story given. Thus, to obtain data about the learners' listening skills a comprehension test with the comparison group was applied before and after the intervention to identify the progress of the listening skills. To identify the learners' attitudes towards use of DS an attitude scale was implemented at the end of the research process to see if DS had any impacts on motivation level of the learners.

2.2.1. Listening Comprehension Test

Listening comprehension test includes three parts A, B, and C. Part A consists of four multiple choice comprehension check questions. Part B consists of four true/false comprehension check questions. Part C consists of four multiple choice vocabulary knowledge questions. Items were distributed as:

Part A: Choose the correct answer (recognizing and understanding the story)

Part B: Circle true or false (finding the details of the story, understanding the moral)

Part C: Choose the correct answer (guessing the meanings of vocabulary)

In the preparation phase of the listening comprehension test researcher depended on previous studies in the literature, expert teachers' opinions, and textbooks. Types of achievement tests used in this field were analysed by the researcher to construct a suitable test for learners. Four experienced English teachers' opinions were taken

into consideration when developing the items for the test to ensure the appropriate test level for students. Two of the teachers were the main course English teachers of the sample classes and guided the researcher on students' English levels. Two other English teachers' advice was asked to substantiate the items of the test. Consequently, some items of the test were replaced with different terms for better understanding. The items of the test were developed in line with the textbooks, the syllabus, and the objectives of in class listening activities. To increase the effectiveness of the test each item's impact was analysed and evaluated by using item analysis method. Based on the measurement results, the items that make up a test were analysed, and decided whether to keep or exclude the items from the test. The listening achievement test consisted of 16 questions initially. As a result of the item analysis, four of the items were eliminated from the test due to insufficient results of item discrimination power index. Additionally, two of the items were revised and modified within the help of experienced teachers.

Table 1: Item Discrimination Index

Item Number	Lower Group (n=17)		Upper Group (n=17)		ri
	False Number of Students	True Number of Students	False Number of Students	True Number of Students	
A 1	13	4	4	13	0,529
A 2	14	3	9	8	0,294
A 3	14	3	6	11	0,471
A 4	15	2	10	7	0,294
B 1	13	4	2	15	0,647
B 2	11	6	7	10	0,235
B 3	11	6	3	14	0,471
B 4	12	5	4	13	0,471
C 1	11	6	7	10	0,235
C 2	12	5	7	10	0,294
C 3	15	2	7	10	0,471
C 4	15	2	9	8	0,353

The listening achievement test consisted of 16 questions initially. As a result of the item analysis, four of the items were eliminated from the test due to insufficient results of item discrimination power index. Additionally, two of the items were revised and modified within the help of experienced teachers.

2.2.2. Learners' Attitude Scale

The attitude scale prepared by Tubail (2015) is a five-point Likert-type scale ranging from strongly agree to strongly disagree. There are five scores for the items, 1 means totally disagree and 5 means totally agree. The scale consists of 27 items disseminated into four domains, first domain "Attitudes Towards the Importance of Listening" consists of 6 items and other three domains "Attitudes Towards Enjoying Listening," Attitudes Towards Listening via Multimedia" and "Attitudes Towards Listening Teacher" consist of 7 items. Tubail (2015) measured the consistency and the reliability of the scale by Alpha Cronbach and Split-Half methods. The results indicated the reliability of the scale statistically positive. The validity of the scale is measured with both referee validity and internal consistency validity which was calculated by Pearson Formula that resulted with the values of the items consistent and valid. Split-Half technique resulted 0.79 which proves high reliability and Cronbach Alpha resulted 0.83 which proves the internal consistency. The reliability of the attitude scale in this study resulted 0.709 and it is sufficient.

2.2.3. Material Development

In the development process of the digital stories, the researcher collected illustrations from accessible websites that provide appropriate visuals for young learners. Stories were created by using "Movie Maker 10" software and "MS PowerPoint." Texts from the story scripts were added to the pictures of the stories as subtitles. Audio

of the story was added with the researcher's own voice recording. The seven elements of digital storytelling were taken into consideration in the development process of the digital stories.

Point of view: The researcher analysed the view of the authors and the morals of the stories.

A dramatic question: The researcher aroused interest of the learners by asking a dramatic question.

Emotional content: The researcher choose stories that emotionally connects learners to the main event.

The gift of your voice: The researcher added her own voice recording to the digital stories.

The power of the soundtrack: Only a cover page background music was added to avoid hearing problems during listening.

Economy: The stories were divided into sections and the length of the videos was determined according to the lesson hour.

Pacing: All the stories followed similar pace, providing enough time for reader to grasp the meaning.

2.2.4. Data Collection Procedure

Before the research implementation the participants were informed about the research process in detail and enlightened about the weekly plans of each lesson period. Additionally, the researcher apprised both groups about the tasks they would work on. Due to the recent pandemic restrictions the research was conducted during 6 weeks in one-hour lesson time which is reduced to thirty minutes each week for each class. Additionally, to pursue the pandemic safety precautions students in each class are divided into two groups by the school administration that averagely consists of 15 students on two different days. So, one group of the same class is assigned as control and the other group as experimental group in the study. First week a pre-test of the story called "Elves and the Shoemaker" that is prepared by the researcher was applied to measure the levels of the students' listening skills before the implementation of the research and before the application of the listening comprehension test researcher read the story aloud for both groups. During the four-week research process experimental group members were given well known stories with a moral lesson that is prepared by the researcher as a digital story. Voice recordings were added to the story when needed as audio files, sound effects and other visuals were taken from online audio effects platforms worldwide accessible. Participants in the control group saw the story as a usual text printed material with pictures, the researcher read the story out loud and had a usual storytelling hour. At the end of the research process, sixth week, a post listening comprehension test was implemented to both groups to see if there was any difference in the level of listening comprehension between the experimental group and control group that did not receive any digital treatment. An attitude scale was also implemented at the end of the research process to evaluate the thoughts and feelings of the learners towards listening.

2.2.5. Data Analysis

The study consisted of 64 students, including 32 control and 32 experimental groups. The analysis was conducted through the IBM SPSS Statistics 26 package program. While evaluating the data, frequencies (number, percentage) for categorical variables and descriptive statistics (mean, standard deviation) for numerical variables were given. Normality assumptions of numerical variables were examined with the Kolmogorov Smirnov normality test and it was observed that the variables were normally distributed. Therefore, parametric statistical methods were used in the study. The differences between two independent groups were analysed using the Independent Sample T Test. The differences between two dependent numerical variables were examined with the Dependent Sample T Test. Differences between the two dependent categorical variables were checked by Mc Nemar analysis. Statistical significance in the analyses was interpreted at the level of .05.

3. Results

3.1. Research Question 1

The findings related to the first research question of this study “Does digital storytelling have an impact on the development of students’ listening skills and if so, to what extent does it affect the development of listening skills?” are summarized below.

In order to find out whether digital storytelling improved the success level of students in listening as mentioned in Research Question 1, the results of the pre and post-tests are analysed and explained with the help of independent and dependent T-tests. Table 1 indicates the findings of the success scores of the pre and post-tests within and between groups.

Table 1: Examination of the differences in Pre-Test and Post-Test for success scores according to groups

		Control (n=32)		Test (n=32)		Differences Between groups	
		Av.	S.S.	Av.	S.S.	t	P
Success	Pre Test	46,09	15,04	43,95	12,65	0,618	0,539
Scores	Post Test	45,70	14,50	65,04	10,75	-6,059	0,000*
In group differences		$t^b=0,349$	$P=0,730$	$t^b=-10,158$	$P=0,000^*$		

* $p < .05$: t^a : Independent Sample T Test t^b : Dependent Sample T Test

As a result of the independent sample t test, there is no statistically significant difference between the control and test groups in terms of pre-test success scores ($p > .05$), while there is a statistically significant difference in terms of post-test success scores ($p < .05$). Accordingly, the post-test success scores of the test group are significantly higher than the control group. As a result of the dependent sample t test, there is no statistically significant difference between the pre-test and post-test success scores of the control group ($p > .05$).

Dependent sample t test results showed a statistically significant difference between the pre-test and post-test success scores of the test group ($p < .05$). Accordingly, the success scores of the test group in the post-test increased significantly compared to the pre-test.

3.2. Research Question 2

The findings related to the second research question of this study “Does digital storytelling have an impact on students’ attitudes towards listening skills?” are summarized below.

Table 2: Descriptive Statistics Regarding "Learners' Attitude Scale" and Its Sub-Dimensions According to Groups

	Control (n=32)		Test (n=32)		t	p
	Av.	S.S.	Av.	S.S.		
Attitudes Towards The Importance of Listening	2,58	0,43	3,32	0,42	-6,868	0,000*
Attitudes Towards Enjoying Listening	2,83	0,41	3,17	0,51	-2,926	0,000*
Attitudes Towards Learning Listening By Digital Storytelling	3,72	0,41	4,49	0,36	-7,870	0,000*
Attitudes Towards The Listening Teacher	3,16	0,43	3,96	0,51	-6,879	0,000*
Total Score	3,07	0,24	3,73	0,29	-9,875	0,000*

*: $p < .05$ t: Independent Sample T Test

As a result of the independent sample t test, demonstrated a statistically significant difference between the scores of test and control groups in terms of "Attitudes Towards The Importance of Listening", "Attitudes Towards Enjoying Listening", "Attitudes Towards Learning Listening By Digital Storytelling", "Attitudes Towards the Listening Teacher" and "Learners' Attitude Scale". The test group's "Attitudes Towards The Importance of Listening", "Attitudes Towards Enjoying Listening", "Attitudes Towards Learning Listening By Digital Storytelling", "Attitudes Towards the Listening Teacher" and "Learners' Attitude Scale" scores were found higher than the control group.

4. Discussion

The initial objective of this research which was to explore the effects of DS on listening skills improvement. The results confirmed that digital storytelling has a positive effect on improving listening skills of learners. Students using DS outperformed the other group students with regular listening instruction. DS helped learners to improve their listening success noticeably. This finding is in line with the studies conducted by Atmowardoyo and Weda (2018) and Hamdy (2017).

Concerning the results related with students' attitudes and motivation level, students using DS marked more positive statements. Students in the control group demanded fewer listening activities while the students that used DS favoured for more, this is reflected in the items "I feel happy when we miss a listening class" and "I feel annoyed when doing any listening task". Majority of the control group students stated that they felt better when they missed listening activities and felt irritated when doing listening activities whereas the students using DS were unhappy to lose the opportunity of doing listening activities and were pleased to do listening tasks. "I wait impatiently for the multimedia listening classes" is another prominent item by the group with DS, which implies that the use of multimedia tools effects learners' perception of listening activities positively.

These findings are aligned with the studies carried out by Tubail (2015) and Yoon (2013). These studies indicate that replacing the traditional method that includes books and written sources with technology that includes media contributes to learner's attention, motivation, and learning. They further found that engaging learners with a new learning tool, surrounding learners with technological aids that contain mixed media types reduces the anxiety towards language learning and improves the eagerness to learn. The use of digital media tools such as videos, music, sounds, pictures increase positive attitudes while lacking these uses of media lower the interest, motivation and cause negative attitude towards listening.

This research also provides some pedagogical implications for the field of language learning. Instructors should seek for more information on how to apply digital storytelling into their curriculum while turning from the traditional storytelling or story reading activities because the guidance of the instructor is critical for the first impression of learners. Another suggestion is for schools and colleges to hold teacher training seminars or workshops on how to use technological tools efficiently in class and particularly give information of the DS process alongside others. Digital storytelling may be perceived as an easy-to-use tool however there are several steps of preparation for each level of students with different tasks that aim for a variety of knowledge from different perspectives. When schools provide enough training, sample lesson plans, the learning outcomes could be enhanced.

References

- Al-Mahrooqi, R., & Troudi, S. (2014). *Using Technology in Foreign Language Teaching*. Newcastle: Cambridge Scholars Publishing.
- A.S. Tabieh, A., M. Al-Hileh, M., M. J. Abu Afifa, H., & Yacoub Abuzagha, H. (2021). The Effect of Using Digital Storytelling on Developing Active Listening and Creative Thinking Skills. *European Journal Of Educational Research*, 10(1), 13-21. <https://doi.org/10.12973/eu-jer.10.1.13>
- Atmowardoyo, H., & Weda, S. (2018). The Use of Digital Storytelling in Teaching Listening Comprehension: An Experimental Study on the Eighth Grade Students of SMP Negeri 4 Parepare. *ELT Worldwide*, 5(1).
- Barkman, S. (2002). A Field Guide to Designing Quantitative Instruments to Measure Program Impact. <https://ag.purdue.edu/extension/pdehs/Documents/QuantitativeFieldGuide.pdf> 12-13.
- Brewster, J., Ellis, G., & Girard, D. (1992). *The Primary English Teacher's Guide*. Penguin Books. 187.
- Cigerci, F. & Gultekin, M. (2017). Use of digital stories to develop listening comprehension skills. 27. 252-268.
- Datko, J. (2014). Teaching Listening Using Multimedia. In *e-TEFL*, 1, 1-90 https://www.researchgate.net/publication/272485574_Teaching_Listening_Using_Multimedia
- Dimitrov, D., & Rumrill, P. (2003). Pretest-posttest designs and measurement of change. *Work*, 20 2, 159-65 .
- Fischer, Hans & Boone, William & Neumann, Knut. (2014). *Quantitative Research Designs and Approaches* (1st ed). Routledge.

- Giles, R. & Kent, A., 2017. Preservice Teachers' Technology Self-Efficacy. *Southeastern Regional Association of Teacher Educators*, 26(1), p.11.
- Imene, G. (2008). *Introducing Storytelling Activities as a Basic Technique to Develop Students' Oral Performance An Experimental Approach Case Study: Second Year Students of English at Batna University*. [Unpublished Master's Thesis, Universite Mohamed Khider].
- Hamdy, M. (2017). The Effect of Using Digital Storytelling on Students' Reading Comprehension and Listening Comprehension. *Journal of English and Arabic Language Teaching*, 8(2). <http://ejournal.uin-suska.ac.id/index.php/jealt>
- Hamilton, M., & Weiss, M. (1990). *Children tell stories*. Katonah, R.C. Owen Publishers.
- Kirkgöz, Y. (2008). Globalization and English Language Policy in Turkey. *Educational Policy*, 23(5), 663-684. <https://doi: 10.1177/0895904808316319>
- Loniza, A., Saad, A., & Che Mustafa, M. (2018). The Effectiveness of Digital Storytelling on Language Listening Comprehension of Kindergarten Pupils. *The International Journal Of Multimedia & Its Applications*, 10(06), 131-141. <https://doi.org/10.5121/ijma.2018.10611>
- Meskill, C. (1996). Listening Skills Development Through Multimedia. *Journal of Educational Multimedia and Hypermedia*, 5(2), 179-201.
- Miller, Sara & Pennycuff, Lisa. (2008). The Power of Story: Using Storytelling to Improve Literacy Learning. *Journal of Cross-Disciplinary Perspectives in Education*. 1. 38. <https://wmpeople.wm.edu/asset/index/mxtsch/storytelling>
- Özer, M. (2016). *Exploring the Role of Digital Storytelling in Vocabulary Learning and Retention: A Case Study at Harran University*. [Unpublished Master's Thesis, Cag University].
- Pangaribuan, T., Sinaga, A. & Sipayung, K., (2017). The Effectiveness of Multimedia Application on Students Listening Comprehension. *English Language Teaching*, 10(12).
- Tubail, M. (2015). *The Effectiveness of A Suggested Program in Developing Eighth Graders' Listening Comprehension Skills and Their Attitudes towards Listening*. [Unpublished Master's Thesis, The Islamic University - Gaza].
- Türe Köse, H. (2019). *The Effect of Digital Storytelling on Listening Skills in Preschool Children* [Unpublished Master's Thesis, Kütahya Dumlupınar University].
- Verdugo, D. R. & Belmonte, I. A. (2007). Using digital stories to improve listening comprehension with Spanish young learners of English. *Language Learning and Technology*, 11(1), 87-101.
- Walker, N. (2014). Listening: the most difficult skill to teach. *Encuentro*, 23, 165-167. https://ebuah.uah.es/xmlui/bitstream/handle/10017/21619/Walker_LISTENING%20Encuentro_2014_N23.pdf?sequence=1&isAllowed=y
- White, H., & S. Sabarwal (2014). Quasi-experimental Design and Methods, Methodological Briefs: Impact Evaluation 8, UNICEF Office of Research, Florence.
- Yoon, T. (2013). Are you digitized? Ways to provide motivation for ELLs using digital storytelling. *International Journal of Research Studies In Educational Technology*, 2(1), pp. 27. Consortia Academia Publishing. <https://doi: 10.5861/ijrset.2012.204>



CELTA Course from the Perspective of EFL Instructors: A Case Study

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Abstract

The aim of this study is to explore the CELTA course from the perspective of EFL instructors. A single case study of qualitative research methods is employed in the study. The sample consists of 6 EFL instructors working for a private university in Turkey. The quantitative data of the research was obtained through course evaluation survey. Qualitative data was gathered by open-ended questions and interview forms developed by the researcher and also with the documents. Descriptive analysis was performed to show evaluation of the course in the quantitative phase of the research. On the other hand, the content analysis method was applied in the analysis of qualitative data. As a result of the study, the CELTA course is useful for EFL instructors' careers; nevertheless the course components and content should be redesigned considering andragogic principles. Moreover, EFL instructors were pleased to take the course at the end of the course although the course's weaknesses.

Keywords: CELTA, In-Service Training, EFL Instructor, Professional Development

1. INTRODUCTION

Are teachers trained or are they born as teachers? It is a generally thought the fact that teachers can be trained (Delaney, 2015; Candal, 2015; Knapp, 2012; Daizeabdao, 2016 Osae, 2017; Cruz, 2018). Traditionally, the teachers join a structured training process which provides them to acquire the skills and the competence to accomplish the model of a teacher in various instructional settings. Those processes are commonly based on teacher training or teacher education. In this respect, the teachers who graduated from those faculties continue their life as teachers in public or private schools. Generally in the world, the teachers need a teacher diploma or pedagogical formation to be placed in public schools and universities. However, in some state and private schools or universities, there can sometimes be seen that there are foreign language teachers and lecturers who don't own a teacher diploma or a certificate related to instruction. The only reason why they are hired is they are native speakers or foreigners, likewise Ozturk and Atay (2010) stated that native speakers and foreigners who have less experience of teaching and fewer qualifications than non-native speakers are more often employed particularly by private schools to attract students' and parents' attention. Although they are capable of the language which they teach, they are lack of instructional strategies and methods. The council of higher

education(CoHE) in Turkey has recently issued a decision regarding the employment of international academic staff. In this context, the requirements for the employment of international academic staff were updated with a perspective that primarily focuses on the quality of education.

From this point of view, the minimum requirements for the employment of international academic staff to be employed in the foreign language preparatory classes of higher education institutions were determined. As CoHE (2020) stated that it wouldn't be enough for native speakers to be employed as an English instructors in English preparatory classes. They are required to have at least a Bachelor's degree (BA) in one of the fields such as English Language and Literature, Linguistics, Teaching or Educational Sciences. English native speakers who are not graduates of these majors are required to have at least two years of language teaching experience. Furthermore, it won't be enough for non-native English speakers to have at least a BA in one of the majors, such as English Language, English Literature, and English Language Teaching. They are expected to have at least two years of language teaching experience in an accredited language school that is recognized internationally and to have a DELTA or CELTA foreign language certificate. After this regulation, international academic staff who are currently working in higher education institutions will be given additional time starting from the end date of their contracts to meet the new employment requirements if they are considered as being beneficial because of their work. Contract terms of those who cannot meet the new requirements will not be extended. Thus, many instructors currently working at universities have applied for CELTA. Although there is an obligation for instructors, it shouldn't be assumed as the only reason they apply for CELTA. Beside this obligation, instructors are also willing to participate in CELTA because for their vocational development particularly in teaching English.

When we examined that why CELTA and DELTA are chosen for this requirement, it is seen that the CELTA course has validity internationally for those who would like to instruct English to speakers of other languages. Furthermore, "the trainees," which is called for CELTA participants, take a minimum of 120 sessions of training set up to gain practical skills of teaching. Although CELTA includes 120 sessions of training, CELTA course takes longer period of time. The reason might be in the design of the course. As Thornburry and Watkins (2007, p. 5-6) state, "CELTA as pragmatic, incorporated, experiential, alinement and cogitator program in which trainees employ in activities which provide them connect the theory and practice through observations, assignments and teaching practice." It was formerly known as CTEFLA and it is also one of the most recognized certificate worldwide by not only private schools but also public schools. The CELTA is actually an initial teacher training course which aims to introduce trainees with ELT teaching experience and "prepare those trainees for their entry into the profession" (UCLES/RSA, 1998c.). The aims of the course can be listed as follows: Acquiring essential subject knowledge and familiarity with the principles of effective teaching, acquiring a range of practical skills for teaching English to adult learners, demonstrating their ability to apply their learning in a real teaching context.

The CELTA syllabus covers 5 targeted topic areas such as learners and teachers, and the teaching and learning context, language analysis and awareness, language skills: reading, listening, speaking and writing, planning and resources for different teaching contexts, developing teaching skills and professionalism. The course programmes are provided by a minimum of 120 contact hours with tutors including input, supervised lesson planning, teaching practice, feedback on teaching, peer observation, observation of experienced teachers and consultation time. In this respect, candidates will need to dedicate a minimum of 80 hours for the required reading, research, pre-post session tasks, assignments and lesson preparation.

Candidates are assessed by the tutors within the CELTA during and at the end of the course. There are two components which are planning and teaching, and written assignments related to classroom. It is compulsory for the candidates to present four written assignments. While the first assignment focuses on adult learners and learning contexts, the second assignment focuses on the language system. Furthermore, the third assignment focuses on the language skills, the last assignment needs reflection on classroom teaching and defining of action points.

Besides these four assignments, all the candidates need to lecture for a total of six hours, working with classes at two levels of ability (e.g. A2 and B1). Assessment uses as a base the candidate's overall ability in the sessions with regard to the six hours of teaching practice.

The CELTA Certificate will be presented to candidates who meet the requirements and whose performance meets the criteria in assessment components. At the end of the course the tutors and assessors determine final grades, and candidates' performance need to meet all the descriptors at a specific passing grade such as "Pass," "Pass B" and "Pass A." If any candidate's performance does not meet the descriptors, he/she will be graded by "Fail"

By the end of the course as qualification, candidates who complete the course successfully can start working in a variety of English for Speakers of Other Languages (ESOL) teaching contexts around the world.

Outcome of the course can be defined as, successful candidates at Pass level should show convincingly that they can prepare and plan for the effective teaching of adult learners and demonstrate professional competence as teachers.

Though CELTA is not brand new through Turkish context, it has been lately recognized as an official certificate by the Ministry of National Education and the Council of Higher Education. From this point of view, it may be predictable that more teachers and instructors will take CELTA certificates in the following years. Thus, when the literature is examined both nationally and internationally, it is seen that the researches on CELTA have been arising in the last years, yet the numbers of the studies are limited (Borg, 2002; Constandini, 2011; Sag, 2013; Delaney, 2015; Aydin, 2016; Gulcan & Kesli Dollar, 2016; Florkowska, 2018; Mackenzie, 2018; McArdle, 2019; Birgun, 2020; Sweeting, 2020). However, a few studies (Borg, 2002; Sag, 2013; McArdle, 2019) offered to reveal individual experiences of trainees about the course. Referring to this point, current study is an attempt to give a perspective from the EFL instructors towards CELTA. Since EFL instructors at Cag University School of Foreign Languages are encouraged to have their CELTA qualifications, this study has been carried out on a voluntary basis and a total of 6 language instructors who have taken their CELTA qualifications. Therefore, this is a case study aiming to reveal the trainees' individual experiences and reflections in the context of CELTA. The purpose of the study is to describe the perspectives of 6 EFL instructors on CELTA course. Following questions are investigated to reveal the perspectives of the instructors;

- 1- What were the expectations of EFL instructors on the CELTA?
- 2- What were the needs of the trainees as EFL instructors?
- 3- How did the CELTA affect instructors' classroom practices?
- 4- How did EFL instructors evaluate the CELTA course?
- 5- What suggestions instructors made to improve the CELTA?

2. METHODOLOGY

In this research, to explore the experiences of EFL instructors on the CELTA course a single case study was employed. Case study research is a qualitative approach in which the investigator explores a real-life, contemporary bounded system (a case) over time, through detailed, in-depth data collection (Creswell, 2013). Yin (2009) states that the case study's fundamental is its ability to deal with a variety of evidence sources such as interviews, observations, and documents. Furthermore, what could be available in other sorts of qualitative methods. From this point of view, document analysis, interviews, survey, and open-ended question form were employed. He also explains that use of the case study strategy has a vivid advantage when a "how" or "why" question is examined about a contemporary situation over which the researcher has little or no control. The case study method provides investigators to keep of the holistic and significant idiosyncratic of real-life events (Yin, 2009). Yin (2009) states that "case study research involves study in a real life context or setting" (p. 9).

As for the study's design, a case study was adopted as appropriate since the study does not focus to look for a cause-effect relationship, measuring the objective reality or developing, verifying and confirming any universal theories, but rather it aims to delve into how people interpret the meaning or construct a meaning for a particular situation. In this study, EFL instructors' CELTA experiences have been discussed as a case.

Among several research approaches in qualitative research design, a single case study was considered appropriate to the research problem and the purpose of the current study since it enables a more in-depth analysis of the case.

The data of the study, of which focus is to provide an in-depth understanding of the EFL instructors' CELTA experiences, were gathered through different sources of information. In this study, the purposeful sampling method was adopted which is considered as one of the prevalent methods in qualitative research (Creswell, 2013).

2.1. Study Group

In this research, the study group consists of 6 foreign EFL instructors who work for Cag University Preparatory School. The study group of the research was determined using purposeful sampling method. The age range of these 6 foreign EFL instructors is between 26-60. They speak different languages as their native language and have been using English as a medium of instruction in their classes. The number of female instructors (n=4) outnumbers the number of male instructors (n=2). As for their educational background, the majority of the EFL instructors have experience in teaching for more than 4 years. As for professional development, half of the EFL instructors (n=3) are enrolled in Master's programs while other half (n=3) are have in Bachelor's degree programs. Moreover, half of the EFL instructors (n=3) teach reading & writing whereas the other half (n=3) teach listening & speaking classes. The demographic characteristics of the study group are given in Table 1.

Table 1: Demographics of Participants

Variables	Category	f	%
Gender	Male	2	33,33
	Female	4	66,66
Age	26-30	4	66,66
	31-45	1	16,66
	46-60	1	16,66
Teaching Experience (Time)	1-3	1	16,66
	4-6	3	50
	7-9	1	16,66
	+10	1	16,66
Degree	BA	3	50
	MA/Ongoing	3	50
Teaching Experience (Location)	Turkey	5	83,33
	Russia	2	33,33
	Holland	1	16,66
	Ukraine	1	16,66
Other Teaching Experiences	Linguistics	1	16,66
	Statistics	1	16,66
Other Languages	Turkish	5	83,33
	Russian	2	33,33
	Dutch	1	16,66
	German	1	16,66
	French	1	16,66
	Norwegian	1	16,66
	Ukrainian	1	16,66
	Korean	1	16,66
	Slovak	1	16,66
	Czech	1	16,66
Lessons They Teach	Reading & Writing	3	50
	Listening & Speaking	3	50
Main Reason for Doing	CoHE Requirement	3	50

CELTA	Self-Improvement	3	50
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In the abbreviations place in the findings section, M for Male and F for Female were utilized. For instance; (M, 2) M symbolizes male, and 2 is participant number.

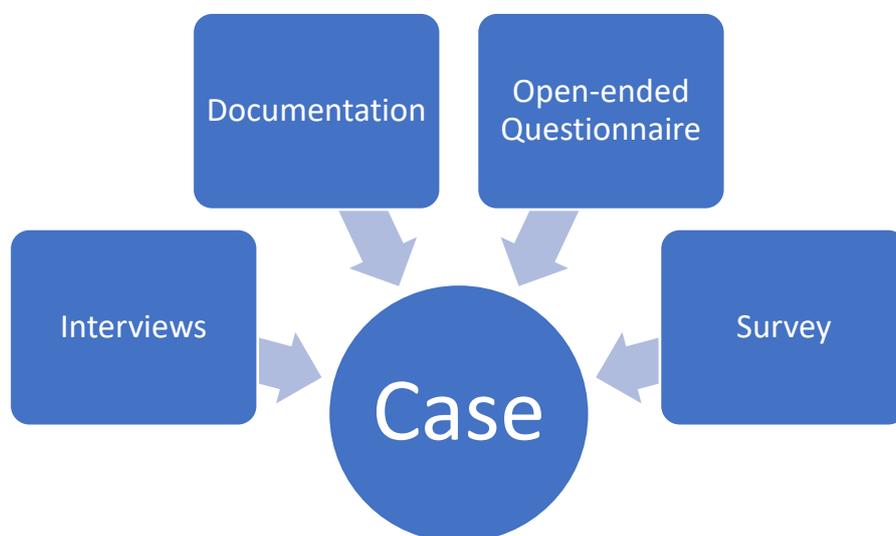
2.2. Data Collection Tools and Procedure

Data were gathered and analyzed utilizing the recommended implications and sources by Yin (2009).

The current case study database was included and includes the following sources of data:

- 1) Administrative and research based documents: The researchers reviewed the administrative and research based documents about the CELTA course. Those documents include curriculum, course requirements and components of assessment, grading process, assignments, hand book and related researches.
- 2) Interviews: The researcher conducted interviews online via Zoom and they are all recorded. It is aimed to understand of what is being studied deeply. To obtain this depth “the researcher must follow up, asking more question about what was initially heard” (Rubin & Rubin, 2005). Semi-structured questions were introduced and follow up questions also were carried out. Each attempt was occurred to make sure questions were asked in an objective and unbiased manner.
- 3) Survey: A survey, which was prepared by Aine (2019), was performed to the participants to get their views about the evaluation of the course.
- 4) Open-ended Questionnaire: The open-ended question form developed by the researchers was created in order to get the opinions of the instructors about their views on the CELTA course. While preparing the form, the literature was searched and draft questions were created. Then, expert opinions were taken from two faculty members in the field of foreign languages. These two experts also held their CELTA certificates. Final arrangements have been made in line with the feedback they have given and made ready for use in research. The instructors answered the open-ended questions form created through Google Forms online.
- 5) Member checking: A copy of the information gathered from the interviews was provided to the interviewee for the accuracy of interpretation and correction if necessary. The participant reviewed the data and approved.

Figure 1: Data collection tools used in the research



2.3. Data Analysis

The data collection process in the study was carried out by the researcher on the basis of the voluntary participation of the preparatory school instructors. While collecting the data, participants were informed of the

purpose of the study and made sure that the collected data would be kept anonymous and confidential. Data were collected via Google Forms. Descriptive statistics were used to analyze the quantitative data.

The content analysis method was employed for the analysis of qualitative data. Content analysis is to bring together similar data within the framework of certain concepts and themes and interpret them in a way that the reader can understand (Yildirim & Simsek, 2005). Content analysis is a scientific approach that allows an objective and systematic examination of verbal, written and other materials (Tavsancil & Aslan, 2001). Qualitative data analysis is a process in which the researcher organizes the data, divides them into analysis units, synthesizes, reveals patterns, discovers important variables and decides what information to reflect on the report (Ozdemir, 2010).

The content analysis was carried out in three stages. In the first stage, the main categories emerging for the goal of the research from the responds given to the research question were determined. In the second stage, the data were arranged by reading according to the main categories previously determined and sub-categories of the main categories were determined. In the last stage, the data are defined according to the main category and sub-categories, and the information that comes up with the necessary quotations is presented in relation to each other. The data gathered with the interviews and open-ended questions form was organized and appropriate themes were created by 2 different experts. Then the coding reliability of the data obtained in the study was calculated using Miles and Huberman's formula ($\text{Reliability} = \text{consensus} / (\text{consensus} + \text{divergence}) * 100$). The fact that the coding among the coders is at least 80% indicates that the research results are reliable (Miles & Huberman, 1994; Patton, 2002).

Table 2: Reliability Coefficient Between Encoders

Question Number	Reliability Coefficient Between Encoders
1.	0.84
2.	0.88
3.	0.80
4.	0.88
5.	0.92
6.	0.85
7.	0.91

2.4. The Trustworthiness of the Research

To ensure the trustworthiness in a qualitative study, several techniques such as transferability, conformability, credibility, and dependability should be validated (Lincoln & Guba, 1985). The combination of those components was utilized to serve the goal of the study. Transferability couldn't be applied because of the conclusions in the current study aren't transferable to other times, contexts, and participants.

For enhancing the credibility, the triangulation method was employed. In the current study, the methodological triangulation was employed by using several data collection tools such as interviews, open-ended questionnaires and surveys.

Moreover, the researchers applied a peer debriefing strategy to develop a brighter understanding of the case. From this point of view, the researcher was helped by another researcher during the coding phase to minimize misinterpretations and eliminate the possible researcher biases.

To establish conformability, audit trails were organized and utilized to eliminate biases by taking a record of process. In this regard, raw data and documents, categories' structures, methodological notes, summaries and proposals were kept.

The last but not the least, to ensure dependability inquiry audit technique was performed. The supervisor of the study as an external researcher monitored and examined the process of the current study, by providing constructive feedback for every single step taken.

3. FINDINGS

In the first research question of the study which is “what were the expectations of EFL instructors on the CELTA,” the codes formed based on the answers they gave to the question “What skills did you expect to gain on the course of CELTA? Did the courses meet your expectations? Please explain briefly.” to learn the views of the instructors about their expectations on the CELTA course.

Table 3: Qualitative Analysis Results of Trainee’s Expectations through the Course

Theme: Expected Skills (N=6)		
Codes	f	%
Teaching adults	2	18
Teaching grammar	2	18
Overall skills	1	9
Classroom management	1	9
Improving own English skills	1	9
Assessing needs	1	9
Lesson planning	1	9
Material designing	1	9
Teaching strategies	1	9
Sum	11	100

According to the table, the code with the highest density was “Teaching adults” (f=2) and “Teaching grammar” (f=2). For example;

“I was expecting like to learn more about teaching adults first, and young adults may be, also I expected more academical knowledge how to explain grammar in a better way not make it so boring as we get used to it. Mostly teaching adults and young adults.”(F,1). “I was expecting to learn how to teach grammar. I didn’t really think about the other skills too much. I thought that would focus on the skills as well as the grammar that what I needed was grammar.” (F,2). “A range of skills for teaching adult learners such as, assessing needs, lesson planning & material design, a variety of teaching strategies for different aspects of language learning.” (F,3).

In the second research question of the study which is “what were the needs of the trainees as EFL instructors,” the themes created based on the answers they gave to the question “Do you think the CELTA course considered your needs in terms of the course content?” to learn the views of the instructors about the course content.

Table 4: Qualitative Analysis Results of Trainee’s Needs

Theme: Meeting Needs (N=6)			
Sub-themes	Codes	f	%
Yes	Focusing on teaching adults	2	25
	Focusing on smaller groups	1	12.5
	Teaching vocabulary	1	12.5
	Teaching grammar	1	12.5
	Teaching reading	1	12.5
No	Pretty basic	1	12.5
	Not even a little	1	12.5
Sum		8	100

According to the table, the code with the highest density was “Focusing on teaching adults” (f = 2). For example; “I think the course is very suitable for me anyway, because I work with adults and this course is mainly focusing on working with adults, teaching adults and also as I noticed, while doing the course usually it focuses on

smaller groups as well although in the last unit they do talk about kids and about bigger groups but in general just smaller groups and mostly adults. It is the kind of groups I teach every day in prep school, that's why I think the course was quite suitable for me.” (F,4). “On the whole it met my needs in. However, the content was pretty basic and in many ways didn't teach me anything that I didn't already know.” (F,3). “Not even a little, the theoretical background in the course is horrendously outdated; we're talking ten years old for the most recent sources they sight and as far as methodological goals or psycholinguistic insides early 2000s, it's very outdated. There is almost no connection between the theoretical background and the practical skills they want you to learn.” (M,1).

In the third research question of the study which is “how did the CELTA affect instructors' classroom practices,” the codes created based on the answers they gave to the question “What changes have occurred in terms of approaches and techniques you use in the class after the CELTA?” to learn the views of the instructors about the course reflection.

Table 5: Qualitative Analysis Results of Trainee's Views on Inclass Changes

Theme: Changes Inclass (N=6)		
Codes	f	%
Giving meaning of vocabulary	3	16
Using breakout rooms	3	16
Drilling techniques	2	11
Being more interactive	2	11
Giving physical approach	2	11
Having group work	1	5
Having pair work	1	5
Being aware of the problems students might encounter	1	5
Knowing how to write lesson plan	1	5
Giving simpler instructions	1	5
Being more polite	1	5
Eliciting information from students	1	5
Sum	18	100

According to the table, the code with the highest density was “Giving meaning of vocabulary” (f=3) and “Using breakout rooms” (f=2). For example;

“I started to use more breakout rooms. I did before but now even I use it more. When you give some task to your students they do it individually. After that you put them into breakout rooms, so they compare their answers, they earn more confidence about their answers. Only then do they come back to the main class, you ask them the answers so you give them the answers. I think breakout rooms, it was a good thing. Also drilling techniques about teaching pronunciation were nice. There are couples of them. They told us to give meaning before forming pronunciation. So first of all we should give the meaning in a context aftexplainingain this meaning when you give them form and you move to pronunciation so there are some drilling techniques for pronunciation, you can give all the sentence drilling it. You can point on a singer and ask for example what is missing. I playing football now. So you can show what is this point “I.”m”. Using your fingers let them understand better like repeating these things.” (F,1). “I definitely know how to write lesson plans better now, I mean before it was so confusing I knew in general how to do it, yeah I didn't know how to start or I wasn't sure about the procedure or structure, now I can do it really faster and doesn't take too much time because I know the structure. Another thing, I learnt a lot of techniques in this course and I'm trying to use them. In general, if I think about the changes that I have applied in my lessons giving simpler instructions, trying to use imperatives more often, trying to elicit everything from the students not just explaining the rule or explanation but trying to elicit everything from the students. According to CELTA, first you need to give the example and then you need to prepare concept checking questions so the students will explain the rule to you.” (F,4).

The codes created based on the answers they gave to the question “What are the contributions of CELTA to your teaching not only academically but also psychologically as a teacher?” to learn the views of the instructors about the contributions of the course.

Table 6: Qualitative Analysis Results of Trainee’s Views on Contributions of the Course

Theme: Contributions (N=6)		
Codes	f	%
Made me more confident	3	37
Made me more tolerant	2	25
Made me more communicative	1	12.5
Made me more calm	1	12.5
Decreased teaching time	1	12.5
Sum	8	100

According to the table, the code with the highest density was “More confident” (f=2). For example; *“It helped to be more calm and my lesson. It teaches you to wait and of course first thing they teach you to decrease your teaching time. To decrease it you should wait for students’ answers like give them more time. We normally expect we ask and the answer should just come after our question. But no we should give them time to think and less emotion take it easy about the lesson. It made me more tolerant.”* (F,1). *“When I teach grammar now, I feel more comfortable, less afraid of teaching something wrong. It was helpful for my classes.”* (F,2). *“I’m more confident about lesson aims so I know what I want from students, I know what the next step should be so I feel more confident during my lessons.”* (F,4).

In the fourth research question of the study which is “how did EFL instructors evaluate the CELTA course,” the themes created based on the answers they gave to the question “From the perspective of a CELTA graduate, what are the strengths and weaknesses of this teacher training course?” to learn the views of the instructors about the evaluation of the course.

Table 7: Qualitative Analysis Results of Trainee’s Views on Strengths and Weaknesses of the Course

Theme: Strengths and Weaknesses of the Course (N=6)			
Sub-themes	Codes	f	%
Strength	Teaching practice weeks	3	12
	Taking feedback from tutors	2	8
	Being online	1	4
	Intense course	1	4
	Teaching reading	1	4
	Helpful tutors	1	4
	Trying to keep trainees working	1	4
Weakness	Outdated materials	3	12
	Not having enough interaction	2	8
	Outdated teaching strategies	1	4
	Limited approaches	1	4
	No units about motivating students	1	4
	Long and boring online units	1	4
	Only small classes	1	4
	No guidance for extra sources	1	4
	Different quality of tutors	1	4
	Working at the same time	1	4
	Being too long	1	4
	Losing motivation	1	4
Sum		25	100

When Table 7 is examined, it is seen that the views of the instructors about strengths and weaknesses of the course are gathered around 2 (two) sub-themes which are “Strength” (f=11) and “Weakness” (f=14). According to the table, the code with the highest density was “Teaching practice weeks” (f=3) and “Outdated materials” (f=3). For example;

“It is nice that we could do it at the same time as work. We didn’t need to leave the work or spend time outside the city like living other place. It was online so it was comfortable. It was nice. But it has benefits and disadvantages. We lost our motivation at the end. Because it was so long, so much work, you don’t have this energy and enthusiasm to move on. It didn’t really end maybe it was in the middle of the course. Then of course after our 2nd teaching practice we woke up little bit more. In the middle it was very hard to motivate yourself. Before course I was very motivated about it. I wanted to do it doesn’t depend the work.” (F,1). *“As I work full time and have children, it wouldn’t have been possible for me to do full time course, so it’s definitely a benefit for me that it was online because I could do the units whenever I had time and it’s mostly night time. On the other hand, we didn’t have enough interaction with the tutors and other members. I think if we did it face to face, we would have been more involved, probably we would’ve learnt more as well. Although we didn’t have enough interaction, the course was really intense. We always had to do something. I had to do something every day. The best part of the course was 2 teaching practice weeks. I learnt a lot from them. Another weakness, there is one approach and doesn’t matter if you agree or disagree, you have to do it according to their standards if you want to pass the course. You have to follow what you are given.”* (F,4). *“The main strength of the course was teaching practice and feedback from those who observed. The biggest weakness is that some of the teaching strategies are a bit dated.”* (F,3). *“Materials in used, they could be updated, we’ve got library with some books, those books are almost 20 years old. The strong part of CELTA, I would say definitely tutors, they were extremely helpful, in case of any problem we were able to contact them in a short time, they were extremely supportive and kind.”* (M,2). *“Practice teaching it was the most useful part, it was very hard because we had like every day in a week two weeks with practice it was very intensive it was difficult but they were the weeks that we learnt the most. It was very useful and we’ve got very useful feedbacks from the tutors and also they helped us with planning our lessons. The tutors were really good; they were always helping us if we needed some help. If we sent an e mail, they just answered directly like after 1 minute even if it was in the night. It was online and there were lots of online units, some of them were quite long and it was quite boring sometimes, I didn’t really want to do it but I had to so I just try to get through it. It would have been better to have it as a real course I think to interact with others instead of just reading these slides and these exercises on the internet, it was quite boring and some of the materials were a bit old, they could have been updated. We observed a video; in the video someone showed a film to their student it was an old TV and a video cassette. And the classes that we observed, it was filmed classes before, it was usually small classes so it would have been good to see how the teachers were in the big classes as well.”* (F,2).

The codes formed based on the answers they gave to the question “How useful do you think the CELTA course has been for you in your language teaching?” to learn the views of the instructors about the usefulness of the course.

Table 8: Qualitative Analysis Results of Trainee’s Views on Usefulness of the Course

Theme: Usefulness of the Course (N=6)		
Codes	f	%
Quite useful	3	27
Fine for new teachers	2	18
Could be better	1	9
Making easier	1	9
Helpful	1	9
Taught academic vocabulary	1	9
Would rather DELTA	1	9
Not even close	1	9
Sum	11	100

According to the table, the code with the highest density was “Quite useful” (f=3). For example; “I think it has been useful, of course it can be better but as I said before I feel more comfortable now, has become a little bit easier I think I have improved my language teaching but of course I still need to work on it.” (F,2). “It was fairly useful. There were a couple of things that I learnt and now put into practice. But I think the course is fine for new teachers who are starting their careers. I’d rather do a DELTA course for more in depth training.” (F,3). “It was quite useful. From 1-10 it was 10 or 9. It was a nice experience, it wasn’t easy experience at all. We didn’t sleep nights, we’re suffering to survive but it was very useful for our teaching I think. I’m really happy.” (F,1). “Was it useful comparing the amount of time I put in? Not even remotely close. We spent about 240 hours in this course total, a little more maybe if you struggle on the theoretical side and how much energy, how much physical time took next to my job, not at all. Could I just take practical weeks? I would totally recommend it.” (M,1). “Not just techniques but some general information about lesson planning, it was very helpful. And I have actually learnt new academic vocabulary as well. It was quite useful for me.” (F,4). “Most of the strategies, I have been using, maybe I didn’t know what is the proper name of the strategies but I have been dealing with them before, right now I’m definitely able to improve the strategies. I will get much better results with my students in the future.” (M,2)

Results about the EFL instructors’ evaluation on the course are given in Table 9.

Table 9: Descriptive results of evaluation of the CELTA trainees

		\bar{X}	Sd
1 Do you think it gave you adequate training in English?		2.83	1.60
2 Do you think it gave you adequate training in teaching skills?		2.16	.75
3 Do you think it gave you adequate training in the needs of different cultures?			3.16 1.47
4 Do you think it was up-to-date at the time you did it?		3.50	1.64
5 Do you think it encouraged you to reflect on your past experiences as a language learner?		2.00	.89
6 Do you think the course encouraged you to be a reflective teacher?	1.33	.51	
7 Do you think it promoted flexibility in using different teaching practices for different situations?		2.50	1.64
8 Do you think that it balanced teacher centred and student centred learning on the course?		2.66	1.63
9 Did it teach you how to teach English?		1.66	.81
10 Did it teach you how to evaluate yourself as a teacher?	1.50	.54	
11 Do you think it promoted flexibility in using different teaching practices for different situations?		2.33	1.36
12 Did it teach you how to use foreign language materials?	2.16	1.60	
13 Did the course teach you how to adapt foreign language teaching materials?		2.00	1.26
14 Did it increase your powers of self-evaluation?		1.50	.54
15 Do you think it taught you foreign language testing and evaluation skills?			2.66 1.21
16 Did you think it was relevant to your needs?		2.16	1.47
17 Do you think it has a good balance between the teaching of English teaching skills and classroom management skills?		2.50	1.37
18 Do you think it prepared you to teach English in the classroom?	2.33	1.50	
19 Did it meet your needs?		2.16	1.16
Sum		2.27	1.01

The average score of instructors’ views on the CELTA course was determined as 2.27. This finding can be interpreted as instructors’ are not pleased at all. The average score corresponds to the “Disagree” level in the scale.

Furthermore, it was also seen that item6 “Do you think the course encouraged you to be a reflective teacher?” is at the lowest level (\bar{X} : 1.33) while item4 “Do you think it was up-to-date at the time you did?” is at the highest level (\bar{X} : 3.50). Based on these findings, it can be said that instructors didn’t get enough efficiency from the course.

In the fifth research question of the study which is “what suggestions instructors made to improve the CELTA”, the codes formed based on the answers they gave to the question “Are there any topics that you wish to have been taught at the CELTA course? What suggestions would you make to improve the CELTA course?” to learn the views of the instructors about the evaluation of the course.

Table 10: Qualitative Analysis Results of Trainee’s Suggestions on the Course

Theme: Suggestions on the Course (N=6)		
Codes	f	%
Should be live classes	2	16
Should be more interactive	1	8
Could be units for young learners	1	8
Could be units for special needs students	1	8
Should teach how to motivate students	1	8
Should consider individual differences	1	8
Should teach managing bigger classes	1	8
Should redesign order of assignments	1	8
Should teach using the board	1	8
Should teach monitoring students	1	8
Should be more practice	1	8
Sum	12	100

According to the table, the code with the highest density was “Should be live classes” (f=2). For example; *“The videos are nice and useful as for teaching but they are kind of old, if they were more modern, using technologies that we used now because technology used in that time that I’m not sure what are they, so it may be more technology oriented. We did mostly online teaching, so they didn’t give us knowledge about using board. As I know other courses they did give this knowledge to teachers.”* (F,1). *“More updated materials, maybe I would change the order of the assignments we are supposed to deal with. Dealing with CELTA and dealing with job work, it was almost impossible at the same time to do it and then you are losing your motivation.”* (M,2). *“I think we didn’t have enough interaction with the tutors and other teachers, we most like read the units and do the task. I guess there should be more interaction, I mean every week you should talk to tutors and we didn’t have enough live classes, every week we should have a live class. And the topics they mostly focus on teaching adults but I guess they could be about young learners and the students with special needs as well. Maybe they could give more information about how to motivate students like games and exercises.”* (F,4).

4. DISCUSSION

Education has been a way of transferring the culture for years. Since the education is not stable like the culture, there is reciprocal relation between the education and the culture. They are both dynamic processes and more importantly they are both cumulative. On the other hand education is a process of transferring culture and reflecting state’s ideologies. What makes the states, nations and culture? They are actually based on the language. So the language is also like education and culture, which means it’s not stable, it’s dynamic and cumulative. When they are going further also the teaching methods also should be improvable. Therefore, if pre-service training programs are a building block, in-service training programs make those building blocks as mansions. That’s why pre-service programs are not enough when the years gone, so in-service programs are vital in professional life. From this point of view, the researchers of this study have attempted to investigate the in-service program CELTA from the EFL instructors’ perspective.

As a result of the current research, it was concluded that instructors' pleasant about the CELTA course are at a medium level. They found the course useful for their career although the deficiencies of the course. The deficiencies of the course are probably based on the differences of participants' and course context. When the interview findings are examined, it is seen that the course isn't in line with the andragogic components. Thus, the participants found the course very improvable. One and maybe the biggest issue about the course is that the course doesn't consider the needs of the participants which is completely contrary to the andragogic principles (Knowles, 1984). So the methodologies of the course could be useful but not the needs of the participants. While CELTA course gives training based on small and willingly classes, the participants may encounter big and reluctant classes. So participants' actual classes are not an issue at the CELTA course. Gulcan and Kesli Dollar (2016) also stated that the applicability of the course's methodology is fairly limited, because of the differences of actual classes of participants. Yet, trainees' expectations on the course are gathered around teaching adults and as it is seen on the interviews, the course has met the trainees' expectations in that line.

Besides, the participants stated that they are trying to use the techniques, which they learnt on the course, especially related to distance education. And those contributions are reflected in classes such as breakout rooms, drilling techniques, physical approaches, vocabulary teaching techniques. Also the trainees stated that they are more confident, tolerant and calm after the course. So it can be said that the course affect not only the teaching skills but also the psychological aspects of teachers.

Another issue about the course that though it is an expensive course not only as price but also for physical time, the materials that they used on the course are really outdated and that was stated by all the participants and it was seen that a bit awkward during the course. Since the course was conducted online, the participants have stated that they hadn't had enough interaction with the tutors and other participants, and they have also complained about having limited approaches. But they are also pleased with the helpful tutors, constructive feedbacks and particularly with the practice weeks.

The trainees' suggestions in order to improve the weaknesses of the course are they desired live practice classes and more interaction, also units for young learners, managing bigger classes and another significant issue for teachers is using the board; they didn't get any information about using the board because the course was online so the course should redesign their content and techniques by combining face-to-face and online teaching.

The other issue about the course is, the course content is about teaching adults which is appropriate for this research's participants, yet it should be reconsidered for the trainees who are teaching young learners and special needs students, that is an another issue about considering trainees' needs. On the other hand, the context's transition was also mentioned by O'Connor (2011) and Gulcan and Kesli Dollar (2016). When the course program is examined it can be seen that it is standardized for a general scale of trainees without taking into consideration of trainees' individual differences as participants stated it is fine for new teachers. So andragogic principles also recommend taking the trainees' individual differences (Knowles, 1984). Since the course was online because of the pandemic, the participants didn't get enough interaction with the tutors and other trainees, therefore it was an obstacle to share their ideas and do brainstorming which should be presented to the trainees according to andragogic approach (Knowles, 1996; Kurt, 2002). On the other hand, the tutors always gave useful feedback to the participants that is significant in andragogic principles (Knowles, 1984). Moreover, the trainees are introduced with the aims of the course at the beginning of the course, and at the end of the course they are asked that the course met their expectations. The participants of this course are teaching to adult learners so the course content is dealing with also adult learners, it can be concluded that the course content is designed through problem-based and task-oriented learning considering andragogic principles (Knowles, 1984). In that line, there were several teaching practice weeks during the course, and those parts of the course were found the most useful parts by the participants on the course. Hence, it can be said that the course was a bridge between the theory and practice. And as adult learners, the participants are pleased with walking on that pathway as it was useful for their real-life problems.

5. CONCLUSION and IMPLICATIONS

In conclusion, the CELTA course is useful for EFL instructors' careers; nevertheless the course components and content should be redesigned considering andragogic principles. According to the results of the study, the following implications could be stated for implementation:

- 1- Each course programme should be designed considering the trainees' needs.
- 2- The course content should be divided into groups which are for young learners, young adult learners, adult learners and special needs students.
- 3- The course's methodologies numbers may be increasable.
- 4- The course's materials should be immediately updated.
- 5- The teaching practice week's numbers should be increased.
- 6- The course content should be redesigned considering the distance education's conditions.
- 7- The course programme should be in line with the trainees' actual classes.

Beside the implications above, the recommendations for further research are stated below:

- 1- The implementation of the course can be compared with different countries.
- 2- The current study is conducted with the instructors who are working for university; another research can be conducted with different sample that has different context.
- 3- The differentiation among the trainees' background could be investigated with a quasi-experimental study considering the variables such as degree, mother tongue, experience and etc.
- 4- Trainees' beliefs towards EFL teaching and reflections could be investigated with a quasi-experimental study.

References

- Aydın, B. , Sağlam, S. & Alan, B. (2016). Can CELTA qualification be the new bridge between pre-service and in-service education?: Perceptions of in-service teachers . *ELT Research Journal*, 5(2), 0-0.
- Birgün, M. (2020). Mapping the position of CELTA for professional development in Turkish context . *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, (55), 128-144 . DOI: 10.21764/maeuefd.662965
- Borg, M. (2002). Learning to teach : CELTA trainees' beliefs, experiences and reflections.
- Candal, S.T. (2015). Great Teachers are Not Born, They are Made: Case Study Evidence from Massachusetts Charters
- Constantinides, M. (2011). Integrating Technology on Initial Training Courses: A Survey Amongst CELTA Tutors. *International Journal of Computer-Assisted Language Learning and Teaching*, 1(2), 55-71. IGI Global.
- Creswell, J.W. (2013) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 4th Edition, SAGE Publications, Inc., London.
- Cruz, R. S. N. (2018, November 17). Good teachers are made, not born. *Inquirer*. <https://opinion.inquirer.net/117518/good-teachers-are-made-not-born>
- Daizeabdao (2016, June 24). Good Teachers are not Born, They are Made. <https://daisyabdao.wordpress.com/2016/06/24/good-teachers-are-not-born-they-are-made/>
- Delaney, J (2015). The 'dirty mirror' of reflective practice: Assessing self- and peerevaluation on a CELTA course in *Assessing Language Teachers' Professional Skills and Knowledge*, Cambridge: Cambridge University Press.
- Florkowska, K., 2018. *The use of Concept Checking Questions in the EFL classroom: Reflections on the CELTA experience*. Masters. Kingston University.
- Gülcan, M. & Kesli Dollar, Y. (2016). Turkish EFL Teachers' and Administrators' Perceptions of Short Teacher Training Courses: The Case of CELTA . *Turkish Online Journal of English Language Teaching* , 1 (2), 85-100 .
- Knapp, J. (2012, September 11). Op-ed: Good teachers are made, not born. *The Seattle Times*. <https://www.seattletimes.com/opinion/op-ed-good-teachers-are-made-not-born/>
- Knowles, M. S. (1984). *Andragogy in Action. Applying Modern Principles of Adult Education*. San Francisco, CA: Jossey Bass.
- Knowles, M. S. (1996). *Adult learning*. In R. L. Craig (Ed.), *The ASTD training and development handbook: A guide to human resource development* (4th ed.). New York: McGraw-Hill.
- Kurt, I. (2002). *Yetişkin Eğitimi*, Nobel Yayın Dağıtım, Ankara.

- Mackenzie, L. (2018). Teacher Development or Teacher Training? An Exploration of Issues Reflected on by CELTA Candidates. *English Teaching & Learning* 42, 247–271.
- Miles, M. B., & M. Huberman (1994). *Qualitative Data Analysis: A Sourcebook of New Methods*. Beverly Hills, CA: Sage Publications.
- McArdle, A. (2019). What have Irish ESL teachers learned and how does it affect how they teach? Comparing international best practices with the CELTA and Irish ESL teachers' experience in the classroom.
- O'Connor, B. (2011). *Life after CELTA: a precarious transition into English language teaching* (Doctoral Dissertation).
- Osae, C. (2017, February 22). Teachers are made, not born. *Newtimes*. <https://www.newtimes.co.rw/section/read/208231>
- Özdemir, M. (2010). Nitel Veri Analizi: Sosyal Bilimlerde Yöntembilim Sorunsalı Üzerine Bir Çalışma . *Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Dergisi* , 11 (1), 323-343 .
- Öztürk, U., & Atay, D. (2010). Challenges of being a non-native English teacher. *Educational Research*, 1, 135-139.
- Rubin, H. J., & Rubin, I. S. (2005). *Qualitative Interviewing: The Art of Hearing Data* (2nd ed.). Thousand Oaks, CA: Sage.
- Sağ, Z. (2013). *An exploration of the self-perceptions of NNEST participants on a CELTA course in Turkey*. (Unpublished Master Dissertation). University of Brighton. Faculty of Arts. School Humanities.
- Sweeting, A. (2021). *From “Cinderella” to “Sleeping Beauty”: Taking Pronunciation Instruction in the CELTA Course Beyond “Listen and Repeat”* [University of the Sunshine Coast, Queensland].
- Tavşancıl, E. & Aslan, E. (2001). *Sözel, Yazılı ve Diğer Materyaller için İçerik Analizi ve Uygulama Örnekleri*. Epsilon Yayınevi, İstanbul.
- Thornbury, S., & Watkins, P. A. (2007). *The CELTA course: Certificate in English language teaching to adults : trainee book*. Cambridge: Cambridge University Press.
- UCLES/RSA. (1998c). *What is CELTA? Candidate Information*. Cambridge: UCLES IRSA Examinations Board.
- Yıldırım, A., & Şimşek, H. (2005). *Sosyal bilimlerde nitel araştırma yöntemleri*. İstanbul: Seçkin Yayıncılık.
- Yin, R. K. (2009). *Case Study Research: Design and Methods* (4th ed.). Thousand Oaks, CA: Sage Publications.

Appendix

Choose the appropriate one. 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly Disagree

	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE
1. Do you think it gave you adequate training in English?					
2. Do you think it gave you adequate training in teaching skills?					
3. Do you think it gave you adequate training in the needs of different cultures?					
4. Do you think it was up-to-date at the time you did it?					
5. Do you think it encouraged you to reflect on your past experiences as a language learner?					
6. Do you think the course encouraged you to be a reflective teacher?					
7. Do you think it promoted flexibility in using different teaching practices for different situations?					
8. Do you think that it balanced teacher centred and student centred learning on the course?					
9. Did it teach you how to teach English?					
10. Did it teach you how to evaluate yourself as a teacher?					
11. Did it teach you classroom management skills?					
12. Did it teach you how to use foreign language materials?					
13. Did the course teach you how to adapt foreign language teaching materials?					
14. Did it increase your powers of self-evaluation?					
15. Do you think it taught you foreign language testing and evaluation skills?					
16. Did you think it was relevant to your needs?					
17. Do you think it has a good balance between the teaching of English teaching skills and classroom management skills?					

18. Do you think it prepared you to teach English in the classroom?					
19. Did it meet your needs?					

Digital Immigrant Lecturers' Acceptance of e-Learning Portal: An Application of UTAUT Model

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Abstract

One of the challenges in implementing e-learning in tertiary institutions is the large number of lecturers who are categorized as digital immigrants. This group has the tendency of having difficulties with Information and Communication Technology (ICT) and showing some resistance to ICT. This study aims to determine the factors that influence digital immigrants in accepting e-learning at the University of Jambi using the Unified Theory Acceptance of User Technology (UTAUT) model. Factors to be tested include innovation, perceived usefulness, perceived ease of use, attitudes towards e-learning, risk perception, and acceptance of digital immigrant lecturers. The sample in this study was 55 digital immigrant lecturers. The results of this study indicate that there are as many as 6 out of 9 hypotheses accepted significantly. The finding reveals that the acceptance of e-learning is only influenced by the perceived usefulness.

Keywords: Immigrant Digital, e-learning, User Acceptance, UTAUT Model

1. Introduction

1.1 Introduce the Problem

E-learning is defined as the delivery of education in the form of activities that are relevant to learning through computer technology and the internet (Koohang & Harman, 2005). There are several reasons why lecturers have migrated to e-learning in their teaching and learning process recently. First, the increasingly accessible bandwidth and ease of managing e-learning portal. Second, the internet access is unlimited available for both lecturers and students. The last, online learning is recommended by WHO during this pandemic era (UNICEF, 2020). The closure of schools and campuses brings the implementation of an online mode of teaching and learning activities to anticipate further infections of the Covid19 amongst students and lecturers/teachers (Weeden & Cornwell, 2020).

E-learning continues to grow and develop because it provides comfort and flexibility for its users (Cappel et al., 2017). Moreover, educational institutions can conduct a low cost e-learning training thereby reducing the

operational costs of the institution (Golladay, Prybutok, & Huff, 2000). E-learning is also growing into a trend in higher education institutions because of its benefits, the learning flexibility that can be carried out anywhere, anytime and in accordance with the speed of students (Leung, 2003).

Regarding e-learning users among lecturers in tertiary institutions, there are two categories of lecturers; digital natives and digital immigrants. Digital native-born when technology already exists and lives in an environment in the digital world. They grow in a world where ICT has penetrated everywhere. Digital native people have features that include digital literacy and are always connected (McMahon & Pospisil, 2005). In contrast, digital immigrants (DI) are new to this environment and are not comfortable with technology (Zur & Walker, 2011). Among them is they prefer to talk to people via smartphones rather than text (Vodanovich, Sundaram, & Myers, 2010).

Perhaps the same as in other countries, the world of higher education in Indonesia is currently still dominated by senior lecturers who are DI lecturers. They must carry out online learning during the COVID-19 pandemic using Moodle platform. This LMS has resource and activity features that allow lecturers to carry out learning with various methods that are applied online. Lecturer activities on the e-learning portal are creating classes, registering lecture participants, uploading material, making video streaming, chatting with participants and co-lectures, and engaging in discussion forums (Sancar & Cagiltay, 2008). But still a big question is whether DI lecturers will be able to accept this LMS well. DI lecturer acceptance of the e-learning portal will determine a success of e-learning. A system is said to be successful if it is well received by the user (Venkatesh & Smith, 2003). User acceptance of information technology can be defined as a desire to apply information technology to help a job.

There are currently no reports on how they respond to an e-learning portal. This paper reveals the factors that influence the acceptance of digital immigrant lecturers to Jambi University's e-learning tools <https://elearning.unja.ac.id>. The DI lectures' responses on acceptance are evaluated by using the Unified Theory of Acceptance and Use of Technology (UTAUT) theory, namely a theory to measure user acceptance of technology which is a development of technology acceptance theory (TAM). According to the UTAUT model the acceptance of digital immigrant lecturers may be influenced by various factors, such as perceived usefulness, perceived ease of use, attitudes towards e-learning and risk perception.

1.2 Research Model and Hypotheses

Innovation is related to the level where individuals accept new ideas and make innovative decisions independently from other people (Okumus, Ali, Bilgihan, & Ozturk, 2018). Meanwhile, the perception of usefulness is defined as the level at which an individual believes that the use of a particular technology will be able to increase its productivity (Davis, 1989). Therefore, one of the reasons people want to use a computer application is when they believe that the application can make their work better.

Meanwhile, perceived ease of use is defined as the degree to which an individual believes that the use of certain technologies will be free of effort (Davis, 1989). Jambi University's e-learning portal was developed from the e-learning content management system (CMS), which is the latest version of Moodle. Thus the continuous innovation from Moodle will impact the ease of use by digital immigrant lecturer users. Panda-Garcia states that there is a positive relationship between perceived usefulness and ease of use (Pando-Garcia, Periañez-Cañadillas, & Charterina, 2016).

Attitude to behavior measures the user's interest in using new technology. Thus, attitude can be defined as the feelings of digital immigrant lecturers to use e-learning in learning (Pando-Garcia et al., 2016). In high school, teachers' attitudes play an important role in the pursuit of e-learning (Xhaferi, Farizi, & Bahiti, 2018). A study revealed that ease of use significantly influences usage behavior (Abramson, Dawson, & Stevens, 2015).

Hamid *et al.* reported that there is a positive relationship between perceived ease of use and desire to continue using e-government (Hamid, Razak, Bakar, & Abdullah, 2016). In addition, a study showed that ease of use and attitude toward the use of multimedia increase the desire to use it (Weng, Yang, Ho, & Su, 2018).

Yanget al./ (Yang, Pang, Liu, Yen, & Michael Tarn, 2015) emphasized that risk perception is a general measure of feelings about uncertainty, discomfort, and uncertainty while carrying out online activities. intuitively people will not use technology if the perception of risk is high. The relationship between these variables is illustrated in Figure 1, and the following hypothesis will be tested.

- H1: there is a significant positive effect of innovation on the perception of the useful of e-learning.
 H2: there is a significant positive effect of innovation on the perceived ease of use of e-learning
 H3: there is a significant positive influence on the perceived ease of use of e-learning on the perception of the useful of e-learning digital immigrants.
 H4: there is a significant positive impact of perceived usefulness on e-learning attitudes,
 H5: there is a significant positive correlation between the perceived ease of use e-learning with attitude toward e-learning.
 H6: there is a significant positive correlation between the perceived usefulness of e-learning with the acceptance of e-learning.
 H7: there is a significant positive correlation of e-learning ease of use with e-learning acceptance.
 H8: there is a significant positive correlation between attitude toward e-learning and acceptance of e-learning.
 H9: there is a significant negative correlation between risk perception and acceptance of e-learning

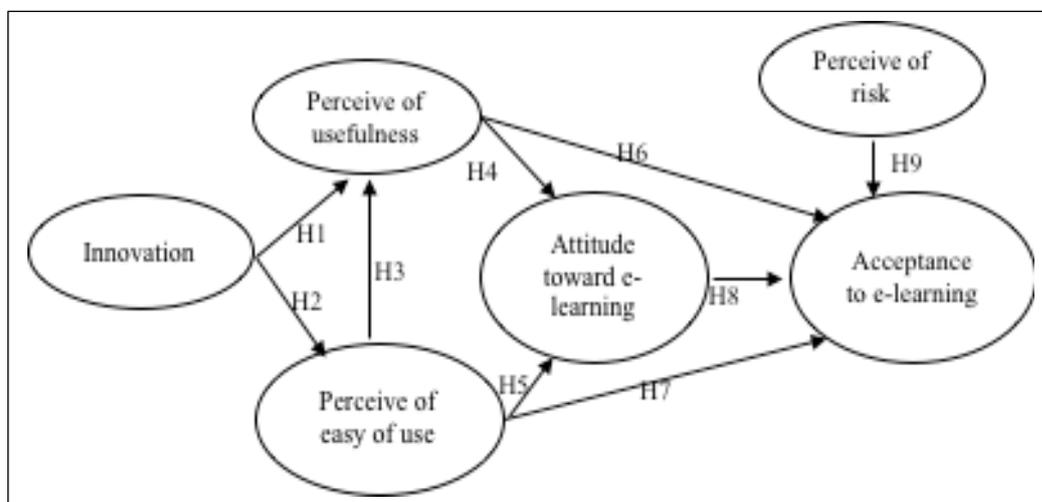


Figure 1: Digital immigrant acceptance model for e-learning portal

2. Method

This type of research was ex-post facto research. The population in this study were all Jambi University lecturers who were still active and were born before 1980. The sample size was obtained using the Yount's table, which is 10% of the population size so that a sample size of 55 digital immigrant lecturers was obtained. The sampling technique is a simple random sampling technique. Based on the results of the sampling, it was obtained 30 women and 25 men.

Before conducting the survey, the steps are 1) provide training in the use of e-learning for selected digital immigrant lecturers, 2) assisting digital immigrant lecturers in implementing e-learning using WhatsApp social media, 3) e-learning implementation for 3 months.

This study did not create a new instrument to measure the acceptance of digital immigrant lecturers in e-learning. The instrument items are adapted from (Lawson-Body, Willoughby, Lawson-Body, & Tamandja, 2018). Factors

and references to user acceptance include usefulness, ease of use, innovation, attitudes towards e-learning, risk, and acceptance of e-learning. Data on acceptance of digital immigrants to e-learning is collected through online surveys. The collected data then processed with PLS data processing software (Ghozali, 2014). The response scale used follows a Likert scale with five values: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly agree.

Before testing the hypotheses, the reliability and validity tests are conducted using factor analysis, convergent validity, discriminant validity, and reliability analysis.

3. Result

3.1 Data Description

Table 1 shows the variables and number of items in the study. Perceptions about the benefits of e-learning have the highest average compared to others

Table 1: Data Description

Variable	Number of item	Average	Deviation Standard
Perceived usefulness	5	4.31	0.51
Perceived ease of use	4	4.02	0.67
Innovation	4	3.86	0.59
Attitude toward e-learning	5	4.05	0.55
Perceived risk	4	2.37	0.39
Acceptance of e-learning	3	4.19	0.50

3.2 Factor Analysis

Factor analysis is used to look for factors that can explain the relationship between various independent indicators. The minimum loading value used is greater than ± 0.30 ; and loading ± 0.50 or greater is significant (Hair, Black, Babin, & Anderson, 2014). Table 2 shows factor loadings, and items taken are items with factor loadings greater than or equal to 0.5. Thus, items with a factor loading of -0.655 were discarded so that the total items used in this study were 24 items spread across all factors.

Table : Factor Loadings

Item Code	Usefulness	Ease of use	Innovation	attitude	risk	Acceptance
U1	0,826					
U2	0,687					
U3	0,781					
U4	0,721					
U5	0,651					
E6		0,826				
E7		0,836				
E8		0,808				
E9		0,821				
I10			0,796			
I11			0,767			
I12			0,733			
I13			0,715			
A14				0,794		
A15				0,807		
A16				0,815		
A17				0,776		

A18	0,622	
R19		0,761
R20		0,698
R21		-0,565
R22		0,596
P23		0,878
P24		0,808
P25		0,805

3.3 Convergent Validity

Convergent validity means that a set of indicators represents one latent variable. The representation can be expressed by using the average value of the extracted variant (AVE). Fornell and Larcker (Fornell & Larcker, 1981) suggest that the AVE value is at least equal to 0,5. Table 3 shows that all factors have a AVE value greater than 0.5 which indicates that convergent validity is acceptable for all factors.

Table 3: Convergent Validity

Code	Factor and Item	Loading Factor	AVE
	Perceived Usefulness (PU)		0,542
U1	The use of online learning will improve my teaching performance	0,826	
U2	I prefer teaching with assisted e-learning than teaching without e-learning at all	0,687	
U3	Using e-learning is a fun teaching experience	0,782	
U4	Using e-learning, I was able to present my teaching materials in a variety of media	0,721	
U5	in general, e-learning is an efficient way to teach	0,651	
	Perceived Ease of Use (PEoU)		0,677
E6	The e-learning portal makes it easy for me to create virtual classes, keep teaching materials, and evaluate	0,827	
E7	The Universitas Jambi e-learning portal is easy to use	0,836	
E8	I can easily provide instructional materials and learning resources when using e-learning	0,808	
E9	The teaching of e-learning is taught faster to students	0,821	
	Innovation (I)		0,568
I10	I accepted the e-learning portal and tried to understand all the features available on the portal	0,796	
I11	I advise my colleagues to use e-learning in lectures	0,767	
I12	I can explain how to use e-learning in lectures with colleagues	0,733	
I13	My colleague also used e-learning	0,715	
	Attitudes toward e-learning (AtE)		0,587
A14	I am satisfied with the quality of the e-learning portal	0,794	
A15	I can teach students well by using e-learning	0,807	
A16	e-learning helped me to achieve my lecture targets	0,815	
A17	In general, I am satisfied with e-learning technology in lectures	0,776	
A18	In general, my attitude towards e-learning in lectures is positive	0,621	
	Perceived of Risk (PoR)		0,677
R19	After using e-learning I had difficulty teaching face to face	0,903	
R20	I find it hard to carry out lectures if there is no internet access	0,740	
R22	Connection interruptions will interfere with my teaching schedule	0,718	
	Acceptance of e-learning (AoE)		0,690
P23	I recommend e-learning to my fellow lecturers	0,871	
P24	I will learn more about the e-learning portal	0,805	
P25	I will use e-learning in my future lectures	0,815	

3.4 Discriminant Validity

Discriminant validity relates to the extent to which a construct is completely different from other constructs and is not highly correlated. One way that can be used to test discriminant validity is to compare the square root of the AVE for each construct with the correlation value between constructs in the model. Good discriminant validity is shown from the square root of AVE for each construct which is greater than the correlation between constructs in the model. Based on the results in Table 4, it can be seen that the AVE root value of each construct is higher than the correlation between constructs so that it meets discriminant validity.

Table 4: AVE Root Value and Latent Variable Correlation

Variable	AVE	Square AVE	AoE	AtE	I	PEoU	PoR	PU
AoE	0.690	0,831	0,831					
AtE	0.587	0,766	0,571	0,766				
I	0.568	0,753	0,577	0,733	0,753			
PEoU	0.677	0,823	0,471	0,776	0,676	0,823		
PoR	0.677	0,823	-0,350	-0,193	-0,243	-0,186	0,823	
PU	0.542	0,736	0,625	0,736	0,669	0,695	-0,214	0,736

3.5 Reliability Analysis

Reliability analysis is calculated using Cronbach's Alpha or Rho coefficient with a minimum magnitude of 0.7 (Fornell & Larcker, 1981). This value reflects the reliability of all indicators in the model.

Table 5: Cronbach Alpha and Rho Values

No	Variable	Cronbach Alpha	Rho
1	Perceived Usefulness	0,787	0,799
2	Perceived Ease Of Use	0,841	0,844
3	Innovativeness	0,749	0,764
4	Attitude Toward E-Learning	0,822	0,834
5	Perceived Risk	0,739	0,966
6	Acceptance Of E-Learning	0,775	0,777

Table 5 shows that all factors have a Cronbach Alpha or Rho coefficient of 0.7. Thus it can be concluded that the indicators used in this study are reliable.

3.6. Hypothesis testing

To test the nine hypotheses given, PLS is used. Testing with PLS does not require normal data distribution. Table 6 presents a summary of the results of hypothesis testing (hypotheses 1 through hypothesis 9) where there were 6 hypotheses that were accepted and the rest (3 hypotheses) were rejected. Hypotheses are accepted when the t-statistic value is > 1.96 and the p-value is < 0.05 .

Table 6: Summary of Hypothesis Testing

No.	Hypothesis	T - statistics	P-values	Decision
1	Innovativeness > Perceived Usefulness	2,777	0,006	accepted
2	Innovativeness > Perceived Ease of Use	6,908	0,000	accepted
3	Perceived Usefulness > Attitude Toward E-Learning	2,353	0,019	accepted
4	Perceived Usefulness > Acceptance of E-Learning	2,747	0,006	accepted
5	Perceived Ease Of Use > Perceived Usefulness	6,802	0,000	accepted

6	Perceived Ease Of Use > Attitude Toward E-Learning	3,243	0,001	accepted
7	Perceived Ease Of Use > Acceptance Of E-Learning	1,155	0,248	rejected
8	Perceived Risk > Acceptance of E-Learning	1,337	0,182	rejected
9	Attitude Toward E-Learning > Acceptance Of E-Learning	1,704	0,089	rejected

4. Discussion

This study reveals the structural relationship between the variables of innovation, perceived usefulness, perceived ease of use, attitudes toward e-learning, risk perception, and the acceptance of lecturers in the category of digital immigrants towards e-learning. Based on the hypothesis testing that has been done it was revealed that six of the nine hypotheses were accepted, namely: learning innovation using e-learning tools related to perceived usefulness and perceived ease of use of e-learning, perceived usefulness related to attitudes and acceptance of DI lecturers towards e-learning, and perceptions about ease of use related positively with the perception of usefulness and attitude towards e-learning. On the other hand, the perceived ease of use, risk perception, and attitude toward e-learning are not related significantly to the acceptance of DI lecturers on e-learning.

On the basis of the first hypothesis testing, it can be interpreted that the higher the level of DI lecturer innovation on e-learning technology, the higher the perceived usefulness of the technology. Our findings show that DI lecturers are willing to use e-learning and influence other lecturers to use it. Thus the DI lecturer believes that e-learning is useful to improve the quality of learning. This is in line to Yi et al. (Yi, Fiedler, & Park, 2006) that people who have a high level of innovation believe in the benefits of IT.

Furthermore, the second hypothesis has been answered that the higher the innovative level of a lecturer, the higher the perceived ease of use of e-learning. The average respondent answered agree with the items e-learning ease of use. According to Arsanti and Yuliasari (Arsanti & Yuliasari, 2018), when someone has a high level of innovation then he will perceive that technology will be easy to use.

The hypothesis states that the higher the DI lecturers' perceptions of the usefulness of e-learning, the better their attitude towards e-learning tools have been significantly accepted. In other words, the attitude toward the new technology will be influenced by how perceptions of usefulness are obtained. This is in accordance with the findings of Sayid and Echchabi (Sayid & Echchabi, 2013) who found that the perception of the usefulness of mobile banking applications affects individual attitudes towards the application.

Another important hypothesis answer is the higher the perception of the usefulness of e-learning, the higher the acceptance of DI lecturers towards e-learning. The findings show that both the average score of perceived usefulness and acceptance of e-learning is high. Thus it can be interpreted that DI lecturers receive e-learning because they feel the benefits.

Meanwhile the perceived ease of use was found to be positively related to attitudes towards e-learning, which means that the higher the perceived ease of use, the better the attitude towards e-learning. This finding is reinforced by the results of Hsu's study which states that when users feel the simplicity of an innovation product it will be considered to help improve performance (Hsu, 2016).

This study examines the hypothesis that is rarely tested, that is, perceived ease of use is positively related to DI lecturers' acceptance of e-learning. The test results show that these two variables are not significantly related. Thus even though the level of DI lecturer acceptance of e-learning is high but it is not caused by the perception of ease of use. The level of acceptance is more determined by the perception of usefulness and attitude towards e-learning. The rejection of this hypothesis is likely due to the standard deviation of perceived ease of use that is higher than other variables, which means that the skills of DI lecturers in using e-learning with each other are quite different but they still accept e-learning for learning.

Contrary to the hypothesis, this study also revealed that attitudes towards e-learning were not related to DI lecturers' acceptance of e-learning. Amer *et al.* (Amer, Ahmad, & Jo, 2013) supports this result in their research

which found that attitudes towards e-learning did not influence the desire to use e-learning. DI lecturers may implement e-learning as useful and easy to use even if they do not have a positive attitude towards e-learning.

The results of the study showed that the skills of digital immigrant lecturers using e-learning were not evenly distributed, meaning that they still felt difficulty in operating e-learning. These results reinforce that digital immigrants including lecturers have a perception that technology is difficult to use even though they realize that the technology is useful and they accept it. Thus, further research is needed on the e-learning interface that facilitates digital immigrant lecturers in implementing e-learning.

References

- Abramson, J., Dawson, M., & Stevens, J. (2015). An Examination of the Prior Use of E-Learning Within an Extended Technology Acceptance Model and the Factors That Influence the Behavioral Intention of Users to Use M-Learning. *SAGE Open*, 5(4). <https://doi.org/10.1177/2158244015621114>
- Amer, A.-A., Ahmad, A.-A., & Jo, S. (2013). Exploring Students Acceptance of E-learning Using Technology Acceptance Model in Jordanian Universities. *International Journal of Education and Development Using Information and Communication Technology*, 9(2), 4–18. Retrieved from <http://ijedict.dec.uwi.edu/viewarticle.php?id=1617>
- Arsanti, T. A., & Yuliasari, E. (2018). Personal Factors As Predictors of Intention To Use It. *Jurnal Manajemen Dan Kewirausahaan*, 20(2), 129–136. <https://doi.org/10.9744/jmk.20.2.129-136>
- Cappel, J. J., Hayen, R. L., Cappel, J. J., Hayen, R. L., Case, E. E. A., Cappel, J. J., & Hayen, R. L. (2017). Evaluating E-Learning: A Case Study EVALUATING E-LEARNING: A CASE STUDY. *Journal of Computer Information Systems*, 4417(May). <https://doi.org/10.1080/08874417.2004.11647595>
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13, 319–340.
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement. *Journal of Marketing Research*, 18(1), 39–50.
- Ghozali, I. (2014). *Structural Equation Modeling* (4th ed.). Semarang: Badan Penerbit - Undip.
- Golladay, R. M., Prybutok, V. R., & Huff, R. A. (2000). Critical success factors for the online learner. *Journal of Computer Information Systems*, 40(4), 69–71.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis* (Seventh). Pearson Education Limited.
- Hamid, A. A., Razak, F. Z. A., Bakar, A. A., & Abdullah, W. S. W. (2016). The Effects of Perceived Usefulness and Perceived Ease of Use on Continuance Intention to Use E-Government. *Procedia Economics and Finance*, 35(October 2015), 644–649. [https://doi.org/10.1016/s2212-5671\(16\)00079-4](https://doi.org/10.1016/s2212-5671(16)00079-4)
- Hsu, M. W. (2016). An analysis of intention to use in innovative product development model through TAM model. *Eurasia Journal of Mathematics, Science and Technology Education*, 12(3), 487–501. <https://doi.org/10.12973/eurasia.2016.1229a>
- Koohang, A., & Harman, K. (2005). Open source: A metaphor for E-learning. *Informing Science*, 8, 75–86.
- Lawson-Body, A., Willoughby, L., Lawson-Body, L., & Tamandja, E. M. (2018). Students' acceptance of E-books: An application of UTAUT. *Journal of Computer Information Systems*, 4417, 1–12. <https://doi.org/10.1080/08874417.2018.1463577>
- Leung, H. K. N. (2003). Evaluating the effectiveness of e-learning. *International Journal of Phytoremediation*, 21(1), 123–136. <https://doi.org/10.1076/csed.13.2.123.14201>
- McMahon, M., & Pospisil, R. (2005). Laptops for a digital lifestyle: Millennial students and wireless mobile technologies. *ASCILITE 2005 - The Australasian Society for Computers in Learning in Tertiary Education*, (2001), 421–431.
- Okumus, B., Ali, F., Bilgihan, A., & Ozturk, A. B. (2018). Psychological factors influencing customers' acceptance of smartphone diet apps when ordering food at restaurants. *International Journal of Hospitality Management*, 72(October 2016), 67–77. <https://doi.org/10.1016/j.ijhm.2018.01.001>
- Pando-Garcia, J., Periañez-Cañadillas, I., & Charterina, J. (2016). Business simulation games with and without supervision: An analysis based on the TAM model. *Journal of Business Research*, 69(5), 1731–1736. <https://doi.org/10.1016/j.jbusres.2015.10.046>
- Sancar, H., & Cagiltay, K. (2008). Effective Use of LMS: Pedagogy through the Technology. In *EdMedia+ Innovate Learning. Association for the Advancement of Computing in Education (AACE)*, 3927–3933. Retrieved from https://s3.amazonaws.com/academia.edu.documents/32391967/proceeding_28931.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1556642985&Signature=7Y19vPPIfTRJLS9y6tszky16AI%3D

- &response-content-disposition=inline%3B filename%3DEffective_Use_of_LMS_Pedagogy_t
- Sayid, O., & Echchabi, A. (2013). Attitude of Somali Customers towards Mobile Banking Services: The Case of Zaad and Sahal Services. *Economic Insights: Trends and Challenges*, 65(3), 9–16.
- UNICEF. (2020). Key Messages and Actions for COVID-19 Prevention and Control in Schools.
- Venkatesh, V., & Smith, R. H. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.1016/j.inoche.2016.03.015>
- Vodanovich, S., Sundaram, D., & Myers, M. (2010). Digital natives and ubiquitous information systems. *Information Systems Research*, 21(4), 711–723. <https://doi.org/10.1287/isre.1100.0324>
- Weeden, K. A., & Cornwell, B. (2020). The Small-World Network of College Classes: Implications for Epidemic Spread on a University Campus. *Sociological Science*, 7(9), 222–241. <https://doi.org/10.15195/v7.a9>
- Weng, F., Yang, R.-J., Ho, H.-J., & Su, H.-M. (2018). A TAM-Based Study of the Attitude towards Use Intention of Multimedia among School Teachers. *Applied System Innovation*, 1(3), 36. <https://doi.org/10.3390/asi1030036>
- Xhaferi, G., Farizi, A., & Bahiti, R. (2018). Teacher' attitudes towards e-learning in higher education in Macedonia Case study: University of Tetovo. *European Journal of Electrical Engineering and Computer Science*, 2(5), 14–17. <https://doi.org/10.24018/ejece.2018.2.5.26>
- Yang, Q., Pang, C., Liu, L., Yen, D. C., & Michael Tarn, J. (2015). Exploring consumer perceived risk and trust for online payments: An empirical study in China's younger generation. *Computers in Human Behavior*, 50, 9–24. <https://doi.org/10.1016/j.chb.2015.03.058>
- Yi, M. Y., Fiedler, K. D., & Park, J. S. (2006). Understanding the Role of Individual Innovativeness in the Acceptance ... *Decision Sciences*, 37(3), 393–426.
- Zur, O., & Walker, A. (2011). Psychology of the Web & Internet Addiction. Retrieved from <https://www.zurinstitute.com/internet-addiction/>



Regulating Work Experience Programs in the Greek Post-Secondary Education: The Case of Traineeships

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Abstract

The smooth transition of young people to the labor market and their competency in successfully planning and developing their careers constitute key aims of all modern education systems. The implementation of work placements plays an important role in the realization of these aims by enhancing the communication between the education providers and the world of work, and by contributing to the development of professionally oriented competences by young learners. The paper focuses on traineeships, a particular type of work placement, which is implemented by post-secondary education institutions in Greece. A traineeship includes a variety of training processes with clear objectives and predetermined assessment strategies, which help trainees to gain professional skills and experience through an experiential process. Its ability to exercise a strong influence on the professional prospects of young people led many education institutions to integrate traineeship opportunities in their study program either as a compulsory component or as a non-mandatory option. The paper analyses the traineeship component of the study programs of three post-secondary education institutions in Greece, i.e. Institutes of Vocational Training (IVTs), Higher Education Institutions (HEIs) and Technological Educational Institutes (TEIs). More analytically, the paper investigates the legislative provisions concerning the organization and implementation of student traineeships, and records the evolution of the particular learning option over the years. In addition, it attempts to identify indications of interaction between post-secondary education institutions as regards the organization and the particular features of student traineeship schemes, which may imply the development of mutual learning. The paper concludes by articulating some remarks regarding the implementation of traineeships in Greek post-secondary institutions and the improvement of their organizational and operational characteristics.

Keywords: Traineeship, Work Placement, Post-Secondary Education, Higher Education Institutions, Technological Educational Institutes, Institutes of Vocational Training

1. Introduction

Work placements constitute an important component of the education systems of modern countries due to their important role in the smooth transition of young people to the labor market and to their ability to support their successful career planning and development. Traineeships –either as a compulsory component of the curriculum

or as a non-mandatory option of the study program– are the most prominent type of work placement available to post-secondary education students. They allow them to test their knowledge, skills and competences acquired during their studies in the actual professional environment and to undertake certain work duties under the supervision of experienced professionals. At the same time, student trainees have the opportunity to take independent initiatives to some degree and thus gain better understanding of the particular dynamics of the workplace.

Traineeships are an indicative example of the benefits and of the opportunities for all parties involved that stem from the triangular interaction between the education institutions, student trainees and businesses. However, they are required to constantly evolve in order to confront the arising challenges and to maintain their high added value as an experiential learning process.

The paper aims at analyzing the regulatory framework of traineeships in Greece with special reference to the post-secondary education. Therefore, it focuses on the traineeships offered by three post-secondary education institutions in Greece, i.e., Institutes of Vocational Training (IVTs) [NQF level 5], Higher Education Institutions (HEIs) [NQF levels 6-7] and Technological Educational Institutes (TEIs) [NQF levels 6-7].

The paper investigates the institutional framework that governs the organization and the implementation of traineeships in the aforementioned post-secondary education providers and designates their individual characteristics and (dis-)similarities in relation to their particular educational goals. Moreover, it presents the reformative interventions that contributed to the evolution of traineeships as learning components of post-secondary institutions over the years, while it attempts to identify potential indications of interaction between post-secondary education institutions as regards the characteristics of the students' traineeship programs, which would imply the existence of mutual learning. The paper concludes with some conclusive remarks about the implementation of traineeships in the particular Greek post-secondary institutions and the improvement of their organizational and operational characteristics.

2. Post-Secondary Education in the Structure of the Greek Education System

The education providers that comprise the Greek formal education system are allocated according to the seven ISCED 1997 levels set by UNESCO (2006).

The six-year primary education (ISCED 1997 level 1) and the six-year secondary education (ISCED 1997 levels 2-3) precede the post-secondary education, where various education institutions offer either general/academic or vocational education and training, and prepare their future graduates for professional duties or further academic and research pathways. As regards the Greek post-secondary education, it comprises the post-secondary (non-tertiary) education (ISCED 1997 levels 4-5) and the post-secondary (tertiary) education (ISCED 1997 levels 6-7) (Figure 1).

In post-secondary (non-tertiary) education, the Institutes of Vocational Training (IVTs) (Institouto Epangelmatikis Katartisis) offer initial and continuous vocational training to upper secondary education graduates and prepare them for their transition to the labor market as mid-level professionals. Students must fulfill certain admission criteria in order to be accepted in –public or private– IVTs, while after the completion of their studies they are awarded professional rights provided they successfully participate in the national certification examinations.

At the post-secondary (tertiary) education level, Higher Education Institutions (HEIs) (Anotato Ekpaideftiko Idryma) welcome upper secondary education graduates who succeed in the national examinations for entrance in universities (Panelladikes). HEIs offer their students curricula that (aspire to) combine academic and practical knowledge and skills in order to prepare them either for academic or professional careers. For many years, the Greek post-secondary (tertiary) education was fragmented; Higher Education Institutions (universities) focused especially on academic learning, while the Technological Education Institutes (TEIs) focused on practical, professionally oriented competencies. Since the academic year 2019-2020, TEIs have merged with universities (Act 4610/2019). Thus, today the Greek tertiary education comprises one type of institution, i.e. Higher Education

Institutions (HEIs). However, the transformation of TEIs into universities (HEIs) is still ongoing. This is the reason why they implement both types of student traineeships, the non-mandatory traineeships of universities and the mandatory traineeships of TEIs as detailed below.

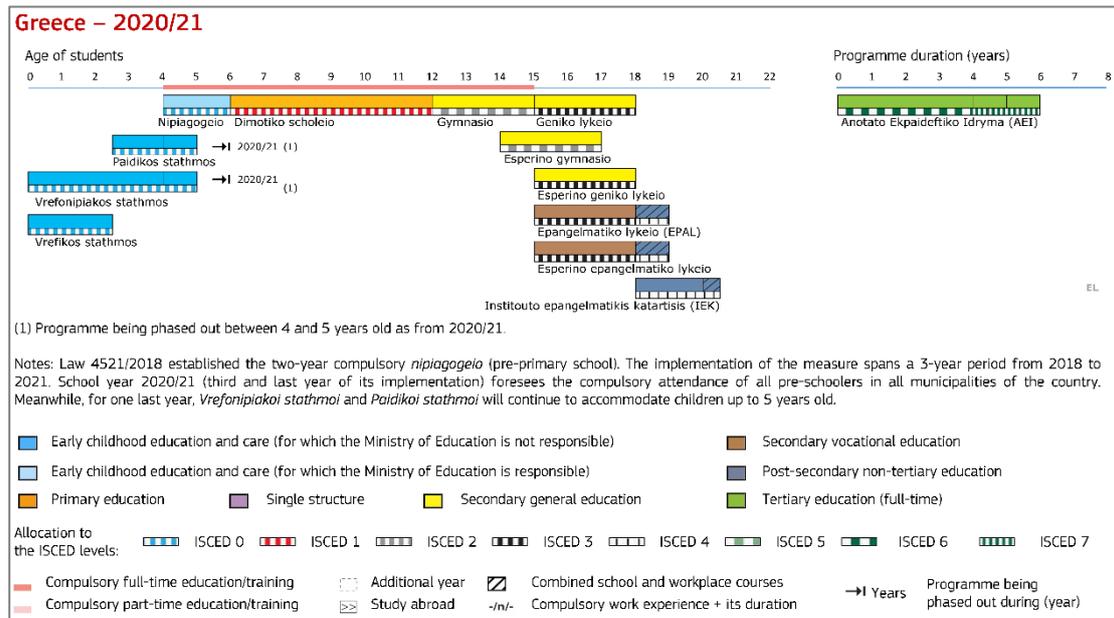


Figure 1: Greek formal education system

Source: *Eurydice 2020/21 (official website, Greece Overview)*

The ISCED 1997 is the main classification system that is used globally for the allocation of the various formal education institutions of the national education systems at different levels depending on the type of the awarded certificates and qualifications. Besides the implementation of the ISCED 1997, the development of a National Qualifications Framework (NQF) constitutes an institutional obligation of all European Union member states. Every NQF must be founded on the basic principles and guidelines of the European Qualifications Framework that was introduced in 2008 (European Parliament and Council of the European Union, 2008) and was revised in 2017 (Council of the European Union, 2017). A National Qualifications Framework introduces an 8-level classification of knowledge, skills and competencies that ensures the transparency, the comparability and the portability of people's qualifications, and facilitates their recognition in the European study or work environment. The European authorities approved the National Qualifications Framework of Greece in 2015, but its implementation has been reinforced with the latest reform of the Greek vocational education and training institutional and operational system in 2020 (Act 4763/2020), thus gaining in visibility and contributing to the rearrangement of the dynamics of the Greek education providers.

Table 1: National Qualifications Framework (NQF) – Greece

LEVELS	VOCATIONAL EDUCATION AND VOCATIONAL TRAINING			GENERAL EDUCATION	HIGHER EDUCATION
8					DOCTORATE
7					MASTER'S DEGREE [traineeship]
6					BACHELOR'S DEGREE (UNIVERSITY/T ECHNOLOGICAL EDUCATIONAL INSTITUTE-TEI) [traineeship]
5	VOCATIONAL POST-SECONDARY SCHOOL APPRENTICESHIP YEAR (EPAL) [apprenticeship]	VOCATIONAL TRAINING DIPLOMA (IVT) [apprenticeship or traineeship]	POST-SECONDARY (NON-TERTIARY) HIGHER EDUCATION DIPLOMA OR DEGREE		
4	VOCATIONAL TRAINING SCHOOL CERTIFICATE (EPAS) [apprenticeship]	VOCATIONAL UPPER SECONDARY SCHOOL LEAVING CERTIFICATE (EPAL)		GENERAL UPPER SECONDARY SCHOOL LEAVING CERTIFICATE (GEL)	
3	VOCATIONAL SCHOOL CERTIFICATE (SEK) [apprenticeship]	VOCATIONAL TRAINING CERTIFICATE (IVT) [apprenticeship or traineeship]			
2				LOWER SECONDARY SCHOOL LEAVING CERTIFICATE	
1				PRIMARY SCHOOL CERTIFICATE	

Source: Information from EOPPEP (official website, NQF) elaborated by authors

Table 1 provides an overview of the structure of the Greek NQF and shows the education institutions that include a mandatory or non-mandatory work placement component. The students' participation in work placement programs (apprenticeships, traineeships) constitutes a valuable experience with strong influence on their future learning or professional choices and opportunities. The Greek NQF clearly shows that work placements (whether mandatory or not) are embedded in the study curricula of specific education institutions at NQF levels 3-7. The

studies in the particular institutions have a certain professional orientation and can lead graduates either directly to the labor market or to the next education level. Therefore, the better understanding of the work environment through such an experience can play a decisive role in their career planning and development.

3. Legislative Framework for Traineeships in Post-Secondary Education

The legislative provisions that regulate traineeships in the Greek post-secondary education have evolved over the years in order to ensure the effective communication between the education providers and the labor market, as well as to define clearly the terms and conditions of cooperation between all parties involved.

The paper presents the regulatory framework of traineeships in the Greek post-secondary education, which includes both tertiary and non-tertiary education institutions. The tertiary education institutions (ISCED 1997 levels 6-7) include Higher Education Institutions (universities), which have an academic orientation, and Higher Technological Education Institutes, which have a vocational orientation. The non-tertiary education institutions include the Institutes of Vocational Training, which have a vocational orientation and a more practical study program ((ISCED 1997 levels 4-5).

3.1. Traineeships of the Institutes of Vocational Training (IVTs)

The Institutes of Vocational Training (IEK-Institutouta Epaggelmatikis Katartisis) are an ISCED 1997 level 4 education institution, which offer initial or continuous vocational training to high-school graduates. The study program has a clear professional orientation and aims at providing young especially people with the appropriate technical and practical skills that prepare them to work in mid-level job positions. The studies usually last 4 semesters and after their completion, the students receive a Certificate of Vocational Training. After the successful participation in the national certification exams graduates receive a Diploma of Vocational Specialization and gain access to upgraded professional rights.

Since their foundation in 1992 (Act 2009/1992) and until quite recently, the IVTs' operational framework did not include provisions for student traineeships. Although students could participate in a work experience program, traineeships were voluntary and such a decision relied exclusively on their free will to secure a trainee position. The IVTs had no obligation to offer guidance and support to aspiring or active trainees at any point of the process; however, scarce initiatives coming from private IVTs or trainers gave some of their students the opportunity to acquire work experience in parallel with their studies. As regards the terms and conditions of the traineeship, employers determined them on an individual basis and often exercised their power over trainees in an arbitrary way by using them as substitutes of permanent employees. For many years, the Greek state left these voluntary work experience programs unregulated, thus contributing to the further depreciation of the particular education institution. It was not until 2013 that traineeships became mandatory for IVT students (Act 4186/2013).

An interesting point of the new law has to do with the definition of a work experience program for IVT students. More explicitly, the law makes reference to the students' ability to participate in an apprenticeship or a traineeship. The criterion for the distinction between an apprenticeship and a traineeship is the timetable of the work experience program. An apprenticeship is organized in such a way so that it combines theoretical learning for one day per week at the IVT institution with practical training for four days at the workplace. A traineeship is done entirely at the workplace (Ministerial Decision K1/54877/2017, Articles 3a-3b). Apprenticeships have not been implemented in private IVTs yet; they have been introduced only in certain specializations of the public IVTs (Nursing, Nursing Assistant, Nursery Assistant, Administration and Economy Specialist, Network and Telecommunications Technician, Computer Technician).

An IVT apprenticeship has a total duration of 960 hours and consists of two parts, the "apprenticeship program at the IVT" and the "apprenticeship program at the workplace." The "apprenticeship program at the IVT" has a total duration of 192 hours; the training is arranged in one day with 8 teaching hours per week and is done by an IVT instructor. The "apprenticeship program at the workplace" has a total duration of 768 hours; the training takes place at the work environment and is arranged in 32 hours distributed in 4 days per week (public holidays excluded) (Ministerial Decision K1/54877/2017, Articles 3a-3b). An IVT apprenticeship position can be offered by all public

sector agencies (Note 1) or private sector businesses and the trainee position must be associated with the students' specializations.

The IVT traineeship has become mandatory under Act 4186/2013, while its completion is a prerequisite for students to obtain the Vocational Training Certificate (Act 4186/2013, Article 23; Act 4763/2020). Its duration is set at 960 hours or a period of 6 months, but it cannot exceed 12 months; the trainees work 8 hours/day for 5 days/week. The traineeship can be completed either during the 3rd and 4th semester or during an additional semester after the conclusion of the 4-semester studies (Act 4264/2014, Article 47, para 3). The trainees carry out their work placement under the supervision of an IVT instructor and work in trainee positions related to their specialization.

IVT students who have already completed at least 120 wages in the specialization they attend can ask to be exempted from the obligation to participate in a mandatory traineeship and to receive the Certificate of Vocational Training upon completion of the four semesters of theoretical and laboratory training. Similarly, IVT students who have completed at least 40 wages in the specialization they attend, can include them in the overall duration of their work placement (Act 4264/2014, Article 47, para 3).

The trainees' compensation is set at 75% of the legal, statutory, minimum wage of the unskilled worker. The Ministry of Education subsidizes part of the compensation, while the employer pays the remaining amount and the relevant social security contributions (Ministerial Decision K1/118932/2017).

During the traineeship/apprenticeship period both the education institution and the employer are required to keep attendance sheets in order to certify the implementation of the work placement. Moreover, employers must submit all the necessary information about the trainee to the online system of ERGANI (Ministerial Decision 40331/D1.13521/19.09.2019), which is run by the Ministry of Labor, Social Security and Welfare, and must keep a file with all relevant documentation regarding the traineeship, so that it is available in case of an auditors' check. On the part of the trainees, each one of them must keep a traineeship notebook provided by the IVT, where their weekly activities, the timetable, the work duties, the days of absence (if any) and their performance are recorded. All weekly entries must be checked and signed by the manager or the trainee supervisor of the company. Upon completion of the work placement, the trainees submit their traineeship notebooks to their supervisor at the IVT. Upon completion of the traineeship program, the trainee receives a "Certificate of Attendance" and the completed "Traineeship Notebook" from the employer and submits them to the IVT, which issues the final "Certificate of Completion of the Traineeship."

On the part of the education provider the director of the IVT exercises his/her responsibility for the overall supervision, coordination, quality assurance and evaluation of the traineeship by appointing a member of the teaching personnel as coordinator and/or supervisor of the traineeship. The IVT instructor can make unannounced on-site inspections in order to check the traineeship environment and conditions, the relation of the work duties with the trainee's specialization and the availability of the necessary documentation. Moreover, the IVT supervisor monitors and assesses the performance of both the trainee and the company as regards their obligations, and addresses potential problems during the work placement (Act 4186/2013, Article 23; Ministerial Decision 26385/2017) (Note 2).

In an attempt to support the efforts of public IVTs to increase the trainees' protection during their placement, the General Secretariat for Lifelong Learning undertakes the insurance cost for potential accidents at work of the IVTs that fall under its competence (Ministerial Decision 139931/08.09.2015).

The trainees are entitled to the same regular leave with remuneration as employees, as well as to absence due to illness with remuneration (Act 1346/1983; Civil Code, Articles 657-660). In case of a continuous absence of a trainee for more than 15 working days without notification the Director of the IVT may terminate the traineeship. Also, for serious reasons a trainee may terminate the traineeship or transfer to another company on condition that he/she notifies the supervising persons (director and instructor) at the IVT.

Although the completion of a traineeship has become mandatory in order for students to graduate, the IVTs – mainly the public ones– lack an organized system of making traineeship positions available to their students and matching them with businesses. For this reason, students have to secure on their own an employer’s acceptance to offer them a traineeship position. Then, they submit their proposal and the details of the proposed traineeship to the IVT director in order to receive the necessary approval, which allows them to start their work placement.

3.2. Traineeships of the Technological Educational Institutes

The Technological Education Institutes (TEIs) were established as successors of the preexisting Centers of Higher Technical and Vocational Education in 1983 and became one of the two sections of the Greek higher education in 2001 (Act 2916/2001). Although the TEIs were recognized as part of higher education of the Greek education system, the law made a clear distinction between them and the Higher Education Institutions (HEIs)/universities in terms of their role, their aims and their mission. Therefore, in contrast to the academic orientation of HEIs, TEIs offered education that included academic and applied components, while they gave emphasis to the development of professionals combining the theoretical knowledge with the high quality laboratory learning and work experience. However, until quite recently not only were they differentiated from the HEIs, but they were also regarded as education providers of inferior quality as compared with HEIs. This attitude can be mainly attributed to the prevailing mindset of the Greek society that evaluates the tertiary education diplomas according to the professions they are related with; thus, the academic content of the HEI degrees has been placed at a higher level than the vocational content of the TEI degrees.

The studies offered by the Technological Education Institutes have a practical orientation and content, and aspire to equip their graduates with the necessary professional skills and competences in order that they enter the labor market easier. Evidently, the inclusion of work experience schemes in their study content was very important. For many years, the Technological Education Institutes were the only post-secondary education provider that had developed a complete student traineeship system. Gradually, traineeships became part of the curriculum and a mandatory requirement for students’ graduation.

At the beginning, the opportunity for TEI students to do a traineeship at public and private sector organizations was non-mandatory in an attempt to establish the new institution in the collective mindset of the students and of the host organizations. Public sector agencies and organizations were obliged to offer traineeship positions to TEI students, thus preparing the labor market for the broader implementation of work placement schemes. Moreover, the new legislation introduced the trainee compensation for the first time. It was paid by the employment services or the students’ institution and was supplemented with social insurance and basic health insurance for accidents and sickness, but did not secure any permanent employee rights for students (Act 1351/1983, Article 12). Soon the traineeship system of TEIs underwent a major reform. Traineeships became a mandatory component of the curriculum and were recognized as an integral part of the learning process (Act 1404/1983, Article 24).

The organization and the relevant processes of students’ traineeships were defined in detail with a Presidential Decree (174/1985). The responsibility of interacting with the labor market and securing trainee positions for their students in public or private organizations lies entirely with the faculties and/or the departments. In addition, each department has to promote traineeships among its students and to provide them with all relevant information regarding their implementation, the terms and conditions, and the expected outcomes. Also, the TEIs have to improve the connection of the theoretical and the laboratory learning with the production process in order to improve the ability of trainees to respond to the work duties and, therefore, to increase the effectiveness of the traineeship.

According to the same Presidential Decree, the traineeship is divided in two periods with a total duration of eight months. Each department decides the implementation of the non-mandatory first period, which lasts two months (or eight calendar weeks of five working days); during the two-month period students receive information about the organization and the operation of the working environment. The second period of the traineeship is mandatory and lasts six months; this part of the traineeship is activated after the fourth and fifth semester of studies and is implemented outside the courses’ timetable (Presidential Decree 174/1985, Article 2). These provisions were

reaffirmed with later explanatory documents (Circular E5/332/22.01.1986; Circular E5/3196/14.05.1987).

For many years, there was a lack of uniformity in the definition of the remuneration of student trainees. For those students who do a traineeship in the public sector the remuneration was determined with joint ministerial decisions issued by the Ministry of Education and the Ministry responsible for each public agency, but is exempt from any deductions (Act 1566/1985, Article 71, para 4b; Common Ministerial Decision E5/1258/25.02.1986; Ministerial Decision 2/50514/0022/17.09.2002). The issuance of supplementary circulars contributed to further clarifications on the matter (Circular E5/8711/10.12.1986; Circular E5/4967/30.06.1987). As regards the students who participate in a traineeship in the private sector, additional ministerial decisions determined the trainees' compensation, the subsidy paid to the participating businesses by the Manpower Employment Organization (OAED-Organismos Apascholis Ergatikou Dynamikou) (if they are entitled to receive such a subsidy), which is set to 50% of the compensation, and the individual arrangements for the implementation of the work placement (Ministerial Decision E5/1797/20.03.1986; Ministerial Decision E5/4825/16.06.1986; OAED Circular 94200/05.08.1986; OAED Circular 96478/01.10.1986). Employers, regardless of them belonging to the public or the private sector, are obliged to include in the trainees' compensation package health insurance securing medical and hospital care for them (Presidential Decree 185/1984) and insurance against accidents at work (Ministerial Decision E5/1303/03.03.1986).

Today, the Technological Education Institutes make use of different sources of funding for the implementation of their students' traineeships. Therefore, a traineeship can be funded by the following sources: the Manpower Employment Organization in the form of subsidy paid to the company after its completion; the National Strategic Reference Framework (NSRF) in the form of compensation paid to trainees; a company that is willing to participate in the training of future professionals by hosting student trainees and undertaking the costs of their work-based learning.

The students' compensation has been set at 80% of the wage of the unskilled worker, which the National Collective Labor Agreement determines every time. Currently, the monthly compensation for TEI trainees is set at € 580.80. For traineeships subsidized by the Greek Manpower Organization, employers pay the monthly compensation to student trainees and receive a subsidy that is set to 50% of the total compensation after the completion of the placements. For traineeships funded by the Action "Higher Education Traineeship," the student receives a grant that amounts to € 269.89/month from NSRF funds, while the employer pays the remaining amount of € 310.91/month.

The introduction of a subsidy paid by the Manpower Employment Organization to the companies that offer trainee positions to TEI students was an important financial incentive aiming not only at the enhancement of traineeships, but also at the empowerment of the connection between the Technological Education Institutes and the labor market for the benefit of future graduates. Of course, in the case of traineeships funded by the NSRF this condition does not apply. However, the NSRF funding is very important too, because it constitutes a proactive recognition of the key role of work-based learning in the establishment of a close cooperation between higher education providers and the labor market, and contributes to the easier school-to-work transition of graduates.

An additional obligation of employers is to record the traineeships in the official employment registry in order to facilitate their monitoring and certification. According to a Decision of the Minister of Labor, Social Security and Social Solidarity, the start, the changes and the completion of student traineeships have to be announced to the ERGANI system, where employers enter all the necessary documents regarding their employees and their trainees. These documents must be available during potential checks by state inspectors (Ministerial Decision 29147/D1.10258/27.06.2019) (Note 3).

The supervision of each traineeship is done both by the employer at the workplace and the departmental supervisor, while the trainee keeps a traineeship notebook, where the developments of the work placement are registered on a weekly basis. During the traineeship, the student has to conform to the same work and safety regulations of the company that apply for all personnel. Moreover, the trainee is entitled to justified absences from work for up to 5 working days, which are recorded in the traineeship notebook together with other information concerning the work

placement. As regards the companies, besides adhering to the terms and conditions of traineeships, they must ensure the engagement of trainees in work duties relevant to their specialization, while they are encouraged to facilitate their participation in laboratory classes and in their examinations. If the traineeship terms and conditions are not met, the work placement can be terminated or be transferred to another employer. The traineeship is concluded with its evaluation, which is done through separate forms that are filled in by the trainee, the employer (or the workplace supervisor) and the departmental supervisor.

A traineeship in public or private sector organizations may receive national and European funding that is provided through the various Operational Programs of the National Strategic Reference Framework (NSRF). The traineeships of the HEIs and the TEIs are funded through the Operational Program “Competitiveness, Entrepreneurship and Innovation,” Action “Higher Education Traineeship.” During the last years traineeships funded by the country’s NSRFs have become the prevailing type of work placement for students both in HEIs and in TEIs. The traineeship services of the institutions announce trainee positions every academic year and invite students to submit an online application expressing their interest in participating in a work placement. The traineeships last up to three months, but can be extended for up to six months. In this case the employer undertakes the student’s compensation for the additional traineeship period.

ATLAS (Note 4), an online system that supports the traineeships of higher education students funded by the NSRF, plays a key role in the process. All parties involved in student traineeships have to register to the online database. Employers use it in order to announce trainee positions offered by their businesses. The institutional traineeship services use it in order to reserve trainee positions for eligible applicants. Students use it in order to access information about the existing work placement offers and the companies’ profile, and to carry out the entire traineeship process including the application submission, the selection procedure and the certification of the traineeship completion (ATLAS official website). ATLAS is an innovative system that contributes to the easier and transparent connection between the higher education institutions (HEIs and TEIs) and the businesses that offer trainee positions, as well as to the comprehensive monitoring of the particular work experience programs.

After the final selection of the eligible trainees (Note 5) a contract is signed between the student-trainee, the employer, the institutional traineeship services and the competent department, where the placement’s terms and conditions, the rights and the obligations of each party involved in the traineeship are recorded.

According to a Decision of the Minister of Labor, Social Security and Social Solidarity, the start, the changes and the completion of a student’s traineeship have to be announced to the ERGANI system, where employers enter all the necessary documents regarding their employees and their trainees. These documents must be available during potential checks by state inspectors (Ministerial Decision 29147/D1.10258/27.06.2019). Currently, the student’s monthly compensation from NSRF funds amounts to € 269.89/month, which include health insurance against accidents; the employer pays the remaining amount of € 310.91/month. In the case of traineeships funded through the NSRF, the employer is not obliged to announce the trainee position to the Greek Manpower Employment Organization, because the participating businesses do not receive any subsidy from the state concerning the traineeship.

3.3. Traineeships of the Higher Education Institutions (Universities)

The Technological Education Institutes were the first ones among the post-secondary (tertiary) education institutions for which the Greek state officially regulated the implementation of student traineeships. The Greek Higher Education Institutions -Universities followed ten years later.

The first official reference to traineeships for university students appeared in Act 2327/1995 (Article 11, para 1): “*The students of the departments of the Higher Education Institutions (HEIs) carry out a traineeship, on condition that it is included in the curriculum of the relevant department.*” The students’ remuneration would be determined with ministerial decisions, while it would be exempt from social security contributions and taxes (Act 2327/1995, Article 11, para 4b). The institutional framework was limited to simply identifying the ability –or determining the obligation– of university departments to include opportunities for traineeships in their study program. Provided

such an option had already been included in the curriculum of their university department, university students would be able to participate in a work experience program during their studies. Eventually, the university departments were actually left without any integrated governmental guidance; therefore, they proceeded to the regulation of their traineeships by taking advantage of the existing 10-year experience of the Technological Education Institutes.

The Act 2817/2000 presents a more complete approach of the organization and implementation of student traineeships in Universities (Act 2817/2000, Article 14, para 8). Students of Higher Education Institutions (Universities) can participate in traineeships offered by private sector companies provided that traineeships are embedded in the curriculum and that students' participation in such schemes is approved by the general assembly of each department of the university. The implementation of the traineeships should be in accordance with the provisions already in force in other types of education institutions. These provisions had retroactive effect as of the academic year 1996-1997, thus allowing the participation of older students who had not graduated yet.

Traineeships had already been incorporated in the curricula of several university departments with a more practical orientation and study content before the new law came into force. The departments of the Higher Agricultural School of Athens, the School of Geotechnical Sciences of the Aristotle University of Thessaloniki and the departments of Biology of all Greek Universities are indicative examples (Act 1474/1984; Ministerial Decision 27786/305/1987).

The Act 4009/2011, which regulated issues regarding the structure, the operation and the quality assurance of studies together with the internationalization of higher education institutions (Act 4009/2011), included more concrete and detailed organizational provisions for student traineeships. Thus, it contributed to the faster development of traineeship schemes in the Greek higher education, while it initiated actions for their better organization and implementation, as well as for their inclusiveness: *"Students carry out a traineeship in the public or private sector in the country or abroad, on condition that it is included in the relevant curriculum. The terms and conditions of the traineeship are regulated by the relevant institution, including the special care for the facilitation of students with disabilities, in order to carry out their traineeship on an equal basis with any other student"* (Act 4009/2011, Article 36, para 1b).

Moreover, according to the particular Act every university is able to establish a legal entity under private law in the form of a public limited company, for the management and utilization of all or part of the resources coming from various funding sources, as described in the relevant provision. Among others, these resources can be used for the implementation of traineeship projects and the connection of universities with the labor market. Furthermore, the creation of an Innovation and Liaison Office was included in the provisions, whose objectives explicitly included the organization of work experience programs for students (Act 4009/2011, Articles 58, 60). Following the entry into force of the Act 4009/2011 a number of ministerial decisions were issued in order to put the new provisions into practice. The Act 4386/2016 (Article 59) recognized a retroactive effect to the particular ministerial decisions for the implementation of traineeships of –undergraduate or postgraduate– university students thus making the relevant arrangements permanent. In addition, it clearly enhanced the role of the competent university authorities to take decisions about the schemes.

The aforementioned ministerial decisions defined the purpose, the duration and the organization of the traineeships, and facilitated students' participation in the schemes. They also determined the details regarding the supervision, the compensation, the social security and health insurance, and the overall rights and obligations of the trainees. These legislative provisions enabled the universities to improve the organization of their students' traineeships by drafting their individual Traineeship Regulations.

Today, large part of the funding of the traineeships comes from public and European sources, while traineeships together with other forms of work experience programs are included in the National Strategic Reference Framework and the Operational Programs that refer to education and employment. These financial resources cover the remuneration and the social and health insurance costs of many of the schemes; as regards the organizational and the selection processes, they are the same that apply in the case of TEIs' traineeships funded by NSRF, while

they are also completed through ATLAS (Note 6).

The amount of money paid to trainees from NSRF funds is set to € 269.89; it is rather small and mainly has a symbolic character. Nevertheless, in some –rare– cases employers pay an additional amount of money to their trainees as an incentive for increased performance at the workplace. Besides the publicly funded traineeships, various businesses develop special cooperation with universities and offer their students work experience opportunities, which are funded entirely by employers, but maintain the organizational characteristics determined by the existing legislative framework.

A special type of work experience programs are the traineeships that allow university students to acquire professional experience at primary and secondary schools. In this case, future teachers or other school professionals receive special practical training –usually as a mandatory part of their curriculum– at primary and secondary schools, or in other entities of the Ministry of Education, Research and Religion Affairs. The procedures, the criteria, the terms and conditions, and all other issues related to the particular traineeships are regulated by ministerial decisions (Act 4559/2018, Article 22).

The Traineeship Regulation of every university and/or department provides all the necessary information and relevant provisions for the implementation of its traineeships. The provided information includes the maximum duration of the internship; the selection process (with special provisions for the disabled, who do not have to participate in the general selection process); the social and health insurance coverage; the general terms and conditions concerning the students, as well as their rights and obligations. Moreover, the university services assign the supervision of each trainee to a professor, who also evaluates the traineeship after its completion. The process of each traineeship requires the close cooperation and constant communication between all parties involved, namely the university traineeship services and the supervising professor, the company and the student.

The evaluation of the traineeship after its completion is three-fold. On one hand, the student trainee and the supervising professor are required to fill in an online form with details concerning the organization, the content and the work duties of the traineeship, and an assessment of the company's performance as a host organization. On the other hand, the employer/trainee supervisor of the host organization fills in an evaluation form with regard to the trainee's performance and response to their responsibilities in the work environment (Note 7).

In general, Greek Universities have not developed their institutional framework for traineeships from scratch and according to their individual needs as regards their connection with the labor market. On the contrary, they based it on the regulatory framework governing other work placements implemented by different Greek education institutions, such as the Technological Education Institutes and the Vocational Schools of the Greek Manpower Employment Organization (OAED). Therefore, although traineeships are considered an important part of the learning process, the existing provisions on many occasions appear to be incomplete and fragmentary. However, in the course of time under the influence of the European recommendations about work placements for young people and the transformations in the school-to-work transition, the Greek Universities have made significant progress in the promotion of traineeships among their students and improved their organizational and funding conditions.

4. Concluding Remarks

This paper investigated the regulation of traineeships that are implemented by post-secondary education institutions in Greece. It focused especially on three post-secondary education institutions: the Institutes of Vocational Training (IVTs), which belong to the vocational –non-tertiary– education stream of post-secondary education; the Higher Education Institutions (HEIs), which belong to the tertiary education stream of the Greek post-secondary education, are often referred to as Universities and offer studies with an academic orientation; the Technological Educational Institutes (TEIs), which also belong to the tertiary education stream, but offer studies with a professional orientation. The merger of HEIs and TEIs in 2019 led to a unified post-secondary –tertiary– education that defines both institutions as Universities.

The investigation showed that the regulation of the traineeships remains fragmented, while the exchange of experiences and the mutual learning practices among the post-secondary education institutions are rather limited.

However, recent reforms in the Greek legislation concerning the education system show greater awareness than in the past of the ongoing organizational and technological transformations in the professional environment, and of the importance of this type of student work placement. Thus, they attempt to motivate the education institutions to redefine their relevant strategic approach and to enhance this understanding among their students.

The analysis of the legislative provisions showed that the regulatory framework considers traineeships essential for young people, because it regards them as an opportunity for better communication between the education providers and the world of work, and for the development of professionally oriented competences by young learners. By participating in a traineeship, students develop broad knowledge and skills that prepare them for a smooth transition to the labour market and successful career development.

Although the reformative trend has upgraded the case of traineeship schemes in the post-secondary education agenda, one cannot help but observe the persistence of certain deficiencies. The organizational framework of each institution's traineeship schemes remains different from the ones implemented by the others. This variation obliges employers to develop different implementation practices and burdens the necessary human and material resources that are required for the organization of traineeships. Furthermore, the regulatory framework lacks a set of incentives, which would encourage the proactive involvement of businesses in the improvement of the traineeship framework and in the efforts to increase of their effectiveness. Therefore, businesses are discouraged from the development of a strong and stable nexus with the education institutions aiming at more effective work placements, as well as from a broader involvement in their planning, organization, implementation and assessment in collaboration with the education providers.

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References

- Act 1346/1983 on "Amendment and supplementation of provisions of Labor Law and regulation of various issues". Government Gazette 46/issue A'/14.04.1983.
- Act 1351/1983 on "Admission of students to Higher Education and other provisions". Government Gazette 56/issue A'/28.04.1983.
- Act 1404/1983 on "Structure and operation of TEIs". Government Gazette 173/issue A'/24.11.1983.
- Act 1474/1984 on "Amendment of the founding act of the Geotechnical Chamber of Greece and other provisions". Government Gazette 128/issue A'/07.09.1984.
- Act 1566/1985 on "Structure and operation of primary and secondary education and other provisions". Government Gazette 167/issue A'/30.09.1985.
- Act 1892/1990 on "Modernization and development and other provisions". Government Gazette 101/issue A'/31.07.1990.
- Act 2009/1992 on "National System of Vocational Education and Training, and other provisions". Government Gazette 18/issue A'/14.02.1992.
- Act 2327/1995 on "National Education Council, Regulation of education, research and retraining of teachers' issues and other provisions". Government Gazette 156/issue A'/31.07.1995.
- Act 2817/2000 on "Education of people with special education needs and other provisions". Official Government Gazette 78/issue A'/14.03.2000.
- Act 2916/2001 on "Structure of Higher Education and regulation of issues of its technological section". Government Gazette 114/issue A'/11.06.2001.
- Act 4009/2011 on "Structure, operation, quality assurance of studies and internationalization of Higher Education Institutions". Government Gazette 195/issue A'/06.09.2011.

- Act 4186/2013 on “Restructuring of secondary education and other provisions”. Government Gazette 193/issue A’/17.09.2013.
- Act 4264/2014 on “Exercising commercial activities out of a shop and other provisions”. Government Gazette 118/issue A’/15.05.2014.
- Act 4386/2016 on “Regulations about research and other provisions”. Government Gazette 83/issue A’/11.05.2016.
- Act 4559/2018 on “University of Ioannina, Ionian University and other provisions”. Government Gazette 142/issue A’/03.08.2018.
- Act 4610/2019 on “Synergies of Universities and Technological Education Institutes, access to tertiary education, experimental schools, General State Archives and other provisions”. Government Gazette 70/issue A’/07.05.2019.
- Act 4763/2020 on “National System of Vocational Education, Training and Lifelong Learning, incorporation in the Greek legislation of the Directive (EU) 2018/958 of the European Parliament and the Council of 28 June 2018 regarding the proportionality test”. Government Gazette 254/issue A’/21.12.2020.
- ATLAS official website: <http://atlas.grnet.gr>
- Circular 30294/D1.10558/03.07.2019.
- Circular E5/3196/14.05.1987.
- Circular E5/332/22.01.1986.
- Circular E5/4967/30.06.1987.
- Circular E5/8711/10.12.1986.
- Civil Code. Government Gazette 164/issue A’/23.10.1946.
- Common Ministerial Decision E5/1258/25.02.1986. Government Gazette 133/issue B’/27.03.1986.
- Council of the European Union (2017). Council Recommendation of 22 May 2017 on the European Qualifications Framework for lifelong learning and repealing the recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning. OJ C 189/15, of 15.06.2017.
- EOPPEP official website, National Qualification Framework/NQF: <https://www.eoppep.gr/index.php/el/qualification-certificate/national-qualification-framework>
- European Parliament and Council of the European Union (2008). Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning. OJ C 111/1, of 6.05.2008.
- Eurydice official website, Greece Overview: https://eacea.ec.europa.eu/national-policies/eurydice/content/greece_en
- Ministerial Decision 139931/08.09.2015 on “Traineeship or Apprenticeship of IVT Trainees”. Government Gazette 1953/issue B’/10.09.2015.
- Ministerial Decision 2/50514/0022/17.09.2002. Government Gazette 1254/issue B’/25.09.2002.
- Ministerial Decision 26385/2017 on “Apprenticeship Quality Framework”. Government Gazette 491/issue B’/20.02.2017.
- Ministerial Decision 27786/305/1987.
- Ministerial Decision 29147/D1.10258/27.06.2019 on “Redetermination of the terms for the electronic submission of documents falling under the competence of the Work Inspection Body and the Manpower Employment Organization”. Government Gazette 2639/issue B’/28.06.2019.
- Ministerial Decision 40331/D1.13521/19.09.2019. Government Gazette 3520/issue B’/2019.
- Ministerial Decision E5/1303/03.03.1986. Government Gazette 168/issue B’/10.04.1986.
- Ministerial Decision K1/118932/2017 on “Regulation of issues of subsidizing and insuring apprenticeships of students of public and private Institutes of Vocational Training (IVTs) and Schools of Vocational Training (SVTs)”. Government Gazette 2440/issue B’/18.07.2017.
- Ministerial Decision E5/1797/20.03.1986 on “Regulation of issues concerning the remuneration and the employment conditions of student trainees of TEIs”. Government Gazette 183/issue B’/14.04.1986.
- Ministerial Decision E5/4825/16.06.1986 on “Regulation of issues concerning the remuneration and the employment conditions of student trainees of TEIs”. Government Gazette 453/issue B’/16.07.1986.
- Ministerial Decision K1/54877/2017 on “Amendment of the regulation of operation of the Institutes of Vocational Training (IVTs) under the General Secretariat of Lifelong Learning”. Government Gazette 1245/issue B’/11.04.2017.
- OAED Circular 94200/05.08.1986.
- OAED Circular 96478/01.10.1986.
- Presidential Decree 174/1985 on “Work experience on the profession of students of the Technological Education Institutes (TEIs)”. Government Gazette 59/issue A’/29.03.1985.
- Presidential Decree 185/1984. Government Gazette 61/issue A’/08.05.1984.

UNESCO (2006). *International Standard Classification of Education ISCED 1997*. UNESCO-UIS. Available at: http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-1997-en_0.pdf

Notes

Note 1. The public sector agencies are defined in Act 1892/1990, Article 51.

Note 2. The Training Guides of Initial Vocational Training include a detailed description of the organization of the traineeship/apprenticeship schemes for each specialization for IVT students. They are published by the General Secretariat of VET and Lifelong Learning according to the Act 4763/2020, Article 41.

Note 3. The Ministerial Decision underwent several amendments, which did not change the provisions regarding student traineeships, but renewed them for the following academic years. Moreover, by issuing explanatory documents, such as the Circular 30294/D1.10558/03.07.2019, the Greek state gave supplementary information about the registration of student traineeships in the ERGANI system.

Note 4. ATLAS: System of Central Support of Student Traineeships of HEIs.

Note 5. Some institutions make the selection of eligible trainees according to their own criteria and announce the results to the businesses, while others let businesses select their trainees through a process they consider more suitable.

Note 6. For more details about ATLAS please see section 3.2.

Note 7. The institutional and/or the departmental Traineeship Regulations of the Greek Universities provide detailed information about the traineeships' organization and processes.



Strategies of University Students to Cope with COVID-19 and the Role of Psychological Flexibility

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Abstract

The COVID-19 outbreak is an important stress factor that threatens the health of individuals both physically and psychologically. Within the scope of struggling the outbreak, many precautions, such as quarantine practices, social distance rules, distance education, flexible working hours have been taken and the lives of individuals have changed greatly. One of the groups that have been significantly influenced by this process is university students. The primary purpose of this study is to determine the ways in which university students cope with the outbreak and to understand the role of psychological flexibility. There were 457 university students in the study. Participants completed an online questionnaire form comprising items relevant to their coping strategies and psychological flexibility levels. Results revealed that participants used transcendental coping the most while relational coping the least. Additionally, psychological inflexibility negatively predicted transcendental, behavioral, and relational coping behaviors. These results revealed the fact that psychological flexibility is an important mechanism that channels students' coping behaviors in such a critical process.

Keywords: Coping Strategies, Outbreak, Psychological Flexibility

1. Introduction

Stressful life events and in this sense natural disasters have serious risks for individuals' health outcomes (Kaplan, Sevinç, & İşbilen, 2020). For instance, events such as bereavement, severe diseases of individuals or their relatives, and revenue loss are associated with increases in stress and decrement in happiness and life satisfaction (Krause, Pargament, & Ironson, 2016). For this reason, it was emphasized that one of the main characteristics of development is accommodating one's self to stressful situations and difficulties. Researchers suggested that individuals could overcome stress by regulating their emotions and actions, using effective thinking procedures, interacting with the environment in order to reduce stress, and monitoring their physiological system (Compas et al., 2001).

In the process of the COVID-19 pandemic, all around the world, individuals have drawn on different coping mechanisms in order to alleviate stress resulting from the virus (Cheema et al., 2020). Lazarus and Folkman

(1984) suggested that each person is influenced by stress sources accordingly with their appraisal of the situation and coping responses. According to their definition, coping is “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). They emphasized that individuals’ appraisal and coping styles may have important consequences in terms of their health-related issues. Similarly, Labrague and Ballad (2020) also argue that instrumental coping behaviors have a protective role against the unfavorable health outcomes of pandemics.

Accordingly, it was shown that coping behaviors could be categorized as adaptive and maladaptive coping strategies (Carver, Scheier, & Weintraub, 1989). As researchers suggest, when people take action and struggle for disposing of stressful situations, make a plan for dealing with the source of stress, focus solely on working on the stressful situation while ignoring other things, stay behind and wait for an influential solution and ask for social support, they exhibit adaptive coping strategies. On the other side, when they withdraw from trying to resolve the stressful situation, find some irrelevant activities in order to keep their mind busy, lock in negative emotions and disclose them and deny the existence of the stressful situation, they exhibit maladaptive coping strategies (Carver et al., 1989). Many researches revealed that adaptive coping strategies are related to progress in health data while maladaptive ones are related to adverse health outcomes (e.g. Compas, Connor-Smith, Saltzman, Harding Thomsen, & Wadsworth, 2001; Penley, Tomaka, & Wiebe, 2002).

Although, there are limited studies that examine individuals’ coping behaviors in COVID-19 pandemic, existent ones have revealed that individuals utilize a variety of coping behaviors and these are related to their health outcomes. For instance, in a study with medical students, it was shown that doing physical exercises, following serials on an online platform, engaging in religious behaviors, arranging online meetings with family members and social circle, joining an online game, and coming to terms with pandemic reality and adapting self to live with it are among the coping strategies of students. Besides that, it was found that the most influential strategy for these groups of students is engaging in religious behaviors. It was shown that students who involve in such behaviors have lower levels of stress than other students (Abdulghani, Sattar, Ahmad, & Akram, 2020). In a study with Philippine college students, it was understood that majority of the students are practicing hygienic precautions, not taking part in crowded environments, obtaining information about COVID-19, engaging in religious activities, spending time on social media, receiving social support and occupying themselves by doing various activities (Baloran, 2020). Savitsky, Findling and Hendel (2020) presented that there are five strategies of nursing students in order to cope with pandemics. These are believing in themselves to overcome this process, obtaining knowledge and taking experts’ advice about the issue, moving away from the situation by engaging in other activities (e.g. using alcohol), seeking refuge in God and gathering information from people around them, and making fun of the situation. Researchers found that students who engage in different activities in order to move away from the issue of concern have higher degrees of anxiety.

As reresearchers have indicated, students are also using maladaptive coping strategies in a pandemic period and these strategies have generally been associated with problematic health outcomes. For instance, in their study with Polish college students, Rogowska, Kusnierz and Bokszczanin (2020) showed that students who utilize emotion-related coping behaviors-like imagining, feeling guilty of current situation-and avoidance-related coping behaviors-like diverting attention away from by engaging different activities-have elevated levels of anxiety. A similar study with Pakistani college students revealed the fact that some students turn deleterious ways of reducing pandemic-related stress such as using drugs and smoking (Cheema et al., 2020). Likewise, Sun et al. (2020) revealed that individuals’ Internet usage, alcohol consumption and smoking behaviors had escalated in COVID-19 pandemic process.

In respect to coping strategies of Turkish individuals, there are limited studies. In one of them, Hatun, Dicle and Demirci (2020) interviewed with a group of adults and revealed that these individuals were using four types of coping strategies: relational, cognitive, behavioral and transcendental. It was shown that individuals using cognitive ways of coping were striving for rationalizing the situation, gathering information and motivate themselves. On the other hand, individuals using transcendental coping emphasized acceptance, hope, gratitude, patience and resignation. Those who were using a relational coping style stated that they turned their social circle in order to receive support. Lastly, individuals using behavioral coping strategies mentioned that they took some

precautions against the virus, engaged in different activities and indicated avoidance through various ways (e.g. smoking, use of technology, sleeping, and ignoring). Eryılmaz and Şiraz (2019) characterized the pandemic as an event that brings out the pessimism and they suggested that individuals utilize various strategies to cope with this process. Among them are self-control, problem-solving, spirituality, social support, thinking optimistically, denial, protecting self-worth and distancing. In their study with adolescents, they showed that using coping strategies is associated with an increase in well-being. Kirman (2020) analyzed a group of individuals' social media sharing and examined their coping strategies with COVID-19. As a result of content analysis, it was shown that some individuals used religious coping strategies (e.g. taking refuge in God, praying, acceptance, patience), some used secular coping strategies (e.g. physical exercises, humor, thinking positively, watching a TV series), and some used both of them. Similar to the studies that were conducted in other countries, unfavorable coping strategies were associated with adverse health outcomes (e.g. Bilge & Bilge, 2020).

As Dawson and Golijani-Moghaddam (2020) suggest, there is likely to be a relationship between individuals' coping strategies and their psychological flexibility. They described psychological flexibility as "generalized or higher-order ability" that enables individuals to behave in accordance with contextual requirements and their objectives, so they can choose the most appropriate coping strategy that is suitable for conditions (p. 127). It represents individuals' adaptation to changing necessities, their arrangement of cognitive sources, change of viewpoint, and responding different requirements in an equal way (Kashdan & Rottenberg, 2010). Individuals with psychological flexibility are aware of what is going on in their internal world and they behave in accordance with their values. They are conscious of their emotions, thoughts and experiences. Even these are unfavorable; they do not try to change them or reduce the level of them. (Kul & Türk, 2020). On the other side, psychological inflexibility refers to interruption of dynamic interaction between the individual and his/her environment. It is characterized by constant and stereotypical manner (Kashdan & Rottenberg, 2010). Individuals with psychological inflexibility tend to refuse undesirable experiences and have critical viewpoints about them (Rueda & Valls, 2020).

Psychological flexibility is an important concept in terms of shedding light on individuals' experiences and coping strategies that appears in compelling pandemic conditions (Dawson & Golijani-Moghaddam, 2020). A research corroborative of this view revealed that experiential avoidance [a component of psychological inflexibility, which was described in terms of reluctance to face with specific experiences and making an effort for changing them (Hayes et al., 2006; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996)] and coping strategies are highly similar but two different constructs. Additionally, there was a positive correlation between experiential avoidance and maladaptive coping styles (Karekla & Panayiotou, 2011). Rueda and Valls (2020) also found that psychiatric patients who have higher levels of psychological inflexibility were identified with maladaptive coping strategies (e.g. self-blame, denial) and they have more psychopathological symptoms than who were identified with adaptive ones. Similarly, it was shown that individuals with anxiety disorders have higher levels of experiential avoidance and they use maladaptive ways of coping (e.g. denial, self-blame) more than individuals in the control group (Panayiotou, Karekla, & Mete, 2014). In a recent study, participants who have lower levels of psychological flexibility were found to use coping strategies that are dominant in avoidance. (Dawson & Golijani-Moghaddam, 2020). Regarding the relationship between psychological flexibility and adaptive coping strategies, studies generally revealed that psychologically flexible individuals use particular adaptive coping strategies more than individuals who are psychologically inflexible (e.g. Rueda & Valls).

According to Hatun et al. (2020), individuals' coping styles can either increase or hamper their precautions against COVID-19 and this may influence their risk of contracting an illness. Therefore, it is crucial for individuals to identify adaptive coping strategies in order to get through this process healthfully. Because of changes in educational settings and students' daily life activities (Abdulghani et al., 2020), university students are one of the groups that are considerably influenced by this process. Additionally, it was known that young adults have greater vulnerability of developing psychological symptoms and using alcohol with a detrimental frequency (Ahmed et al., 2020). As Cao et al. (2020) suggest, university students are at risk for developing anxiety problems and they are a population that needs considerable support in this process. Besides, it was proposed that pandemic situations, which are uncontrollable and influence many populations, have serious impacts on individuals, even though they do not catch an illness. Additionally, their coping strategies, which

may maladaptive in other situations, may be adaptive in pandemic conditions (Main, Zhou, Ma, Luecken, & Liu, 2011). Therefore, it is important to uncover college students' coping strategies in this period. According to literature review, available studies searching for the influence of pandemic process on university students' lives are scarce (Brooks et al., 2020). For this reason, current study aims to contribute the literature and also interventions to be organized. Although, there are evidences for the relationship between psychological flexibility and individuals' coping strategies, there is a need to search this issue in the COVID-19 pandemic context. In addition to scarce literature on an international scale, we have not reached a study about this issue in Turkey. Therefore, it is valuable to learn how university students' psychological flexibility levels relate to their coping strategies in the pandemic process.

2. Method

2.1 Participant Characteristics

University students continuing their undergraduate or graduate education were included in the study.

2.2 Sampling Procedures

The sample of the study was constituted through the availability sampling method. There were 457 university students (male = 139, female = 316, other = 2) from 60 different departments. 95,6% of the sample were between 18-25, 2,4% of them between 26-30, and %1,9 of them were 31 and above years old. Participants responded to scales via Google Forms. They did not receive any incentive for participating in the study. Initially, an informed consent form containing information about the study and its confidentiality was presented. Then, participants who admitted taking part in the study started to respond to the scales. About 10 minutes was enough to respond to all items.

2.3 Data Collection Tools

2.3.1 Demographical Information Form

In order to gather information about participants, they were asked to complete demographical information form including questions about age, gender, registered department, year of university, economic status, and a question about whether they need any psychological services during COVID-19 pandemic.

2.3.2 Coping with the Outbreak Scale (COS)

Coping with the Outbreak Scale (Hatun et al., 2020) was used for revealing participants' coping strategies during COVID-19 outbreak. 14-item scale has four dimensions: relational (e.g. "I have shared my problems/concerns with my family."), behavioral (e.g. "I have done something that distract me"), transcendental (e.g. "I have prayed"), and cognitive (e.g. "I have thought that how I can cope with the uncertainty) coping strategies. It is answered on a 5-point Likert scale (1 = I have never done, 5 = I have done a lot.). Cronbach's alpha coefficient was reported as .84 for the total scale. The reliability coefficients of each sub-dimensions are as follows: .79 for relational coping, .70 for transcendental coping, .77 for cognitive coping, and .76 for behavioral coping. In the current study, Cronbach alpha coefficient was .83 for the total scale and .69, .73, .69, .82 for cognitive, transcendental, behavioral and relational coping strategies respectively.

2.3.3 Acceptance and Action Questionnaire-II (AAQ-II)

Acceptance and Action Questionnaire-II was developed by Bond and colleagues (2011) for the purpose of understanding individuals' psychological inflexibility and adapted into Turkish by Yavuz and his colleagues (2016). Seven item scale has a single factor structure (e.g. "I am afraid of my feelings."). It is answered on a 7-point Likert scale (1 = never true, 7 = always true). Higher scores indicate higher levels of psychological inflexibility. Cronbach alpha reliability coefficient was reported as .84 and test-retest reliability was found to be high with .85 coefficient. In the current study, Cronbach alpha coefficient was found as .88.

2.4 Research Design

This research is a descriptive study conducted on the basis of quantitative research approach. It draws on relational screening model in order to reveal the relationship between university students' psychological flexibility and their coping strategies.

2.5 Data Analysis

Afterward data collection, the obtained data were transferred to SPSS 22 packaged software. Data cleaning procedures were carried out and then preliminary analyses were conducted. In order to predict participants' coping behaviors based on their psychological flexibility level, a simple linear regression analyses were conducted.

3. Results

In order to learn students' most preferred coping behaviors during COVID-19 outbreak, their mean scores on subdimensions of COS were examined. Considering these scores, it can be said that they were using transcendental coping most, followed by cognitive, behavioral and relational coping. According to Pearson zero-order correlation, there were significant relationships between all pairs of coping behaviors. When the relationship between coping behaviors and psychological flexibility was examined, it was found that there was a negative relationship between psychological inflexibility and relational ($r = -.14, p < .01$), transcendental ($r = -.15, p < .01$), and behavioral coping ($r = -.11, p < .05$). Table 1 shows descriptive statistics and intercorrelations among variables.

Table 1: Summary of Intercorrelations, Means, and Standard Deviations for Scores on the COS dimensions and AAQ-II

Measure	1	2	3	4	5	M	SD
1. Relational Coping	-	.47**	.37**	.23**	-.14**	2.67	1.32
2. Transcendental Coping	.47**	-	.29**	.29**	-.15**	3.52	1.17
3. Behavioral Coping	.37**	.29**	-	.29**	-.11*	3.19	1.10
4. Cognitive Coping	.23**	.29**	.29**	-	.07	3.45	1.09
5. AAQ-II	-.14**	-.15**	-.11*	.07	-	3.59	1.30

Note. COS = Coping with the Outbreak Scale, AAQ-II = Acceptance and Action Questionnaire-II; * $p < .05$, ** $p < .01$

A simple linear regression was carried out to predict transcendental coping behavior based on students' psychological inflexibility levels. The model as a whole explained a significant proportion of variance in transcendental coping behavior, $R^2 = .02$, $F(1, 455) = 10.08$, $p < .01$. Therefore, psychological inflexibility as a predictor significantly predicted university students' transcendental coping behaviors, $\beta = -.15$, $t(455) = -3.18$, $p < .01$. Table 2 shows the result of regression model.

Table 2: Linear Regression with Psychological Inflexibility Predicting Transcendental Coping

Variable	B	SE	95% CI	β	t	p
(Intercept)	4.001	.16	[3.79, 4.54]	.00	24.98	< .001
Psychological Inflexibility	-.13	.04	[-.26, -.06]	-.15	-3.18	< .01

Note. Results: $F(1, 455) = 10.08$, $p < .01$, $R^2 = .02$

Unstandardized Regression Equation: Distance = 4.001 + (-.13 * Psychological Inflexibility)

Another simple linear regression was carried out to predict behavioral coping behavior based on students' psychological inflexibility levels. The model as a whole explained a significant proportion of variance in behavioral coping behavior, $R^2 = .01$, $F(1, 455) = 5.18$, $p < .05$. Thus, psychological inflexibility as a predictor significantly predicted university students' behavioral coping behaviors, $\beta = -.11$, $t(455) = -2.28$, $p < .05$. Table 3 shows the result of regression model.

Table 3: Linear Regression with Psychological Inflexibility Predicting Behavioral Coping

Variable	<i>B</i>	<i>SE</i>	95% CI	β	<i>t</i>	<i>p</i>
(Intercept)	3.52	.15	[3.63, 4.35]	.00	23.22	< .001
Psychological Inflexibility	-.09	.04	[-.23, -.02]	-.11	-2.28	< .05

Note. Results: $F(1, 455) = 5.18$, $p < .05$, $R^2 = .01$

Unstandardized Regression Equation: Distance = 3.52 + (-.09 * Psychological Inflexibility)

Lastly, a simple linear regression was carried out to predict relational coping based on students' psychological inflexibility level. The model as a whole explained a significant proportion of variance in relational coping behavior, $R^2 = .02$, $F(1, 455) = 8.59$, $p < .01$. Therefore, psychological inflexibility as a predictor significantly predicted university students' relational coping behaviors, $\beta = -.14$, $t(455) = -2.93$, $p < .01$. Table 4 shows the result of regression model.

Table 4: Linear Regression with Psychological Inflexibility Predicting Relational Coping

Variable	<i>B</i>	<i>SE</i>	95% CI	β	<i>t</i>	<i>p</i>
(Intercept)	3.17	.18	[3.68, 4.22]	.00	17.57	< .001
Psychological Inflexibility	-.14	.05	[-.22, -.04]	-.14	-2.93	< .01

Note. Results: $F(1, 455) = 8.59$, $p < .01$, $R^2 = .02$

Unstandardized Regression Equation: Distance = 3.17 + (-.14 * Psychological Inflexibility)

4. Discussion

In this study, which was conducted with university students during the epidemic process, the psychological flexibility of university students and the ways of coping they used were studied. They mostly use transcendental coping, and then cognitive, behavioral and relational coping. It is known that after intense stress-induced, natural disasters, illnesses or difficult life events such as the loss of a loved one, the level of somatic stress increases, semantic inquiries are experienced, and psychological well-being decreases. (Krause et al., 2016). Wang et al. (2020) in their study, in which they examined the first psychological symptoms of the COVID-19 epidemic in Chinese society, found that individuals exhibit moderate and severe symptoms of depression, anxiety and stress. Choi, Hui, and Wan (2020) in their study in Hong Kong similarly found that the COVID-19 epidemic caused increases in depression and anxiety levels. It is extremely important for individuals to have psychological flexibility in this process. The results of the research showed that psychological flexibility is associated with depression, anxiety, and stress (Masuda & Tully, 2012). The results of this research show that individuals resort to less coping methods as their psychological flexibility decreases. It is stated in the literature that people with high psychological flexibility achieve healthier results (Cheng, 2001).

Psychological flexibility includes many skills such as identifying needs in various situations and adapting to the new situation, the necessary strategies for this, realizing changes in personal or social relationships or changing behaviors (Kashdan & Rottenberg, 2010). It is seen that approaches to coping with the epidemic are related to psychological flexibility. In the results of this study, the psychological flexibility of university students significantly predicts their coping behaviors. Psychological inflexibility reduces the use of coping styles. This situation manifests itself in the dimensions of transcendental coping, relational and behavioral coping.

The results of the studies on coping with the effects of the COVID-19 pandemic coincide with the results of this study. One of the results of the study is that university students use relational ways of coping. In the literature, there are studies that concluded that receiving social support from the family during the pandemic is protective in terms of anxiety (Cao et al., 2020) and that people receive the most social support from their family and

friends during the pandemic (Kabasakal & Aktaş, 2021) overlaps with. In the study conducted by Kaplan et al. (2020), the participants stated that they coped with the epidemic process through religious activities and positive thinking. In the same study, it is stated that behavioral coping methods such as sports and meditation and cognitive coping methods such as acquiring information, research/documentary viewing are also used.

Within the scope of this study, the following suggestions can be made for future researchers: This research includes university students. For example: adults', children's, the elderly individuals', etc. coping strategies and prioritization may vary. It may be beneficial to conduct the study with these groups as well. Since there are few studies on coping with the epidemic, it is thought that there is a need for multidimensional studies in different age groups on this subject.

References

- Abdulghani, H. M., Sattar, K., Ahmad, T., & Akram, A. (2020). Association of COVID-19 pandemic with undergraduate medical students' perceived stress and coping. *Psychology Research and Behavior Management, 13*, 871-881. <https://doi.org/10.2147/PRBM.S276938>
- Ahmed, M. Z., Ahmed, O., Aibao, Z., Hanbin, S., Siyu, L., & Ahmad, A. (2020). Epidemic of COVID-19 in China and associated psychological problems. *Asian Journal of Psychiatry, 51*, 1-7. <https://doi.org/10.1016/j.ajp.2020.102092>
- Baloran, E. T. (2020). Knowledge, attitudes, anxiety, and coping strategies of students during COVID-19 pandemic. *Journal of Loss and Trauma, 25*(8), 635-642. <https://doi.org/10.1080/15325024.2020.1769300>
- Bilge, Y., & Bilge, Y. (2020). Koronavirüs salgını ve sosyal izolasyonun psikolojik semptomlar üzerindeki etkilerinin psikolojik sağlamlık ve stresle baş etme tarzları açısından incelenmesi. *Klinik Psikiyatri Dergisi, 23*, 38-51.
- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research, 287*, 1-5. <https://doi.org/10.1016/j.psychres.2020.112934>
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*(2), 267-283. <https://doi.org/10.1037/0022-3514.56.2.267>
- Cheema, U. N., Manzoor, I., Rizwan, A. R., Farrukh, U., Masood, A., & Kalyani, G. S. (2020). Psychosocial changes and coping strategies in home quarantined university students of Pakistan during covid-19 pandemic. *Esculapio, 16*(1), 98-102.
- Cheng, C. (2001). Assessing coping flexibility in real-life and laboratory settings: a multimethod approach. *Journal of Personality and Social Psychology, 80*(5), 814-833. <https://doi.org/10.1037/0022-3514.80.5.814>
- Choi, E. P. H., Hui, B. P. H., & Wan, E. Y. F. (2020). Depression and anxiety in Hong Kong during COVID-19. *International Journal of Environmental Research and Public Health, 17*(10), 3740. <https://doi.org/10.3390/ijerph17103740>
- Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin, 127*(1), 87-127. <https://doi.org/10.1037/0033-2909.127.1.87>
- Dawson, D. L., & Golijani-Moghaddam, N. (2020). COVID-19: Psychological flexibility, coping, mental health, and wellbeing in the UK during the pandemic. *Journal of Contextual Behavioral Science, 17*, 126-134. <https://doi.org/10.1016/j.jcbs.2020.07.010>
- Eryılmaz, A., & Şiraz, M. F. (2020). Covid-19 bağlamında kötümserliği ortaya çıkaran olaylarla-durumlarla başa çıkma ve ergen öznel iyi oluşu ile ilişkisinin incelenmesi. *Istanbul Ticaret Üniversitesi Sosyal Bilimler Dergisi, 19*(37), 292-303.
- Hatun, O., Dicle, A. N., & Demirci, İ. (2020). Koronavirüs salgınının psikolojik yansımaları ve salgınla başa çıkma. *Electronic Turkish Studies, 15*(4), 531-554. <https://dx.doi.org/10.7827/TurkishStudies.44364>
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy, 44*(1), 1-25. <https://doi.org/10.1016/j.brat.2005.06.006>
- Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64*(6), 1152-1168. <https://doi.org/10.1037/0022-006X.64.6.1152>
- Kabasakal, Z., & Aktaş, A. (2021). Covid-19 Pandemi Sürecinde Sosyal Destek ve Aile İklimi Algılarının İncelenmesi. *Batı Anadolu Eğitim Bilimleri Dergisi, 12* (1), 145-157.

- Karekla, M., & Panayiotou, G. (2011). Coping and experiential avoidance: Unique or overlapping constructs? *Journal of Behavior Therapy and Experimental Psychiatry*, 42(2), 163-170. <https://doi.org/10.1016/j.jbtep.2010.10.002>
- Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review*, 30(7), 865-878. <https://doi.org/10.1016/j.cpr.2010.03.001>
- Kaplan, H., Sevinç, K., & İşbilen, N. (2020). Doğal afetleri anlamlandırma ve başa çıkma: Covid- 19 salgını üzerine bir araştırma. *Electronic Turkish Studies*, 15(4), 579-598. <https://dx.doi.org/10.7827/TurkishStudies.44477>.
- Kirman, F. (2020). Sosyal medyada salgın psikolojisi: Algı, etki ve başa çıkma. *Dünya İnsan Bilimleri Dergisi*, 2, 11-44.
- Krause, N., Pargament, K. I., Hill, P. C., & Ironson, G. (2016). Humility, stressful life events, and psychological well-being: Findings from the landmark spirituality and health survey. *The Journal of Positive Psychology*, 11(5), 499-510. <https://doi.org/10.1080/17439760.2015.1127991>
- Kul, A., & Türk, F. (2020). Kabul ve adanmışlık terapisi (ACT) üzerine bir derleme çalışması. *OPUS Uluslararası Toplum Araştırmaları Dergisi*, 16(Özel Sayı), 3773-3805.
- Labrague, L., & Ballad, C. A. (2020). Lockdown fatigue among college students during the COVID-19 pandemic: predictive role of personal resilience, coping behaviours, and health. medRxiv. <https://doi.org/10.1101/2020.10.18.20213942>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer Publishing Company.
- Main, A., Zhou, Q., Ma, Y., Luecken, L. J., & Liu, X. (2011). Relations of SARS-related stressors and coping to Chinese college students' psychological adjustment during the 2003 Beijing SARS epidemic. *Journal of Counseling Psychology*, 58(3), 410-423. <https://doi.org/10.1037/a0023632>
- Masuda, A., & Tully, E. C. (2012). The role of mindfulness and psychological flexibility in somatization, depression, anxiety, and general psychological distress in a nonclinical college sample. *Journal of Evidence-Based Complementary & Alternative Medicine*, 17(1), 66-71. <https://doi.org/10.1177/2156587211423400>
- Panayiotou, G., Karekla, M., & Mete, I. (2014). Dispositional coping in individuals with anxiety disorder symptomatology: Avoidance predicts distress. *Journal of Contextual Behavioral Science*, 3(4), 314-321. <http://dx.doi.org/10.1016/j.jcbs.2014.07.001>
- Penley, J. A., Tomaka, J., & Wiebe, J. S. (2002). The association of coping to physical and psychological health outcomes: A meta-analytic review. *Journal of Behavioral Medicine*, 25(6), 551-603. <https://doi.org/10.1023/A:1020641400589>
- Rogowska, A. M., Kuśniercz, C., & Bokszczanin, A. (2020). Examining anxiety, life satisfaction, general health, stress and coping styles during COVID-19 pandemic in Polish sample of university students. *Psychology Research and Behavior Management*, 13, 797-811. <https://doi.org/10.2147/PRBM.S266511>
- Rueda, B., & Valls, E. (2020). Is the effect of psychological inflexibility on symptoms and quality of life mediated by coping strategies in patients with mental disorders? *International Journal of Cognitive Therapy*, 13, 1-15. <https://doi.org/10.1007/s41811-020-00069-4>
- Savitsky, B., Findling, Y., Ereli, A., & Hendel, T. (2020). Anxiety and coping strategies among nursing students during the covid-19 pandemic. *Nurse Education in Practice*, 46, 1-7. <https://doi.org/10.1016/j.nepr.2020.102809>
- Sun, Y., Li, Y., Bao, Y., Meng, S., Sun, Y., Schumann, G., ... Shi, J. (2020). Brief report: increased addictive internet and substance use behavior during the COVID-19 pandemic in China. *The American Journal on Addictions*, 29(4), 268-270. <https://doi.org/10.1111/ajad.13066>
- Yavuz, F., Ulusoy, S., Iskin, M., Esen, F. B., Burhan, H. S., Karadere, M. E., & Yavuz, N. (2016). Turkish version of Acceptance and Action Questionnaire-II (AAQ-II): A reliability and validity analysis in clinical and non-clinical samples. *Bulletin of Clinical Psychopharmacology*, 26(4), 397-408. <https://doi.org/10.5455/bcp.20160223124107>
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., & Ho, C. S. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 Coronavirus Disease (COVID-19) epidemic among the general population in china. *International Journal of Environmental Research and Public Health*, 17(5), 1729. <https://doi.org/10.3390/ijerph17051729>



The Effect of Arabic-Supported Educational Game on the Success of 9th-Grade Syrian Students in the Symbolic Language of Chemistry: Example of Turkey

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Abstract

This study was carried out with a total of 75 students attending 9th grade in two high schools affiliated to the Ministry of National Education in Reyhanlı district, which hosted many Syrian refugees in Hatay province in the spring semester of 2018-2019 academic years and lasted for three weeks. A total of 75 students, 43 from two different 9th grade classes taught by the same teacher from the first high school, and 32 from the other high school, participated in the study. Two of these classes were assigned as the control group and one as the experimental group. While the symbolic language of chemistry was taught with the traditional teaching method in the control groups, an educational game with Arabic support was used in the experimental group based on the constructive learning approach. Prior knowledge, attitude-perception towards chemistry, and chemistry achievement tests were applied to all three groups before the implementation in order to control their prior knowledge and attitude and perception towards chemistry; the chemistry success test was applied again after the implementation. ANCOVA analysis was used to evaluate the data obtained from the tests. As a result of the study, it was concluded that High school 9th-grade students studying with the educational game based on constructivist learning approach had significantly higher mean score in the chemistry achievement test on the symbolic language of chemistry than the students studying with traditional teaching method, they relate the concepts more accurately, and performed more meaningful learning.

Keywords: Chemistry Education, Refugee, Elements, Educational Game, Symbol

1. Introduction

In general terms, migration is the movement of people from one place to another with intentions of settling, permanently or temporarily, at a new location due to force majeure such as war or natural disaster. Turkish culture has interacted with many cultures throughout history and has continued on its way by leaving significant traces in the historical process. Turkey could not remain insensitive to the humanitarian crisis occurring in many countries and endeavored to support humanity as much as possible. In 2011, people who were exposed to war

traumas along with physical and psychological violence in their countries in the Middle East, having difficulties in meeting their basic needs, walked away from their homes and countries against their will and took refuge in Turkey. In 2018, among over 4 million asylum seekers in Turkey, mostly Syrian, nearly one million seven hundred forty thousand are children (GİGM, 2018; UNHCR, 2017). As can be understood from the numerical data, half of the individuals who come by immigration are at school age, and the adaptation of these children to the society they live in will only be possible with education. Education services offered to refugee children, who have different characteristics from the social structure of Turkey, have been carried out inside and outside the camps (Temporary Training Centers and public schools) and through private schools owned by Syrians.

Temporary Training Centers (TTC) are educational centers covering primary and secondary education that provide school-age Syrian children and youth with Arabic education by adhering to the Syrian curriculum (MEB, 2014). Turkey has started to work intensively to protect the right to education of children who immigrated from the Middle East since 2014 and tried to establish an institutional structure. The Ministry of National Education works to enroll children of educational age in official schools and aims to fully include children from the Middle East into the Turkish education system. For this reason, the ministry decided that 1st, 5th, and 9th-grade children will not be registered to TTCs instead enrolled in public schools since the 2016-2017 academic years (Tekin & Yüксеker, 2017, MEB, 2013, MEB, 2017). The migration asylum issue is not new for Turkey; however, there is a serious language problem in the education of the children of Syrian refugees. Integration has been quite easy due to the common language in the major migration movements such as Bulgarian immigrants and Meskhetian Turks in previous years (DPT, 1996). However, even if the Syrian students have solved the daily language problem, it is understood from the results of the studies in the literature that there are deficiencies in listening, understanding, expression, and writing skills in the field of education.

It has been stated in studies that language education is important, and problems experienced by refugee students will decrease when they receive education in two languages (Cillia, 2008). When students do not understand the language used in school, even if the language of chemistry is symbolic and universal, they have difficulties in understanding the lesson and learning. It was thought that providing basic chemistry education by using the language used by students for a certain period together with the official language used in the school would affect student success.

Therefore, the main purpose of this study is to investigate the effect of Arabic supported educational games on the symbolic language of chemistry by comparing it with the traditional teaching method at 9th-grade students when the Syrian students' prior knowledge of chemistry and attitude and perception towards the chemistry is brought under control. The research questions of the study are expressed as follows;

1. When the pre-knowledge of chemistry, attitudes, and perceptions towards the chemistry of the Syrian students attending the 9th grade of high schools affiliated to the Ministry of National Education was controlled; Is there a significant difference between the achievements of the students studying with the educational game supported in Arabic and the achievements of the students studying with the traditional teaching method in the elements unit?
2. Do the Syrian students' attitudes and perceptions towards chemistry have a significant effect on their success in the elements unit?
3. Does the Syrian students' prior knowledge in chemistry have a significant effect on their success in the elements unit?

2. Method

In this section of the study, which aims to empirically determine the effect of Arabic-supported educational game on the success and perceptions of 9th-grade students about the Symbolic Language of Chemistry, their interest and attitude towards chemistry lessons, Table 1 presents the experimental design, sample, variables, measurement tools, assumptions and limitations of the study, and information regarding data analysis.

2.1 Experimental Design

In high schools affiliated to the Ministry of National Education (MoNE), students attend classes determined by their institutions, and the education system does not allow students to be randomly divided into classes. Therefore, the nonequivalent control group design, one of the quasi-experimental design types, was used in the study (Gall, Borg, Gall; 1996).

To eliminate the researcher bias and student interaction that affect the external reliability of the research and to determine the effect of only the teaching method on conceptual achievement and perception, a total of three 9th-grade groups from two high schools were selected. Two of these groups were assigned as the control group and the other as the experimental group.

Since the students could not be randomly divided into groups, the study was planned according to the nonequivalent control group design, the students' prior knowledge, attitude, and perception towards chemistry were required to be controlled; for this purpose, the Prior Knowledge Test, Attitude towards Chemistry and Perception Scale were applied to all three groups as a pretest. In order to reveal the effect of the educational game on students' achievement in the content of symbolic language of chemistry, Chemistry Achievement Test was applied as pre-test and post-test.

After the pre-tests were applied, the teaching methods were randomly selected for the groups, 'the symbolic language of chemistry' unit was taught in the control group with the traditional teaching method and in the experimental group with the Arabic-supported educational game. Since the teachers were not familiar with the method applied, the researchers conducted the lessons in the experimental group and one of the control groups. In this way, it was tried to prevent the difference in knowledge and experience. In the study, lessons in the other control group were taught by the chemistry teacher of the lesson in order to eliminate researcher bias. In order that the concepts explained in all three groups and the examples given are the same, the lessons were prepared in accordance with the curriculum, and the courses were implemented within the framework of these lesson plans. Lessons were taught for three weeks in all three groups. One week after the application ended, the post-tests were applied. The effect of the educational game supported by Arabic on students' achievement and perceptions was tried to determine. For this purpose, the Chemistry Achievement Test related to the subject was applied as a posttest.

Table 1: Research pattern of the study

Groups	Pre-tests	Method	Post-test
Experimental Group	Prior Knowledge Test, Chemistry Achievement Test, Attitude and Perception towards Chemistry Scale	Arabic-Turkish Educational Game	Chemistry Achievement Test
Control Group (1)	Prior Knowledge Test, Chemistry Achievement Test, Attitude and Perception towards Chemistry Scale	Traditional Teaching Method	Chemistry Achievement Test
Control Group (2)	Prior Knowledge Test, Chemistry Achievement Test, Attitude and Perception towards Chemistry Scale	Traditional Teaching Method	Chemistry Achievement Test

2.2 The Sample of the Study

In this study, the criterion sampling method, one of the purposeful sampling methods, was used in determining the participants. The logic and power of purposeful sampling lie in selecting information-rich cases for in-depth study. This condition leads to the selection of situations containing rich information for the depth of the study (Patton, 2014, p. 46). The basic understanding of the criterion sampling method is to study situations that meet a predetermined set of criteria. The criteria mentioned here can be created by the researcher (Yıldırım, Şimşek;

2003). In this study, the criterion taken as a basis in the selection of the participants was determined as the students from the Middle East who had "studied at least one academic year in the institution affiliated to the MoNE." Meetings were made with the MoNE, the institution directly engaged in the education of the students, and the sample was determined as a result of these interviews. The study has started after obtaining the necessary permissions. MoNE was determined the schools in which the study will hold. The sample of this study consists of a total of 75 students, 43 students in two different branches where the same teacher teaches in a high school affiliated to the Hatay National Education Directorate, where Syrian students attend intensively in the 2018-2019 academic year, and 32 students from another high school. The mean age of the sample was 15, and traditional teaching methods were used before starting the implementation. The teaching methods to be used in each of the classes were randomly selected, and there were 32 students in the experimental group where the educational game was used, 18 students in one of the groups where the traditional teaching method was used, and 25 students in the other.

The educational game applied to the experimental group and the traditional teaching methods applied to the control group are independent variables, and the success of the students measured by the chemistry achievement test is the dependent variable. The variables that are taken under control are the students' knowledge before the Symbolic Language of Chemistry, which was measured with the Prior Knowledge Test, and the attitude and perception towards science and chemistry measured by the Attitude and Perception towards Chemistry Scale.

2.3 Data Collection Tool

The relevant data collection tools were prepared by a translation into Arabic by the professors of Arabic Language and Education, and it was given to the student together with two languages (Arabic and Turkish); so that the students did not experience difficulties due to the language, and if they knew the subjects, they answered them in their language.

Prior Knowledge Test (PKT). The Prior Knowledge Test was prepared to measure the readiness and understanding of Turkish in the subjects that 9th-grade students should know to understand the concepts of the symbolic language of chemistry, consisting of 15 questions. In the preparation of the four-choice multiple-choice test, the questions related to this subject in the high school entrance exam were used. Experts in the field found the content validity of the test was to be high.

The reliability of the test was expressed with α -reliability coefficient; it was found as 0.75 as a result of being applied to 92 high school 9th grade students before the implementation.

Chemistry Achievement Test (CAT): The test developed by the researcher to check whether the students have learned the elements, symbols, and the usage areas of the elements in the Symbolic Language of Chemistry, consists of 24 questions. In the preparation of the test, which is in the form of a single-step chemistry achievement test and has three wrong and one correct option in a way that students can make possible mistakes in each question, the opinions of teachers and faculty members, the textbook approved by MoNE Board of Education and Discipline, sources recommended as supplementary books, and literature was used. The test consists of three sections. The first section includes questions about the usage areas of the elements in our daily life, the second section includes questions on the periodic table, and the third section includes questions about the names of the elements and symbols. The content of the test on the elements is given in Table 2.

Table 2: The Symbolic Language of Chemistry (Elements) Test Contents

Symbolic Language of Chemistry (Elements) Subject Achievement Test	
Question No	Content
Question 1-11	Usage of elements in daily life
Question 12- 18	Periodic table usage
Question 18- 24	Element names and symbols

In the evaluation of the test, the correct answers given to the questions were coded with one (1) point, the wrong answers with zero (0) points and the student who got higher were evaluated as successful.

Content validity refers to the extent to which the items on a test and the test as a whole are fairly representative of the entire domain the test seeks to measure. The content validity of a scale can be examined in two ways, logically and statistically. Investigating the content validity of the scale logically means estimating the validity of the scale without applying. Measurement subject is defined conceptually. Since the defined concept cannot be measured directly, it is investigated whether each item in the scale and their distribution will sample the subject of measurement (Öncü, 1994; Tekin, 1974; Sencer & Sencer, 1978). As a result of the evaluation of the content based on expert opinion, the content validity was evaluated by three expert faculty members and found high. The reliability of the test was applied to 92 high school 9th -grade students before being used in the study, and α reliability coefficient was calculated as 0.77.

Attitude and Perception towards Chemistry Scale (APCS):

The scale developed by Kavak was used in order to determine the attitude of students towards Chemistry lessons and how they perceive chemistry and teaching. This Likert type scale applied to students consists of 18 expressions. Each item contains statements reflecting the students' opinions such as "strongly agree," "agree," "undecided," "disagree," and "strongly disagree." Positive statements were scored as 5, 4, 3, 2, and 1. The interest and attitude scores of the students were determined by adding the points given to each statement. The high scores of the students show that they have a positive attitude towards the chemistry course.

Teaching Methods

This study was conducted with a total of 75 students attending 9th grade in two high schools in Reyhanlı district, which hosted many Syrian refugees in Hatay province in the spring term of 2018-2019 and lasted for three weeks.

Control Group:

The traditional teaching method was used in the control groups. In this teacher-centered method, the teacher's explanations are at the forefront. The teacher continues the lesson by giving examples, introducing the concepts, and making explanations. The teacher answers questions for reinforcement at the end of the lesson and does a general review.

Experimental Group:

In the experimental group, the lessons were taught with an educational game supported by Arabic. This method is student-centered and requires the active participation of students. This method has been prepared in two languages (Turkish and Arabic) on the basis of the students' being multicultural so that students can actively apply the course content.

After the application of this method, students are expected to:

- Knows the symbol when reading or hearing the name of the first 20 (twenty) elements, knows the name of the element when it reads or hears the symbol (in Turkish).
- Makes explanations in Turkish about the usage area of each element.
- Recognizes the periodic table, sorts the elements according to the rule of the periodic table.
- Plays the relevant game according to the rules.

There are five materials within the scope of "educational game supported in Arabic," which is called educational material. For the first 20 elements of the periodic table; a blank template was drawn on cloth.

Figure 1: Periodic table template

H							He
Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar
K	Ca						

The symbol, atomic number, and element names are written in Turkish and Arabic on the front side, and the entire periodic table is given on the back of the cards.

Figure 2: Element cards (front side)

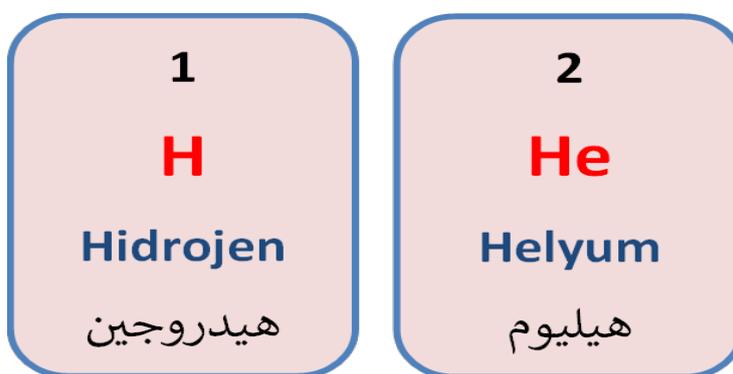
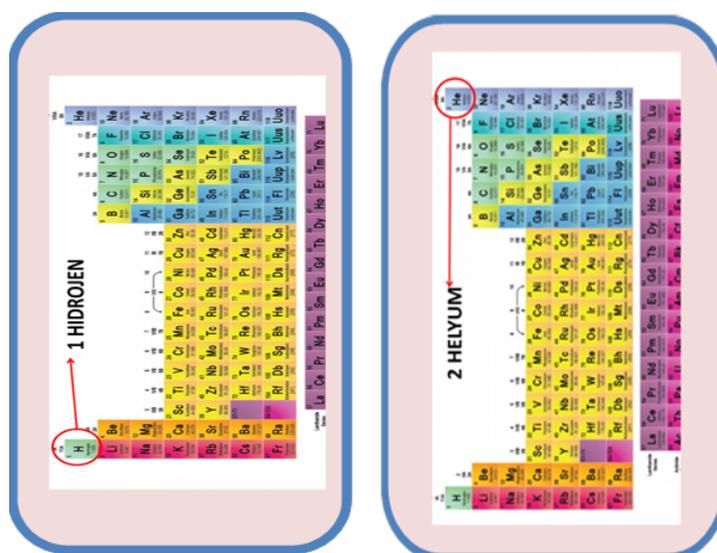


Figure 3: Element cards (backside)



- 1- Information Cards in Turkish and Arabic about the properties of the elements. There are images on the backside. Both sides of the material are used in the game.

Figure 4: Turkish and Arabic information card on the properties of the elements



Figure 5: Visual card of the usage areas of the elements (backside)



- 2- In the educational game in which the names of the elements are voiced in Turkish and Arabic, students have the opportunity to control their own actions while improving their listening comprehension in Turkish.

The application of the study took place in five steps. Details of the steps are as follows:

In the first step, the lesson was given to the experimental group students within the plan given to the teacher. In order to achieve the outcome of “matching the symbols of the elements frequently encountered in daily life with their names,” informational cards that are expected to be learned were prepared in Turkish and Arabic. Three-dimensional world and human figures were presented at the beginning of the lesson to attract students' attention; the teacher asked questions that prompted students to think. Some examples of these questions are given below.

Did you know that we humans and the world we live in contain the same elements? What elements can you have

in your body? What elements are present in the soil?

This step aims to introduce the name and symbol of the element to students with the visual cards. After the introduction of 20 elements, the teacher showed a random element symbol to students. Students were expected to remember the element name. Likewise, when the element name was displayed, it was expected to remember the symbol. When this step was completed, the teacher asked students to write the names and symbols of the elements they remember on a blank paper, using whatever language they preferred.

In the second step, the direction of lying was specified by showing the material number one (cloth) to explain how the elements are placed in the periodic table. The way of placing material number 2 (Element cards) on the periodic table template was shown. Each symbol / inscription on the element cards was explained in order. The element cards were placed on the blank periodic table template by reading the name, number, and symbol of the element. *It is placed saying: "Name of the element Hydrogen; symbol capital letter H; number 1"*. Then move on to the box on the template opposite the hydrogen and the name of the Element Helium, symbol He, number 2, Lithium and Beryllium, etc., are shown in order until the element number 20. In this way, the order of the elements in the periodic table was applied individually by the students and the educational game process started. In the third step, the rules of the game were explained. The cards (from left to right) with the element name and symbol not visible were aligned by the players, with 20 cards face down, without breaking this rule (periodic table image on top, face down). It was started according to the preference of the first students to play. The game starts by opening the card where the element number 1 Hydrogen is located. The student who opens the card reads the element name, number, and symbol aloud and places it where that element should be on the periodic table. For example; the first card is opened, the element name, number, and symbol on it are read in order, and the "Beryllium, number 4, symbol Be" is placed on the template. While placing the beryllium card in the place where it should be, the student takes the closed card there, introduces it in the same way, and puts it in the appropriate place he/she thinks it should be.

The game continues until this student makes a mistake or until the card he/she opens is in the place where it should be on the periodic table. For example, if the first card he/she opens is the one that introduces the Hydrogen element, the game will pass to the opponent before he/she can start the game. Another possibility is that if the element card is in the correct place on the periodic table, the game to pass to the opponent.

The other reason for the game to pass to the opponent is that the student puts the element card in the periodic table without introducing it loudly. Since the aim is to enable students to use the scientific language, it is ensured that they vocalize in a way that they can hear their own voices.

The student who puts the last card on the periodic table template wins the game.

In the fourth step of the course, the usage areas of the elements were explained to the students. Items and images (three-dimensional) explaining the usage areas of the 20 elements were prepared and put into a previously prepared box. The usage areas of the elements were explained by supporting them with visuals. The student groups were given a box containing the items that symbolize the usage areas of the elements, and the students were asked to verbally express the element in the content of the material they choose randomly. The prerequisite of this stage is to make sure that all students speak. The most important factor here was that the researcher in the field of Arabic Language Education guided the course. Especially when there is a person who understands their language, the students' hesitancy disappears, and they sincerely participate in all activities.

In the fifth step, the educational game cards (element - location) with the element usage area or the substance content were introduced, and the students played the game in a way that the same game rules as the second set cards (3rd material).

Assumptions and Limitations of the Study

The professional experience of chemistry teachers working in the high schools where the study was conducted

varies between 5 and 12 years. Teachers were considered equivalent to each other in terms of knowledge and experience. The selected sample reflects the 9th-grade students who migrated from Syria. This study is limited to the 'elements' unit and 9th-grade students attending a high school in the region receiving immigration.

These students receive education in mixed classes formed with Turkish students in their schools. Another purpose of expressing this situation is that some classes are all Syrian students due to the high number of Syrian students attending MoNE schools in the region. For the equivalence of the sample taken in the study, it was preferred to have mixed classes in which Syrian and Turkish students are receiving education together.

3. Data Analysis

In order to apply parametric tests to the data obtained in the study, the data must show a normal distribution. In this case, the "Kolmogorov - Smirnov Test" was used to check whether the obtained data showed normal distribution or not. In the study, in which quasi-experimental nonequivalent control group design was used and there were two control groups and one experimental group, analysis of variance (ANOVA) was applied to the pre-test results to determine whether the groups were equal before starting the study. As a result of the application, it was understood that there was a difference between the groups, and an analysis was made to determine the difference between the groups.

After the studies were completed and the pre-test results were taken under control, ANCOVA (Analysis of Covariance) was applied to determine whether there is a significant difference between the posttest results of the experimental group and the post-test results of the control groups. The analysis was performed using the SPSS (Statistical Package for the Social Sciences) software, and the results were evaluated at a significance level of 0.05.

4. Findings

In this study, the nonequivalent control group design, one of the quasi-experimental design types, was used to determine the effect of the Arabic-supported educational game, the variables that were considered to affect the success were controlled, and the prior knowledge test, the chemistry achievement test and the attitude and perception towards the chemistry scale were applied as a pre-test. Since it is necessary to investigate whether the test results show a normal distribution in order to apply statistical analysis to the pre-test results, the data obtained were evaluated using the "single group Kolmogorov-Smirnov Test." The results obtained are summarized in Table 3.

Table 3: Single Group Kolmogorov-Smirnov Test Results

	Control Group-1				Control Group-2				Experimental Group			
	N	X	SD	p	N	X	SD	p	N	X	SD	P
PKT	18	9,27	1,98	0,998	25	7,17	3,17	0,570	32	9,98	2,78	0,717
CAT	18	6,17	1,63	0,990	25	5,36	1,79	0,362	32	5,90	2,38	0,389
APCS	18	61,17	6,18	0,554	25	50,43	9,28	0,983	32	53,97	9,16	0,843

As can be seen in Table 3, test results showed normal distribution in all three groups ($p > 0.05$). The normal distribution of the pre-test results means that parametric tests can be applied to the data. When the table is examined for which groups the difference in PCT results is advantageous, it can be seen that the average of the control group number 2 is lower than the other groups. Whether there is a significant difference between the groups was investigated by one-way ANOVA and is given in Table 4.

Table 4: ANOVA Analysis Result Summary

		ΣX^2	df	MS	F	P
PKT	Between groups	120,143	2	60,071	9,257	0,000
	In-group	408,842	63	6,490		
	Total	528,985	65			
CAT	Between groups	8,280	2	4,140	1,092	0,342
	In-group	238,811	63	3,791		
	Total	247,091	65			
APCS	Between groups	908,577	2	454,289	4,088	0,021
	In-group	7000,287	63	111,116		
	Total	7908,864	65			

As can be seen in Table 4, there was no significant difference between the control group and the experimental group in terms of chemistry achievement $p > 0.05$; There was a significant difference in terms of prior knowledge, and attitude and perception towards chemistry $p < 0.05$. In this study, in which there were three different groups, the Scheffé test was used to determine which groups differ in prior knowledge and attitude and perception towards chemistry, and the results are presented in Table 5.

Table 5: Evaluation of the PCT, APCS CAT pretest score averages of the Experimental Group and the Control Groups

		PKT		CAT		APCS	
		Control Group (2)	Experimental Group	Control Group (2)	Experimental Group	Control Group (2)	Experimental Group
Control Group (1)		0,017*	0,865	0,481	0,974	0,021*	0,152
			0,002*		0,484		0,484

*At the 0.05 significance level, the means are different from each other.

As can be seen in Table 5, when the values were examined in order to determine whether there was a significant difference between the students in the control group number 1 and the experimental group students who had the same chemistry teacher before the study, it was determined that they differ in terms of attitude and perception towards chemistry. When the general averages were examined (Table 3), it can be seen that the mean of control group no.2 was lower than the others with 50,43. Another result obtained from this table is that the pre-test results of CAT of all three groups were close to each other. The data obtained show that there was no significant difference between the three groups in terms of CAT results. In other words, all the students participating in the study have the same level of prior knowledge about the names, symbols, and usage areas of the elements. This situation is important for the internal validity of the study. Also, prior knowledge of the students in the control group no. 2 was significantly different from the students in the control group no. 1 and the experimental group. As can be seen in Table 3, the low average belongs to the control group no.2 with 7.17.

As a result of the analysis, it was concluded that when the pre-test results have controlled the effect of the educational game would emerge.

The Effects of Arabic-Supported Educational Game and Other Variables on the Success of Syrian Students in the Symbolic Language of Chemistry

In order to determine the effect of Arabic supported educational games by comparing with the traditional teaching method, relevant studies on the symbols, names, and usage areas of the elements unit were conducted for three weeks with Syrian students attending 9th grade, after the pre-test results are received. After the application was completed, CAT was applied as a posttest and the results obtained were evaluated.

ANCOVA analysis was used to determine whether there is a significant difference between the success of the 9th-grade students studying with the Arabic-supported educational game and the achievements of the students studying with the traditional method, when their prior knowledge about chemistry, basic knowledge about elements, and their attitudes and perceptions towards chemistry is controlled. ANCOVA results are given in Table 6.

As can be seen in Table 6, according to ANCOVA analysis, the model applied was found to be significant ($p = 0.000$ for the model), the interference between the variables was not statistically significant ($p = 0.0087$ for the intervention), and the applied model was found to be $R^2 = 0.587$. Accordingly, it was decided that it could be used to test the hypotheses.

Table 6: ANCOVA analysis

Source	Type III ΣX^2	X^2	F	P	Ψ^2
Model	510,839	58,691	11,896	0,000	0,587
Attempt	14,773	14,773	2,994	0,087	0,049
PKT	2,061	2,061	0,418	0,521	0,007
CAT	49,267	49,267	7,959	0,007	0,121
APCS	7,047	7,047	1,428	0,237	0,024
Group	237,436	118,668	24,053	0,000	0,453
Error	286,246	4,934			
Total	5297,000				

When Table 6 is examined to evaluate whether the CAT results of the groups are statistically different from each other, it can be seen that there was a significant difference between the groups. ($P < 0.05$ for the group). Bonferroni test was used in ANCOVA analysis to determine among which groups this difference exists, and the results are summarized in Table 7.

Table 7: Evaluation of the CAT posttest mean scores of the experimental group and control groups with the Bonferroni test

	Control Group(2)	Experimental Group
Control Group (1)	1,000	0,000
Control Group (2)		0,000

As can be seen in Table 7, it was determined that the mean of the CAT post-test results of the experimental group students studying with the Arabic-supported elements-themed educational game was significantly different from the CAT post-test results mean of both control group students studying with the traditional teaching method. Another result obtained is that the CAT post-test success averages of control group no.1 and control group no.2 were not different.

According to these results, when the prior knowledge and attitudes and perceptions towards chemistry were taken under control, a significant difference was found between the success of the 9th-grade students studying with the Arabic supported elements-themed educational game and the success of the students studying with the traditional teaching method. It was concluded that in the elements unit, the students who were taught with the Arabic-supported elements-themed educational game ($X=19,92$; $sd:2,64$) were more successful than the control group students ($X_1=11,357$ $sd=1,83$ & $X_2= 10,62$; $sd=2,10$) who were taught with the traditional teaching method. In the study, it is understood from the success they show in the CBT results that the experimental group students use the scientific language in the field of chemistry in Turkish, orally and in writing, thanks to the educational game.

In the study, ANCOVA analysis results were examined to determine the effect of the Syrian students' attitude and perception towards chemistry on their achievement in chemistry, and it was concluded that the students' attitude and perception towards chemistry did not have a significant effect on their success in chemistry.

It was also investigated whether Syrian students' prior knowledge in chemistry had a significant effect on their success on elements. The results of ANCOVA analysis applied to determine the effect of prior knowledge on students' achievement were examined, and it was concluded that the prior knowledge did not affect the conceptual success ($p = 0.521$).

5. Results

This study was carried out with a total of 75 students attending 9th grade in two high schools affiliated to the Ministry of National Education in Reyhanlı district, which hosted many Syrian refugees in Hatay province in the spring semester of 2018-2019 academic years and lasted for three weeks.

In this study, the nonequivalent control group design, one of the quasi-experimental design types, was used to determine the effect of the Arabic-supported educational game, the variables that considered to affect the success were controlled, and the prior knowledge test, the chemistry achievement test and the attitude and perception towards the chemistry scale were applied as a pre-test.

Prior knowledge and attitudes and perceptions towards the chemistry course of Syrian students attending the 9th grade of high schools affiliated to MoNE have been controlled, and it was investigated whether there is a significant difference between the achievements of the students studying with the Arabic-supported educational game and the achievements of the students studying with the traditional teaching method. This study also examined the effect of Syrian students' prior knowledge of chemistry on their success in the elements unit.

While there was no significant difference between the pre-test scores of the experiment and control groups, there was a significant difference between the post-test scores in favor of the experimental group.

It was concluded that all the students participating in the study had the same level of prior knowledge about the names, symbols and usage areas of the elements. The data obtained show that there was no significant difference between the three groups in terms of CAT results. However, when students' prior knowledge, attitudes, and perceptions towards chemistry were taken under control, a significant difference was found between the chemistry achievements of the 9th-grade students studying with the Arabic supported elements-themed educational game and the success of the students studying with the traditional teaching method. Therefore, it was concluded that the Arabic-supported educational game is more effective than the traditional teaching method in increasing the conceptual achievement of Syrian 9th-grade students on the elements unit. Another result that we reached is that the prior knowledge of Syrian 9th-grade students did not have a significant effect on their success in the symbolic language of chemistry. In this context, it has been concluded that the method chosen will enable students to learn better when there is no difference between students' prior knowledge. It is understood from the results obtained in other studies (Aycan, Türkoğuz, Arı and Kaynar, 2002; Şaşmaz Ören and Erduran Avcı, 2004; Saracaloğlu and Aldan Karademir, 2009; Duvarcı, 2010; Karamustafaoğlu and Kaya, 2013; Bayat, Kılıçaslan and Şentürk, 2014; Kaya and Elgün, 2015; Haneci, Cerrah Özsevgeç and Demircioğlu, 2016; Yıldız, Şimşek and Araz, 2016; Pamuk, 2018; Boz, 2018) that teaching supported by educational games increases the success of

students. In summary, the results of our study support the previous literature. However, as the educational game was studied with Syrian students in the study in question, it differs from other studies. A similar educational game study on the elements unit was conducted by Duvarcı in 2010. Duvarcı examined the effect of teaching the names and symbols of elements with games on the achievement of 9th-grade students in the chemistry lesson. In Duvarcı's study, students found the activities as entertaining and helpful to remember subjects. The results obtained from the related study are in line with the results of our study. However, as stated before, no such study has been found on teaching chemistry with Arabic-supported educational games on immigrant students. Based on this, it has been reported that the teaching supported by educational games affects the academic success of immigrant students according to the current teaching method.

The effect of Syrian students' attitudes and perceptions towards chemistry on their success in the elements unit was investigated. In the group we studied, there was no significant effect of the Syrian 9th-grade students' attitude and perception towards chemistry on their achievement in the elements unit. In addition, it was found that the attitudes and perceptions of the groups we studied did not affect the learning. However, at the end of the study, it was observed by the researchers that there was a difference between the interests and attitudes of the students studying with educational games towards the learning environment compared to the students studying with the traditional method.

It is considered that transferring the quantitative findings obtained from the study as well as observational determinations will be suitable for future studies. During the implementation of the study, it was observed by the researcher, who participates in all sessions with all groups, that there was a positive change in the students' interest in the lesson. It was observed that the students were quite active, enthusiastic, and curious in the chemistry course, in which the educational games were used to teach the elements unit. The students studying with the educational game made fewer mistakes when matching elements and symbols and were able to indicate the areas where the elements were found and used more easily than the students studying with the traditional method. In addition, students who study with educational games use the language of chemistry more than it should be, while students studying with traditional teaching methods prefer daily speaking language. This situation can clearly be noticed when the students consider the verbal and written expressions during the game.

Based on the findings of the study, it can be easily stated that the use of educational games in learning the symbolic language of chemistry is more successful and effective than the traditional teaching method. Students studying with traditional teaching methods could not participate actively in the course. Information stays in temporary memory when not associated with other information; and can be easily forgotten when not used (Atasoy, 1998). Since the traditional method is generally based on this system and leads to learning by rote, it is forgotten after a while. The permanence of knowledge is a result of meaningful learning. When learning is associated with the previous learning, it will become meaningful and remain in the memory (Ausubel, 1968). When it comes to a class with immigrant students, the language problem comes into play, and students cannot participate in the lesson. Therefore, even if Syrian students read the information about the symbolic language of chemistry or listen to the teacher, they cannot associate the basic symbols they need to learn and their areas of use, and they cannot create a link between symbols, elements, and the areas of use of elements.

In addition, during the study, it was observed that the educational game activity increased the communication and interaction of students from different cultures with each other in obeying the game rules. In other studies conducted with Turkish students in the domestic literature (Demircioğlu and Akdemir (2019), Yıldız, Şimşek, and Araz (2017), Çavuş and Balçın (2017), it was stated that educational games were useful in adopting rules, communicating and trying to understand each other.

6. Recommendations

Considering the results of the study, some recommendations have been made in order to contribute to future studies. While immigrating students are placed in schools and classes, the orientation of students to the education system should be ensured, a certain level should be set as a target for the languages of education, and placement of students in schools based on a certain level of Turkish education by MEB is recommended within the scope of

the study. Also, learning Turkish should be perceived not as a foreign language but as a second language parallel to their mother tongue. Unless students from the Middle East can understand the language, it will not be possible to get the result of the education provided and the investment made. If sufficient effort is not spent on this issue, cultural gaps will inevitably occur in our society. It is also very important to reveal the potential of individuals of educational age, not only with language teaching. The country will be without problems in the future depending on the changes that improve the education made today. In this context, it is also essential to create suitable environments to give science lessons in the best way.

In the related study, it was stated that Syrian students have difficulty in communicating with host student groups, and they have difficulty understanding the subject of the lesson. Chemistry teaching is important in high schools as it plays an important role in understanding everyday life. Uzuntiryaki and Boz (2007) stated the role of chemistry courses in their studies as follows: *"...to think in a scientific way. Later, they can use these thinking skills, which they have gained in chemistry class, for any problem of their life. Also, students' critical thinking ability can be improved with chemistry. Therefore, chemistry must be taught."* In this context, understanding science education in general and chemistry education in particular, and providing students with relevant materials in order to conduct the curriculum more efficiently, providing appropriate materials in mixed classes with students from Turkish and the Middle East where students can study together and reinforce the course subjects and scientific language based on educational games, and creating extracurricular activities will enable students to learn more efficiently.

In the study, a general evaluation was made by taking the number of students more in the sample. Based on this study, more in-depth analysis can be made on chemistry topics and concepts using the interview method with a smaller number of students to examine students' views.

In the study, it was determined that most of the students were directed to vocational education. This situation leads us to the conclusion that students do not prefer science. It can be determined why these students do not prefer other high school types by conducting studies that these students will form the sample of the study, and recommendations can be made by determining the reasons for failure.

Due to changes in the education system, the methods of evaluating students in science lessons also differ. Studies can be conducted for the use of alternative assessment and evaluation techniques instead of traditional methods. Increasing the number of courses organized in Turkish and Foreign Language Application and Research Centers, making intensive language supplements with Public Education Centers and other relevant organizations, and encouraging families of Middle Eastern children to go to school should be ensured.

The course contents, teaching approaches, and methods should be prepared in a way to develop students' intelligence and comprehension skills. In the teacher-centered approach, teachers consider themselves to be the center of all activities, the main source of information, and an expert in their field. Students remain in the position of passive listeners, receiving the information given by the teacher. When the students, who come through immigration, do not understand the language, they move away from the field of education and training, and this causes them to encounter different problems. It is therefore reasonable to assume that this lack of interest can hinder students' motivation in getting involved in science studies (Mamluk-Naaman, Ben-Zvi, Hofstein, Menis, Erduran; 2005). For this reason, teachers should conduct their lessons by supporting them with activities that will enable students to actively participate in the lesson for effective teaching. In this case, having ready-made activities for each subject will enable teachers to work efficiently in the lesson. The teacher should help the immigrated students to make progress at the cognitive level and try to ensure the participation of the students in the lesson by doing the activities.

In this study, the effect of teaching with educational games on the success of Syrian students in the chemistry course about the symbolic language of chemistry was investigated. In addition to academic success, studies on different variables such as gender, attitude, motivation, and scientific language development can also be conducted.

In addition, we would like to include another sentence as a suggestion and conclusion that teachers who teach Syrian students at their schools should be supported. The teacher should feel supported in all matters and monitoring and support services should be developed. We also observed that attention should be paid to the balance between Turkish students and Syrian students.

With the migration that started in 2011, teachers working in some regions have encountered a change in their teaching process and have started to teach in multilingual and multicultural classes. In this process, there were situations that teachers encountered for the first time, and these special situations were beyond the competence of teachers. Therefore, to have a more efficient teaching system, to create a more peaceful education and training environment with students, in-service training is needed to facilitate the adaptation of teachers to this situation. This situation should be supported by the Ministry of Education, and it is recommended to organize Guidance training to provide education for different cultures.

References

- Ausubel, D. P., (1968) Educational Psychology, A Cognitive View”, Holt Rinehart and Winston, Inc., New York.
- Atasoy, B. (1998) Science Education and Teaching, Asil Publication and Distribution, Ankara.
- Aycan, Ş., Türkoğuz, S., Arı, E. & Kaynar, Ü. (16-18 September, 2002). Teaching Periodic Table and Elements with Bingo Game Technique and Determination of Persistence in Memory. V. National Science and Mathematics Education Congress, Ankara.
- Bayat, S., Kılıçaslan, H., & Şentürk, Ş. (2014). Investigation of the Effects of Educational Games in Science and Technology Lesson on the Academic Achievement of Seventh Grade Students. *Abant İzzet Baysal University Journal of Education Faculty*, 14(2), 204-216.
- Boz, İ. (2018). The Effect of Teaching with Game on Academic Achievement in Primary School 4th Grade Mathematics Lesson. *International Journal of Textbooks and Educational Materials*, 1(1), 27-45.
- Cillia, R. D. (2008). Learning languages in immigration. Informations blatter des Referats für migration und schulu. Accessed from: <https://www.schop79.at/images/pdf/gcmenliktedil.pdf>
- Çavuş, R. & Balçın, M. D. (2017). Students' Views Regarding the Game Activities Performed in Science Lesson: The Example of the Structure and Properties of Matter Unit. *Researcher: Social Science Studies*, 5(10), 323-341.
- Demircioğlu, H. & Akdemir, M.S. (2019). Teaching the Subject of States of Matter with Educational Games. *Journal of International Social Research* 12.64
- Duvarcı, D. (2010). Activity-Based Chemistry Teaching: A Case of Elements and Compounds. *Procedia Social and Behavioral Sciences*, 2, 2506- 2509.
- Devlet Planlama Teşkilatı., Turkish Migrants from Bulgaria, SPO Social Planning Presidency Special Report, Ankara 1990.
- Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction* (6th ed.). Longman Publishing.
- Göç İdaresi Genel Müdürlüğü (GİGM) (2018). Turkey migration report. Accessed from: <https://www.goc.gov.tr/yillik-goc-raporlari>
- Haneci, A., Cerrah Ö. L., & Demircioğlu, H. (6-7 October, 2016). The Effects of BOM Game on Students’ Learning of Chemical Elements. Third International Conference “Education across Borders,” Book of Proceedings, p. 572-578, Bitola, Macedonia.
- Karamustafaoğlu, O., & Kaya, M. (2013). Teaching the Subject of 'Reflections and Mirrors' with Educational Games: A Case Study with Reflection. *Research Based Activity Journal (ATED)*, 3(2), 41-49.
- Kavak, N. (2004). The effect of role-playing teaching method based on constructivist learning approach on the conceptual achievement and perceptions, interests and attitudes of high school sophomore students about dissolution. Unpublished doctoral dissertation, Gazi University, Institute of Science, Ankara.
- Kaya, S. & Elgün, A. (2015). The Effect of Science Teaching Supported by Educational Games on the Academic Achievement of Primary School Students. *Kastamonu Journal of Education*, 23(1), 329-342.
- Mamluk-Naaman, R., Ben-Zvi, R., Hofstein, A., Menis, J., & Erduran, S. (2005). Learning science through a historical approach: Does it affect the attitudes of non-science-oriented students towards science?. *International Journal of Science and Mathematics Education*, 3(3), 485-507.
- Milli Eğitim Bakanlığı (MEB). TTKB, (2018) Chemistry Curriculum.
- Pamuk, Tuğba (2018). Investigation of the Effects of Computer Assisted Instruction on the Success and Attitudes of 8th Grade Students in Teaching "Periodic System" and "Chemical Bonds." Master Thesis, Ordu University Institute of Science and Technology, Ordu.
- Patton, M. (2014). *Qualitative Research & Evaluation Methods: Integrating Theory And Practice*. Sage

publications.

- Saracalođlu, A. S., & Aldan K., . (21-23 May, 2009). The Effect of Educational Game Based Science and Technology Teaching on Student Achievement. VIII. National Classroom Teaching Symposium Proceedings, Osmangazi University: Eskiřehir, 1098-1107.
- řaşmaz . F., & Erduran A. D. (2004). The Effect of Instruction with Educational Game on Academic Achievement in Science Course "Solar System and Planets". Ondokuz Mayıs University Journal of Education Faculty, 18, 67-76.
- TBMM İnsan Hakları İnceleme Komisyonu, (2012).
- Yıldırım, A. & řimřek, H. Qualitative research methods in the social sciences. řekin Publishing, 2003.
- Yıldız, E., řimřek, ., & Araz, H. (2016). The Effect of Using Educational Game Method on Circulatory System on Students' Academic Achievement and Science Learning Motivation Mustafa Kemal University Journal of Social Sciences Institute, 13(36), 20-32.
- Yıldız, E., řimřek, ., & Araz, H. (2017). The Effect of Educational Game Method on Students' Social Skills, Attitudes towards School and Science Learning Anxiety. Necatibey Faculty of Education Electronic Journal of Science and Mathematics Education (EFMED), 11(1), 381-400.



The Changes in Training Teachers' Roles Performance Following Academy-Classroom Practical Training Model

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Abstract

Academy-Classroom model is the most recent program adopted by the Ministry of Education in Israel for trainee teachers' practical training. One of the model's primary goals is to bridge the gap between the needs and the reality of the school in connection with how academic institutions prepare their teachers. The study aimed to research the role performance in training teachers following the Academy-Classroom model's implementation, compared to their role under previous training plans, and to explore whether changes had taken place. Forty-four training teachers within the academy class framework took part in the study. All of them had worked as training teachers in previous models. The research was conducted using a mixed quantitative and qualitative research methodology. The findings show a broader integration of the training teachers in the process of preparing and qualifying the trainee students. The results demonstrate a statistically significant increase in the training teachers' role performance in social perspective, training with a focus on a subject matter guidance, mentoring students with an emotional approach, and personal responsibility for training and qualifying the trainee students. Academy-Classroom model has resulted in a paradigmatic shift in the training teachers' role and work methods.

Keywords: Training Teacher, Partnership in Education and Training, Training Program

1. Theoretical background

Practical training constitutes an essential and vital stage in the qualification and preparation of teachers. It is considered one of the most critical academic processes that shape the personality of trainee teachers. It helps develop many useful and valuable practical skills such as class management of varying levels, acquiring organizational abilities, handling general matters in schools, and many other competencies (Kirk, Macdonald, & O'Sullivan, 2006).

The training teacher or the cooperating teacher, "a collaborator with the academic institution," as defined in many articles, is seen as the most crucial pillar in the success of practical education for the training teacher (Keogh, Dole, & Hudson, 2006), a role model and a professional example to be followed. Training teachers help trainees discover, learn, and acquire tools and talents in the field (Maskit & Meburach, 2013; Silberstein et al., 2006). However, some people diminish their importance and influence. They even point to the possibility of a

negative impact, especially in the sense of not being updated in teaching methods that conform to the requirements of the 21st century (Lev Ary & Smith, 2004).

Various concepts have been used to describe the work of the training teacher. These concepts refer to different assumptions and expectations of how the cooperating training teacher should act and inspire the trainee. Three descriptions are most widely applied and accepted to describe this teacher, namely: the placeholder teacher, the supervising teacher, and the educator teacher. (Clarke, 2007; Cornbleth & Ellsworth, 1994).

The trainee teacher acts as “a classroom placeholder,” replacing the training teacher in the classroom when he/she goes to the library or the teachers’ room. In this case, the trainee student bears the full responsibility of the educational process delivering the classroom content, controlling the class, carrying out educational activities, and other actions. (Borko & Mayfield, 1995). It is noteworthy that this method is rarely applied in recent years.

The second term given to the training teacher, which is currently the most common, embodies a more advanced position. He/She practices more the role of a supervisor. The cooperating teacher oversees the trainee students’ work and performs more effective roles, such as: conducting observations, a stage evaluation, and a final evaluation of the trainee students (Borko & Mayfield, 1995). Although this interpretation reflects progress compared to the previous one, the work of the cooperating teacher seems still limited and does not go beyond supervision and assessment.

The third concept, the “educator teacher,” reflects a fundamental difference compared to the previous two models. It implies an interactive and giving function, whereby the cooperating teacher acts as an educator. He/She works closely with the trainee encouraging the student and facilitating the training process in addition to the already mentioned traditional tasks (Clarke, 1997; Hatch, 1993; Kettle & Sellars, 1996).

It is quite challenging to define the training teacher’s role. The difficulty lies in the requirements and tasks assigned to this position (Gilles & Willson, 2004). Research about this subject suggests a wide range of duties assigned to the training teacher as part of his/her responsibilities. These tasks include training and coaching, acting as a role model for the trainee, acting as an agent of change, and helping to stimulate reflective evaluative thinking that amounts to emotional and moral support (Feiman-Nemser, 2001; Lazovsky & Riechenberg, 2005; Runyan, 1999). Rengolde suggested (2009) that three main complex functions are assigned to the cooperating teacher: training the student with a social perspective, focusing on guidance on subject matter, and managing students using an emotional approach.

The work of a training teacher requires a stable relationship and partnership between the school, the training teacher, and the academic institution. This liaison entails facing many challenges and obstacles, such as overcoming the difference in institutional culture and organizational goals, which may limit the opportunities to succeed. The most productive collaboration is one that allows a “working space” for all parties involved in the educational process. It is based on respecting the other partner’s views, discussing mutual proposals, and setting common goals, expectations, and approaches before moving forward (Greany & Brown, 2015). Aria (2001) sees the partnership between educational institutions and schools as an opportunity for simultaneous development for all parties, whether student trainees, academic counselors, and training teachers.

In recent decades, there have been many improvements in practical education, most notably the Professional Development Schools (PDS) model, which focuses on strengthening the partnership between the schools where teachers gain practical experience and the academic institutions where they study (Clark, 1990; Goodlad, 1990). According to the PDS model, academic institutions provide theoretical knowledge for applied schools, and in return, schools provide practical and applied knowledge related to teachers’ work and the school system. The PDS model brought changes to the training teacher’s role in practical and applied training. These changes mainly depended on nurturing the relationship between the cooperating teacher and the trainee students, making it more balanced. In PDS, trainees learn to be teachers by collaborating with their colleagues, primarily through receiving support and advice from a training teacher. This type of application is a positive experience that

exposes students and teachers to real decision-making methods through interaction with various education partners (Ariav, 2001; Zelberstein, 1995).

Teacher training schools in Israel combine different types of practical training: traditional training, the PDS model, and the Academy-Classroom model, which is examined in the present study.

Academy-Classroom Model

The Academy-Classroom model is the most recent practical training program adopted by the Ministry of Education in Israel. The model was developed when a gap was recognized between the needs and the reality of schools and how academic institutions prepare their teachers. This inconsistency needed to be bridged through practical efforts from both sides (schools and academic institutions). Another insight that contributed to the project was an acknowledgement of the need to deepen and support the participation of academic institutions in working to achieve the goals established by the education system (Chadash, 2016). Two theories serve as the background of this model: constructivism and the theory of cooperative teaching and learning (Maskit & Meburach, 2013).

One of the most important goals of this model is to help schools' have a more prominent intervention in the professional qualification of future teachers (Ministry of Education, 2014). The model relies on building a strong alliance between academia and schools to find solutions to various issues such as fostering meaningful learning in the classroom and improving the quality of instruction of trainee teachers, as well as the quality of the professional development of training teachers.

The Academy-Classroom model is based on the principles of the PDS model, which was implemented in Israel decades ago. Still, the Academy-Classroom model includes broader objectives, associations, and more generous assistance between educational institutions and schools. Through the Academy-Classroom structure, training teachers are recruited through coordinated efforts between the academic institution, represented by the educational counselor and the school administration, and the Ministry of Education's Inspection Department. Moreover, academic institutions provide professional preparation courses for training teachers (Assadi & Murad, 2017).

According to the Academic-Classroom model, third-year teaching students go to schools for 2-3 days each week, studying 12-14 hours per week throughout the academic year. They are coached and mentored by experienced school teachers. Their extensive attendance in schools throughout the week exposes the trainee teachers to a vast and diversified scope of teaching methods. This schedule allows them to plan and complete various educational and scholastic activities that keep pace with technological developments and updates in ministerial teaching curricula.

Through the Academy-Classroom program, the training teacher has particular significance in the learning process by assuming a number of key responsibilities and duties that differ from previous models' practices. The teacher is expected to be a counselor and mediator in the various educational and pedagogical situations that may arise inside and outside the classroom, and to take an active part in the cultural and organizational environment of the school, addressing real-time and individual situations while applying an enriched educational vision that provides the student with a unique perspective.

The requirements and expectations of the Academy-Classroom model demand that the training teachers invest a significant amount of personal and professional time and effort. They must undergo specialized professional courses to meet performance standards.

This model adopts a co-teaching procedure whereby the training teacher and the trainee student work as co-educators to plan, give, and manage lessons, complementing each other's work. A typical practice is that one teaches while the other provides support, alternating roles and offering diverse teaching strategies (Cook & Friend, 1995).

2. Research Questions

Since the inception of the Academy-Classroom model, several academic institutions in Israel have adopted the program, and several studies have examined its potential. However, as far as we know, no research has been done to evaluate the impact of this model based on the actual transformative work it delivers to the training teachers. Hence, this research was organized with the following aims:

1. To examine the changes in training teachers' role performance following the implementation of the Academy-Classroom model.
2. To investigate whether a paradigm change has taken place in the training teachers' roles following the implementation of the Academy-Classroom model. The exploration is centered on participants that have also worked according to traditional models.

3. Methodology

Participants. Forty-four training teachers. All of them applied previously to be training teachers in the PDS model. The teachers are from eight elementary schools in northern Israel and are in charge of third-year teacher trainees majoring in science education.

Research Method. The research included a mixed methodology combining quantitative and qualitative methods.

Quantitative Research. The researchers developed a special questionnaire for the study. The questionnaire compared a traditional model of practical training with the Academic-Classroom model. A group of experts in pedagogical guidance checked its validity. The researchers also examined the reliability of the tool by testing it on a pilot group. The questionnaire included 27 items in addition to open-ended questions. Based on previous studies (Ringgold, 2009), the questionnaire was divided into three categories. The reliability of each category was calculated using Cronbach's alpha coefficients. The results showed a sufficient level of reliability: the first category related to emotional support, and included nine items ($\alpha = 0.78$). The second category related to the training teacher's role as a social guide for the trainee students, and included nine items ($\alpha = 0.82$). The third category related to training teachers' roles as guides on subject matter, and contained nine items ($\alpha = 0.79$). The results of the questionnaire were analyzed using SPSS software.

Qualitative Research. This was done through individual interviews with eight teachers according using semi-structured interviews. The qualitative portion aimed to provide an opportunity for the interviewees to explain in detail their perception of their own role from personal and professional points of view. This section included various open-ended questions, such as: "Tell me about your role as an Academy-Classroom training teacher" or "What changes have taken place in your work as a training teacher under the new model."

Analysis of Qualitative Data. Interview analysis began with an in-depth reading of each interview, focusing on the perceptions of the interviewees. The main ideas were classified, contrasted, categorized, and merged into a common group to create an entire set of categories.

Procedure

Quantitative Questionnaire. The quantitative questionnaire was presented directly to the participants. The purpose of the study was explained, and the participants completed it in voluntarily and anonymously.

Qualitative Research. The participants were chosen at random. The researchers approached them individually to request their collaboration in an academic study, stating that their participation was optional and confidential. The interviews lasted approximately sixty minutes.

3. Findings

The effect of the Academy-Classroom model on training teachers' roles

Quantitative Results Analysis. The mean and standard deviations were determined for the different categories of the training teachers' roles. The Academy-Classroom program and the traditional model were analyzed comparatively using "T" test for paired samples.

The findings indicate (Table 1) a significant increase ($t(42)=3.92$, $p < 0.01$) in the training teachers' roles performance in all categories for the Academy-Classroom model ($M=4.32$, $SD=.49$), when compared with the traditional model ($M=3.68$, $SD=.82$). The results also reveal an important improvement in each role category in the Academic-Classroom model compared to the same category in the traditional model. The data could not confirm a statistically notable difference between the Academy-Classroom's different role categories.

Table 1: The role performance of training teachers in the Academy-Classroom model compared to the traditional model

Category	Traditional model N (44) M (SD)	Academy-Classroom Model N (44) M (SD)	t (42)
Emotional support	3.60 (.85)	4.28 (.56)	4.78**
Social Guidance	3.78 (1.07)	4.44 (.72)	2.49 *
subject matter guidance	3.57 (.76)	4.33 (.50)	5.36**

* $P < .05$ ** $P < .01$

Qualitative Results Analysis. The qualitative analysis of the interviews revealed some relevant issues.

Emotional support. This aspect was the most prominent and vital feature that training teachers appreciated in their role within the Academy-Classroom model. As one of them stated:

It feels to me like a parental relationship, given my generation, experience, and seniority. I deal with the people who work with me without barriers, and listen to them, to their feelings and the difficulties they face, and to their observations. We listen to them and give them notes to help them improve.

Social support. According to the results, the training teachers considered social support, i.e., counseling and integrating trainees into the school's educational social life, as the second essential feature of the Academy-Classroom environment.

One of the training teachers pointed out: "When students come, they are not aware of the 'dance' that is part of how the school runs, so first, we teach them about it. And this makes them understand how the school works."

Subject matter guidance. This aspect was the third most important, and is well expressed by the words of this teacher: "Our job is to help the trainee students realize themselves, and to discuss teaching methods and strategies with them in a manner that is appropriate to the subject and age group of the classes."

Personal responsibility for training and qualifying the trainee students. The qualitative analysis also has denoted strong evidence in favor of interpreting the Academy-Classroom plan as having expanded the authority and competencies of the training teacher. Their judgment can be decisive in determining the failure or success of the trainee student in the practical training. This responsibility seems to reinforce the training teachers' sense of partnership and commitment towards preparing and qualifying the trainee students.

A teacher summarized this, saying: "I feel a great responsibility to qualify them and prepare them to complete our journey."

4. Summary and Discussion

This study has examined the changes in training teachers' work following the implementation of the new Academy-Classroom model for practical training. The study examined the role performance of training teachers under the Academy-Classroom program and explored whether a paradigm shift took place in training teachers' roles.

The results demonstrate a statistically significant increase in the training teachers' role performance in four main areas: social perspective, training with a focus on a subject matter guidance, mentoring students with an emotional approach, and personal responsibility for training and qualifying the trainee students. Based on the findings, it was evident that the main focus of the cooperative teachers' work in the Academic-Classroom program is providing emotional support, followed by social guidance. Providing subject matter guidance was the third most significant theme.

The results also confirmed that, for the training teachers, emotional, social, and pedagogical support was more of a priority than technical and professional involvement. For example, even class observations were not carried out in a purely technical context but rather within an educational process. Such observations were usually preceded by consultation between the training teacher and the teaching trainee. Lessons were also delivered through collaboration, and supported by a session dedicated to discussing the lesson plan and its implementation. The results also show a broader integration in the process of preparing and qualifying the trainee students. The authority and responsibilities of the training teachers are increased, and they believe they have a definite impact on the trainee students' professional/career development. The abovementioned aspects have enforced the training teachers' sense of partnership and trust in guiding the trainees.

Conclusions

The new framework provided by the Academic-Classroom model has enhanced and stimulated the training teachers' functions. In the past, teacher training was a somewhat marginalized role. It lacked some of the characteristics necessary to satisfy practical instruction within the education system. The Academy-Classroom program has built a channel of communication that was previously absent and not fully established, enabling the training teachers to have a critical influence on the personal, social, and professional identity of future teachers.

The results of this study lead us to conclude that the Academic-Classroom model is able to bring about a paradigmatic shift in the role of training teachers' and their work. The training teacher is transformed from a "supervisory" teacher, who undertakes technical and professional tasks, to a comprehensive educator who cares for and supports trainee students (Clarke, 1997; Hatch, 1993; Kettle & Sellars, 1996).

References

- Ariav, T. (2001). Hachsharat morim u-batei hasefer: maarechet yachasim acheret: Teguvot vemachshavot, niyar diyun [Teacher education and schools: a different system of relations – reactions and opinions, a discussion paper]. Paper No 6. Mofet Institute. TA. In Hebrew.
- Assadi, N., & Murad, T. (2017). The effect of the teachers' training model "Academy-Class" on the teacher students' professional development from students' perspectives. *Journal of Language Teaching and Research*, 8(2), 214-220.
- Borko, H., & Mayfield, V. (1995). The roles of the cooperating teacher and university supervisor in learning to teach. *Teaching and Teacher Education*, 11, 501–518. doi:10.1016/0742-051X(95)00008-8
- Chadash, J. (2016). The ethics of practical experience in an Academy-Class program. Ethical Dilemmas in Teacher Training: *Journal of the Mofet Institute*. 59, 9-13.
- Clarke, A. (1997). A coaching practicum for school advisors. *Teaching Education*. 9(1), 69. doi:10.1080/1047621970090110
- Clarke, A. (2007). Turning the professional development of cooperating teachers on its head: Relocating that responsibility within the profession. *Educational Insights*, 2(3), 1–10.

- Clark, R. W. (1996). *What school leaders can do to help change teacher education. AACTE Forum Series.* AACTE Publications, One Dupont Circle, NW, Suite 610, Washington, DC 20036-1186.
- Cook, L., & Friend, M. (1995). Co-teaching: Guidelines for creating effective practices. *Focus on Exceptional Children, 28*(3), 1-16.
- Cornbleth, C., & Ellsworth, J. (1994). Teachers in teacher education: Clinical faculty roles and relationships. *American Educational Research Journal, 31*, 49–70. Retrieved from <http://www.jstor.org/stable/1163266>
- Feiman-Nemser, S. (2001). Helping novices learn to teach. *Journal of Teacher Education, 52*(1), 17-30.
- Gilles, C., & Wilson, J. (2004). Receiving as well as giving: Mentors' perception of their professional development in one induction program. *Mentoring and Tutoring, 12*(1), 87-104.
- Goodlad, J. (1990). *Teachers for our nation's schools.* San Francisco: Jossey-Bass.
- Greany, T., & Brown, C. (2015). Partnerships between teaching schools and universities. *London: UVL Institute of Education.*
- Hatch, D. H. (1993). Early encounters: Coaching in teacher education. In R. H. Anderson, & K. J. Snyder (Eds.), *Clinical supervision: Coaching for higher performance* (pp. 169–181). Lancaster, PA: Technomic.
- Keogh, J., Dole, S., & Hudson, E. (2006). Supervisor or mentor: Questioning the quality of pre-service teacher practicum experiences. Paper presented at the Australian Association for Research in Education Conference, Adelaide, South Australia, Australia.
- Kettle, B., & Sellars, N. (1996). The development of student teachers' practical theory of teaching. *Teaching and teacher education, 12*(1), 1–24.
- Kirk, D., Macdonald, D., & O'Sullivan, M. (2006). *The handbook of physical education.* London, England: Sage.
- Lazovsky, R., & Reichenberg, R. (2005). The new mandatory induction program for all beginning teachers in Israel: Perception of inductees in five school tracks. *Journal of Education for Teaching, 32*(1), 53-70.
- Lev Ary, L. and Smith, S. (2005). The importance of practical experience in building a personal image of the teacher: during training and looking back. *Journal of the Mofet Institute.* In Hebrew.
- Maskit, D. & Meburach, Z. (2013). It is also possible otherwise: Training for teaching according to a partnership model - PDS model peers. *Daphemm, 56*, 15-34.
- Ministry of education, (2014). Academy-Class. Jerusalem. Ministry of Education.
- Runyan, C.K. (1999). Mentoring: aims and assess. *Mid-Western Educational Research, 12*(4), 14-17.
- Rengolde, R (2009). A plan for successful reception of novice teacher. *The Echo of The Garden, 47*, 79-85.
- Zelberstein, M. (1995). Teaching as Practical and Reflective Work: Implications for Training Teachers. A Paper Submitted to the Chairman of the Standing Committee at the Pedagogical Secretariat. Jerusalem: Ministry of Education. In Hebrew.



Positive Thinking Schools: Projects From Teachers

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Abstract

This study was carried out within the scope of the Art of Happiness, Positive Thinking, and Subjective Well-Being Project. Within the scope of the project, 8-session pre-training was provided to teachers to inform them on the scope of positive thinking and in order to support their subjective well-being. Within the scope of positive thinking applications at schools, which formed the second stage of the project, teachers developed and applied their own projects at their schools. In the study, teachers' views on the scope of the projects they applied at schools and the project application process were analyzed. As the study design, the case study design was applied. The study group consisted of 28 voluntary teachers who received positive thinking training in the first stage of the project and were entitled to get a certificate of achievement. Within the scope of the study, teachers planned their projects and reported on the process. In addition, they kept researcher diaries regarding their applications and noted down their observations. In the research process, 28 teachers at 15 different schools developed and applied 17 different projects. The teachers' views were analyzed in the context of interviews, reports, and diaries. In the study, teachers' observations and evaluations regarding positive thinking education realized in the COVID-19 process were discussed.

Keywords: Positive Thinking, Positive Schools, Education, Projects, COVID-19

Introduction

Positive thinking is a thinking style that emphasizes what is positive and aims at producing constructive solutions rather than being problem-oriented. In this style of thinking, the difficulties and adversities experienced in life are not ignored, but suggestions for solutions to these problems that will increase the quality of life are tried to be developed. It is aimed to keep one's moral high by focusing on positive situations in life, noticing what one already possesses, and based on this, producing constructive solutions to adversities. An individual's perspective of events stands as the most important element that shapes his/her life (Lyubomirsky, 2001).

Researchers emphasize that thinking style can be learned through lives in the surroundings and that this can

positively affect an individual's behaviors and perspective of life (Schwardz & Begley,2002; Friedrickson,2010; Gür,2018; Seligman,2012; Gür,2021). It has been stated in studies conducted that an individual learns from his/her surroundings to think in a negative way, to be pessimistic, and to develop life patterns for adopting a lifestyle-oriented towards developing addictions, but that s/he can also learn to think positively, to look at events from different perspectives, and to develop life patterns aimed at adopting a lifestyle-oriented towards improving the self and being able to overcome adversities more easily (Gür,2018; Siegel & Bryson, 2018; Doidge, 2019; Young et al., 2019; Schweizer et al., 2020). Many research that emphasizes the positive thinking approach points out the importance of positive thinking applications at schools (Jarrar,2013; Wang et al., 2017; Malloy et al., 2018; Roman, 2018).

Background of the Study

This study was planned on the basis of the findings of a study that was previously conducted. Based on the study findings obtained from the literature that indicate the negative effects of the COVID-19 process on students' emotional status (Susilawati, & Supriyatno, 2020; Zacoletti et al.,2020; Chaturvedi et al., 2021), a small-scale qualitative study carried out through face-to-face interviews with 15 parents was conducted. The parents were accessed through snowball sampling method, the voluntary parents were asked questions during online interviews held, and audio recording was made. In the study, the parents were asked about the effects of the COVID-19 process on their children and their educational process as well as about their expectations in this context. The parents included 9 mothers and 6 fathers, and 5 parents had children going to primary school, 5 parents' children were attending secondary school, and 5 parents' children were high school students. The questions were prepared as semi-structured questions, and expert opinion was obtained. The parents' responses were confirmed by presenting them to the parents in written form, coding was performed by the researchers separately, and it was determined that the codes were consistent. Content analysis was performed for the parents' responses. When the parents' responses were evaluated, it was seen that their children's lives were mostly focused on playing computer games, the children moved away from active life and became passive, they could not improve themselves, and that they became more sensitive and angry. The parents indicated that their children became weak in academic terms, their social skills weakened, and they could not participate in social activities; the parents also expressed that they would support their children's participation in activities in which they could feel valuable and improve their communication/interaction skills. The table including the parents' responses is presented below:

Table 1: Parents' comments on the effects of the COVID-19 process on their children and their educational process, and their expectations in this regard

Theme	Sub-themes	Codes
Parents' Views	The effects of the COVID-19 process on their children's general situation	Spending too much time playing computer games Passive lifestyle Being unable to improve themselves Being more emotionally fragile and sensitive Losing temper easily - tension
	The effects on children's educational process	Being academically weak/inadequate Uncertainties in the educational process causing anxiety Social skills becoming weak Withdrawing from/cutting ties with social life
	Expectations	Projects/studies that children can participate in and that support them Children feeling themselves valuable Different choices other than games that will attract the attention of children Studies by which they can be productive and socialize in the online environment despite the COVID-19 process

Based on these findings, it was considered that carrying out a study that would produce projects at schools in the context of positive thinking would meet the need in this regard. Accordingly, (due to the COVID-19 pandemic conditions) online interviews (over Zoom) were held with 10 teachers who worked in Nicosia in Northern Cyprus and who volunteered to participate in the study, and they were informed that they would first receive training and then develop projects at schools. Also, they were asked their opinion about the project on positive thinking. All teachers, 3 of whom were working at primary schools, 3 working in secondary schools, and 4 working at high schools, stated that such a project was needed and that they wanted to take part in this project, which they thought was needed by both themselves and the students. The table including the teachers' views is presented below:

Table 2: Teachers' Views on Positive Thinking Applications in the COVID-19 Process

Theme	Sub-themes	Codes
Teachers' Views	Perspectives on the project process in the context of positive thinking	There is a need for such studies in the COVID-19 process Such studies are always needed It may contribute to teachers in terms of their own personal development It may contribute to the students' development

Both findings in the literature and preliminary findings obtained prior to the study pointed to the importance of a project in the context of positive thinking. In this context, the teacher training stage of “The Art of Happiness: Positive Thinking, and Subjective Well-Being Project” was planned.

The Art of Happiness: Positive Thinking, and Subjective Well-Being Project is a psycho-educational project realized as mother and teacher training, which was funded by Northern Cyprus Prime Ministry Fight Against Drugs Committee with UMK202102 number and carried out with the cooperation of Northern Cyprus Prime Ministry Fight Against Drugs Committee, Northern Cyprus (NC) National Education and Culture Ministry Common Services Department, and Cyprus International University. The main aim of the study is to contribute to the well-being of mothers, teachers, and students through positive thinking education. The project was supported by Nicosia Turkish Municipality, Kyrenia Municipality, Değirmenlik Municipality, and Gonyeli Municipality in terms of public announcement of the project, and NC Turkcell and Elite hospital financially sponsored the project. Within the scope of the project, 392 teachers and 76 mothers received positive thinking and subjective well-being education in the 2020-2021 academic year. Teacher training was provided to all teachers in general in the fall semester, and in the spring semester, the education continued in four different groups as pre-school teachers, guidance and psychological counseling teachers, classroom teachers, and branch teachers-school administrators. In this context, teachers carried out application studies at schools. A different researcher for each group assumed the leadership of the group. Activities were done with other groups, and an activity booklet preparation process was carried out. Branch teachers-school administrators group designed projects and applied them at their schools. Researcher 1 assumed the leadership of the group. The study here involves the applications of the branch teachers-school administrators group.

The fall semester education process carried out in the first stage of the project consisted of 8 sessions. In this process, it was aimed to explain to the teachers the scope of positive thinking and subjective well-being and to support the teachers' subjective well-being individually. The sessions were planned to be once a week for 60 minutes. Following the fall semester education, an achievement exam was held, and successful teachers were granted certificates of achievement by TRNC National Education and Culture Ministry. The teachers who succeeded in the exam were entitled to apply for the studies within the scope of "positive thinking applications" continuing in the spring semester.

60 teachers applied for the branch teachers group studies (the total number of branch teachers-school administrators was 117 at the initial stages), and due to the prolonged COVID-19 process and continuation of interruption of education at schools in contrast to the expectations that the pandemic would end by the spring semester, the project studies at schools were planned to be in the form of distance education. 32 teachers withdrew from the study stating that they would not be able to carry out the project application process with their students online. The second stage studies were conducted with 28 branch teachers and school administrators.

In the second stage of the project in the spring semester, education process on positive thinking studies at schools was carried out with branch teachers and school administrators, and meetings were held on project applications that could be conducted at schools. The teachers developed their own projects in order to apply them at their schools. A 9-hour education program was provided to the teachers, and 5 meetings were held. As the education process was continued in the form of distance education at schools due to the pandemic, education sessions and meetings were held online over Zoom software. Along the process, information about positive thinking applications at schools, the issues that should be considered while working with students, project writing stages, and reporting was provided. The teachers independently decided with their students about the content and type of the projects on positive thinking. In this context, they planned their projects and reported on the process. With regard to the project applications carried out at schools with the teachers, answers to the following questions were sought within the scope of the study:

- What kind of projects did the teachers develop in the context of positive thinking?
- How did the teachers evaluate the project application process at schools?

Method

Study Group:

The study group consisted of 28 voluntary teachers who received education in the fall semester and were granted a certificate of achievement. The table including information about the teachers' branches, genders, projects and grade levels is presented below.

Table 3: Information about the teachers' branches, genders, projects, and grade levels

Teacher No.	Project Name	Gender	Branch /Field	Grade Level
1	Helping Stray Animals Project	Female	Information and Communication Technologies	6th Grade
2	Helping Stray Animals Project	Female	Information and Communication Technologies	6th Grade
3	Helping Stray Animals Project	Male	Turkish	6th Grade
4	Happiness is in My Hands	Female	Visual Arts	4th grade
5	Happiness is in My Hands	Female	Visual Arts	4th grade
6	I Am Succeeding	Male	GPC	12th Grade
7	I Am Succeeding	Male	Administrative Staff	12th Grade
8	I Am Succeeding	Male	Administrative Staff	12th Grade
9	I Am Succeeding	Male	Metal Technologies	12th Grade
10	I Am	Female	Chemistry	12th Grade

11	Succeeding People Who Shaped History	Female	History	10th Grade
12	The Child Seeking Happiness	Female	Turkish Language and Literature	6th Grade
13	The Child Seeking Happiness	Female	Visual Arts	6th Grade
14	The Child Seeking Happiness	Male	Administrative Staff	6th Grade
15	The Child Seeking Happiness	Female	Administrative Staff	6th Grade
16	Travel to My World Through Art	Female	Visual Arts	8th grade
17	Science in the Digitalizing World	Male	Science and Technology	6th/8th grade
18	Positive Thinking	Female	Turkish Language and Literature	11th grade
19	The Art of Music and Happiness	Female	Music	1st- 5th grade
20	Happiness Begins at Home	Male	Administrative Staff	All secondary school grade levels
21	Happy Snacks with Vegetables	Female	Science and Technology	8th Grades
22	A Breeze of Happiness in the Nature	Female	Visual Arts	1st and 2nd grades
23	Happy Little Scouts	Female	English - Scouting Club	5th Grade
24	Make a Wish and Be Happy	Female	Mathematics	6th Grade
25	Make a Wish and Be Happy	Female	Music	6th Grade
26	Happiness with Songs	Female	Music	5th Grade
27	The Art of Happiness	Female	Turkish Language and Literature	10th Grade
28	Am I Aware?	Female	Visual Arts	6th Grade

When the distribution of the teachers according to their genders is examined, it is seen that 20 teachers were female, and 8 teachers were male. Considering their branches, it is seen that 2 teachers were from the field of information and communication technologies, 1 teacher from Turkish, 6 teachers from visual arts, 1 teacher from guidance and psychological counseling, 5 teachers from the administrative staff, 1 teacher from metal technologies, 1 teacher from chemistry, 1 from history, 3 from Turkish Language and Literature, 2 from science and technology, 3 from music, 1 from English, and 1 from mathematics. The grade levels of the teachers ranged from 1st grade to 12th grade.

Study Design:

Case study design was chosen as the study design. Case study involves investigating a current context or a situation. A case study is a type of qualitative research in which detailed in-depth data are collected about multiple bounded systems or cases within a current bounded system, case, or a certain time period through

multiple information sources such as observations, interviews, and reports, and a case description is put forth (Bal, 2016). Within the scope of the study, teachers planned their projects and reported on the process. In addition, they kept researcher diaries regarding their applications and noted down their observations; at the end of the semester, researcher 1 held online interviews with the teachers on an individual basis (about 30 minutes), and the teachers expressed their observations and experiences related to the process.

Study Process:

With regard to the project applications at schools, during the meetings held with the teachers once every two weeks, the teachers' views on the process and information about the progress of their projects were taken. Thus, effective application of the projects at schools was aimed. The teachers wrote their projects by steps. First, they designed their projects, and then ideas were exchanged about the appropriateness of the projects for application. After that, corrections were made, the stages of the projects were indicated as dates, headings, and contents, and finally, information about outcomes and observations were added to the reports. The projects were planned so as to continue for at least 8 weeks. The teachers kept diaries about their applications, and at the end of the process, they had evaluation interviews through online interviews. In the evaluation interviews, the questions were not structured, but only questions were asked in order to encourage the participants to share their views and experiences, and the questions were shaped according to the progress of the interviews.

Ethical Procedures:

Prior to participation in the projects, the teachers were sent clarifying consent forms. Prior to the research, required permissions were obtained from NC Ministry of Education and Culture. Within the scope of the Art of Happiness: Positive Thinking and Subjective Well-Being Project, permission was taken from Cyprus International University Ethics Committee dated 19/04/2021 and numbered 100-3378. The names of the participants were not disclosed as per ethical procedures, and they were coded with numbers. Participation in the study was on a voluntary basis. The teachers applied their projects with voluntary students by taking permissions from their schools and parents. The names of the students were not included in the study, but only project application process was evaluated.

Analysis of the Data :

In the study process, the data obtained through interviews, diaries and reports were subjected to content analysis. As a result of the analyses, tables that showed themes, sub-themes, and codes were created, and sample explanations related to teachers' views were presented. Codes were evaluated and compared by the researchers independently from each other, and they were found to be consistent. For the two categories which displayed differences under the sub-theme of evaluations, interviews were held with the researchers, and it was decided to evaluate them under the other existing codes instead of adding new codes. The teachers' responses and groupings related to project contents were sent to them in written form and were confirmed by the teachers.

Findings

Within the scope of the study, 28 teachers at 15 different schools developed and applied 17 different projects. Some teachers working at the same school applied their projects in cooperation. The findings related to the projects developed by the teachers in the context of positive thinking and their evaluations regarding project application process at schools are presented below.

Projects developed by the teachers in the context of positive thinking

Information about the developed projects is given in Table 4.

Table 4: General information about the developed projects

Project No.	Project Name	Grade Level	Number of Students	Field	Scope	Application type
1	Helping Stray Animals Project	6th Grade	31	Technology	Environmental Awareness	General group
2	Happiness is in My Hands	4th grade	15	Visual Arts	Communication - Interaction	General Group
3	I Am Succeeding	12th Grade	40	Guidance	Motivation (Exam Motivation - YKS)	General Group
4	People Who Shaped History	10th Grade	7	History	Motivation	Small Group
5	The Child Seeking Happiness	6th Grade	34	Turkish	Competition (Story/Tale Writing)	General Group / Competition
6	Travel to My World Through Art	8th grade	10	Visual Arts	Communication - Interaction	Small Group
7	Science in the Digitalizing World	6th Grade 8th grade	24 30	Technology	Motivation (making education more fun by combining positive thinking with technology)	General Group
8	Positive Thinking	11th grade	14	Literature	Motivation	General Group
9	The Art of Music and Happiness	1st- 5th grade		Music	Motivation	General Group
10	Happiness Begins at Home	All secondary school grade levels	150-200	Game	Communication - Interaction (Promoting child-parent communication-interaction)	General Group - parent work
11	Happy Snacks with Vegetables	8th Grades	20	Science	Healthy life	Studies in small groups
12	A Breeze of Happiness in the Nature	1st and 2nd grades	50	Visual Arts	Awareness of nature and environment	General group
13	Happy Little Scouts	5th Grade	15	Scouting	Awareness of nature and environment - values	General group
14	Make a Wish and Be Happy	6th Grade	20	Turkish and Visual Arts	Communication - Interaction	General Group
15	Happiness with Songs	4th and 5th Grades	20	Music	Communication - Interaction	General Group
16	The Art of Happiness	10th Grade	10	Literature	Motivation	General Group
17	Am I Aware?	6th Grade	20	Visual Arts	Values education	General Group

As can be seen in Table 4, 17 projects were carried out in the fields of Turkish, visual arts, guidance and counselling, technology, science, music, literature, scouting, games, and history at 1st-12th grade levels. While the projects were applied as general group studies, 3 projects were designed as small group studies. One project

was developed for parents, and the others were applied to the students. It was seen that the projects covered environmental awareness, communication-interaction, motivation, healthy life, and values education.



Figure 1: Projects according to their coverage

When the projects are examined in terms of their scope, it can be stated that they were mostly motivation focused projects, which were followed by communication-interaction and environmental awareness projects. There were also projects developed for competition, values education, and healthy life. The teachers developed projects in line with their branches and areas of interest.

Motivation projects aim at promoting students' participation in education process and motivating them. Some statements describing these projects are as follows:

"We observed that the students' motivation decreased in the pandemic process. Being at home and not being at school with their friends somewhat demoralized them. Adapting to the online process and being in the period of exam preparation at the same time may have negatively affected them. Here, we tried to motivate them, to encourage them, to give the message that we were together despite the distance between us, to encourage them to proceed by setting targets together, to give positive messages, and to make them feel that we were with them."

"Students are quickly distracted during online education, and they get bored. They sit passively in front of the computer. Here, I thought about how I could get them involved in the process, albeit online. A student who is active, enjoys the class, is happy to be there, and is encouraged to participate in the lesson and has high motivation for learning. I aimed to make education more fun by integrating positive thinking with technology. I actually saw that motivation was very important in order to get the student involved."

Communication-interaction projects are projects aimed at encouraging students to cooperate and do group work and promoting their communication skills. In this context, a description of a teacher is presented below:

"Sometimes, I find the opportunity to talk with the parents, albeit on the phone. They tell me: 'We cannot know what to do. These kids are always in front of the computer, playing games. We get angry and take away their computer, but then there is no other alternative; they switch to mobile phones or television. They say 'Should we just watch the walls aimlessly? 'We have not been able to offer an alternative for a long time now. Their communication style with their friends has been online games. I think it is necessary for students to experience that they could communicate with each other in different ways, even in the lockdown period, and that they could do things together.'"

"Sharing our thoughts, making constructive suggestions for each other, sharing the products on the screen even if we have prepared them at home and organize an online exhibition by bringing them together, showing efforts in the process, realizing that we are a whole as a class; these are all important, and the student's feeling that s/he is not alone and acting with a group consciousness make his/her participation more effective."

Within the scope of environmental awareness projects, studies related to nature, environment, and animals were

carried out. In the meantime, even though it was not possible to be in the nature, studies aimed at developing awareness were conducted.

“For scouting, setting camps in the nature and doing studies in the nature is important. We set our tents at home due to the pandemic process, we did observations in our backyard, and we shared things with each other online.” In the competition project, the students participated in the competition by writing stories within the scope of “The Child Seeking Happiness.”

“The purpose of this project is to make the students think about the concept of happiness, notice situations and/or events that make themselves and others happy, and to enable them to realize themselves. While entering into the process of participation in the competition by producing a product, they will also realize the importance of the process and improve themselves in the process. The competition will contribute to the students in terms of making efforts to produce higher quality products and improving themselves.”

Regarding healthy life, the following description was made:

“Children consume unhealthy food in front of the screen. This project will both make them conscious and guide them towards doing something in this regard.”

Regarding the values education, explanations made are as follows:

“In the first stage of the project, I almost remembered the values in education in my childhood. Love, respect, elegance, social communication, ... These are important values. I wanted to highlight such values. It is important that our children be raised with these values.”

The teachers' evaluations with regard to project application process at schools

In Table 5, the teachers' views on project applications are presented. Under the views theme, the sub-themes of expectations, difficulties experienced, and evaluations emerged.

Table 5: Teachers' Views on Project Applications

Theme	Sub-themes	Codes
Views	Expectations	Shaping the lives of the students Positive feelings related to the education process Promoting social sensitivity
	Difficulties experienced	Technological problems Student participation problems Lack of motivation created by uncertainty
	Evaluations	Positive feedback regarding the students Professional satisfaction of the teacher

Expectations

When the sub-theme of teachers' expectations of the projects they developed under the theme of their views on project applications was examined, the codes of shaping the lives of the students, positive feelings related to the education process, and promoting social sensitivity emerged.

The code of shaping the lives of the students was the expectation that was expressed the most. Descriptions related to the code are as follows:

In the People Who Shaped History Project, the aim is to analyze how the perspectives and thoughts of the leaders who led the historical events that influenced the whole world and societies affected these events and

what the consequences were, and thus to create an awareness in the students about strong personality characteristics and the power of positive thinking. Previously, when we gave assignments to the students, we used to emphasize mostly the chronological order of the events, causes-effects, and the names and lives of the people who influenced these events. However, with this education, the students will see how important the strong personality characteristics of the people who made these event happen were, and they will come to understand that if one is fighting for a rightful cause, the desired result could be achieved with faith and positive thinking, no matter how long it would take. In this project process, my expectation is that based on the historical figures discussed, the students will see how strong personality characteristics and positive thinking affect the events in a positive direction, they will notice their own strong personality characteristics, and by understanding the importance of the power of positive thinking, they will gain an awareness in terms of applying this in their own lives.”

“I will try to apply my project titled Positive Thinking on 11th-grade child development class. I wish I could access many more students. I shaped my project based on the personality powers that I learned in the positive thinking education I had previously received. The texts that I will use give the students the message that they should see life from a positive perspective. Our aim here is to shed light on the question ‘how can we look at life and ourselves positively?’, and to change our perspective by seeing what is missing in ourselves.”

“The scout camp, which could not be organized for a long time due to the pandemic, was the activity that the scouts liked the most and became happy. For this reason, little scouts will set a scout camp in their homes with their resources. Through the online class applications, the values that should be gained by the scouts will be provided in an order, and activities regarding these values will be organized. Activities such as readings books as a family, doing a kindness, and handcraft will be carried out. Online animations will be watched and discussed together, online games that will promote the values will be recommended to children, songs will be sung, and scouting yells will be performed. Then, children will be asked to prepare banners. All of these activities will be published on the school's website. My main aim in the Happy Little Scouts Project is to develop the students' imagination and creativity, and to ensure that they become curious, productive, and self-confident individuals through various activities, and to help them to adapt to life and be happy. The adversities that have emerged in recent times have led to environmental pollution, distrust among people, and increased violence in society. My expectation from this project is to get my students to acquire basic human values and virtues. Thus, I believe that happy individuals who are recognized by society will be raised.”

Sample descriptions regarding positive feelings related to the education process are presented below:

“Applications, methods, and techniques continuously used may create a passive attitude in students. With the Science in the Digitalizing World Project, I aimed to make the content of education more fun through different application programs and to contribute to students in terms of developing researcher identity, curiosity, attention, interest, and skills. My main expectations from the project are education and learning through fun, use of technology in education, and positive feelings for education.”

“The Child Seeking Happiness Project is a competition project. In the project process, students are expected to produce products appropriate for the process, their skills, and the rules, to become happy to be part of the process, and to understand that the process is at least as important as the result and that learning is as precious as winning the competition.”

Statements regarding promoting social sensitivity code are presented below:

“We determined the content of the Helping Stray Animals Project together with our students. While we were discussing what kind of project we should do, the students expressed that they wanted to do something for stray animals. Accordingly, as their teachers, we directed them to work in line with this project. We asked our students to take photos of stray animals in their neighborhood, to create banners in this regard, and to include both photos and slogans in the banners. In addition, we asked and supported them to prepare an online exhibition to display all the work done. Our aim in the ‘Helping Stray Animals Project’ is to create awareness in society

through the virtual exhibition we will organize. It is important for us to create an awareness, no matter how small it is, in the society with our students with this project. We aimed to contribute to ensuring that society is more sensitive to the stray animals in their surroundings.”



Figure 2: Teachers' Views on Project Applications

Difficulties experienced

Under the theme of difficulties experienced, the codes of technological problems, student participation problems, and lack of motivation created by uncertainties emerged. Some sample explanations related to these codes are as follows:

“Some of our parents experience difficulties with the Internet. There is only one computer at home, and it is used by the oldest child of the family. The younger children have access through their parents' mobile phones when they arrive back from work. This leads to the interruption of education.” (Technological problems)

“The pandemic process has made the online education process inevitable. We had to apply the projects online due to the process. The Internet may pose problems for some students. For example, connection is frequently lost, and the student cannot access the system. If the child is too young, the parents have to support them for online education, but some parents cannot even solve the slightest problems that may occur. Then, the student cannot participate in education on that day. I think parents should receive training on online issues and they should be supported in this regard.” (Technological problems)

“The lessons being online and lasting 30 minutes due to the pandemic process has been a restricting factor in terms of applications. The online process negatively affects project applications. Therefore, I did the applications in the last lesson hours on Fridays in order for the lessons not to be interrupted.” (Technological problems)

“Some parents believe that online lessons are not efficient. They may not care whether their children take part in the lesson or not. Some say that their mental health is not good, and that the pandemic process tired them as well. This, of course, negatively affects the participation of the students in lessons. The same situation is true for all kinds of studies done.” (Student participation problems)

“There are many students who could not adapt to the online process. Even though they participate, they turn off the screen and the sound. You never know if they are there or not, whether they are playing games, and what they are doing. You cannot tell whether they are participating or not. It was not always possible to understand what the students were doing when it was not a school environment. And this makes the education process rather difficult. For this reason, if there are, say, 30 students in the class, that means you are making the applications efficiently with the participation of 10-15 students. This is because it is important in terms of making evaluations to see student participation, to get feedback, and for them to participate in the studies voluntarily.” (Student participation problems)

“Everyone lacks motivation. Their reasoning is ‘when the pandemic is over, then we will do.’ Uncertainty has demotivated many individuals. This is something that I observe in teachers, students, and parents. In this sense, I believe such projects may make positive contributions. To be honest, this was the reason why I emphasized motivation in my project. Still, it was not possible for me to involve all my students in the process and to bring them together. Do you know why? Because I did not have the opportunity to explain the project to all of them. That would have been easier in the face-to-face process. Despite everything, we still went through a very efficient process.” (Lack of motivation created by uncertainty)

The teachers' evaluations with regard to project process

In the context of the teachers' evaluations regarding the project process, the codes of positive feedback regarding the students, and teacher's professional satisfaction were obtained.



Figure 3: Teachers' evaluations regarding the project process

Some sample explanations related to the teachers' evaluations regarding the project process are presented below: “I decided to determine the students who will participate in the project on a voluntary basis as the education process was online. It was nice to see that my students were voluntary and enthusiastic and that they turned in their assignments before the due date. Another point that attracted my attention was the historical events and figures they chose, such as, The Conquest of Cyprus-Selim II, Malazgirt Battle-Alparslan, Turkish National Struggle in Cyprus-Dr. Fazil Kucuk. The positive aspects of the project were that the students voluntarily and enthusiastically investigated the leaders and historical figures who shaped history, discovered their powerful sides and noticed the effect of positive thinking on events (rightful struggles). It was important that I myself realized how important the power of positive thinking with the education I received and I got my students to notice this as well as a result of this project. Our students, who were under great stress and lost their hopes due to the pandemic, expressed as a result of the project that they understood the importance of positive thinking, and that they would apply it in their lives, which made me very happy”. (Positive feedback regarding the students)

“I believed that an awareness would develop in my students. And it actually happened that way. We, as human beings, are actually aware of everything. What we need is only to be encouraged by others and to be reminded that the light of hope is always inside us and that it will never fade away. I found the opportunity to apply the study in the last lessons on Fridays. I and my students turned on our screens, and I shared the texts with them in a casual chat manner. My students were curious about what I would share every Friday. In this process, I observed that my students had different ideas as they were raised in very different environments. From time to time, I felt very sad. They had many troubles in terms of their family lives, financial difficulties, etc. These must have naturally affected my students' perspectives of life negatively. Along with the process, they understood the importance of positive thinking in the face of events, and that they should value themselves. These project process applications formed a different bond between me and my students. We still share things in the last lessons on Fridays. It has turned into a motivation lesson for them.” (Positive feedback regarding the students)

“The project had the students feel the value of technology in a positive way in the cooperation process between the students and the teacher. Apart from taking a picture of a child using a technological device, using earphones for recording the songs for the process and audio recording programs of mobile phones to create music pieces, and using electronic communication devices in delivering all these to the teacher, using different types of clips and programs in order to bring all these together can be considered an important value in terms of presenting an important development to the society and the people who perform this job as a role model. It was observed that

the students felt being valued by their parents and the teacher through concrete examples in this context, and the teacher's attitude with regard to valuing each other even if we cannot see each other positively motivated the students and the parents in terms of encouraging the students and the parents. While the students saw each other in the same frame, they made positive comments about the change and development in themselves." (Positive feedback regarding the students)

"We observed that the parent-child relationship improved through games. In the interviews we held with the parents, they mentioned that they got to know their children more closely, they spent more quality time, and a positive atmosphere was formed in their homes. The quality time spent at home with the child positively affects both the child's and the parent's quality of life. I can comfortably say these based on both the feedback I received from the teachers and the parents and my own observations. Another result that I observed in this project was that the parents with less economic power spared more time and showed more effort for the studies aimed at spending quality time at home through games." (Positive feedback regarding the students)

"It was observed in the process that the children gave positive feedback about different education methods used and that they participated in the lesson till the end without losing their motivation. It was noticed that they looked forward to the next lesson in curiosity about the subject to be applied. We observed that although we were in a stressful education process in the pandemic period, in the weeks we applied this project, our students participated in the lessons as if we had never experienced the pandemic and contributed to the project with high motivation ignoring all adversities." (Positive feedback regarding the students)

"I observed that my students were excited about what they would do in the project process, that they became happy with the feeling of achieving a task when they saw the outcome as a result of the project, and that they felt valuable... I think especially preparing the project in the COVID-19 pandemic process when they were away from their schools, isolated at home, and away from their friends and social environments turned their negative feelings into positive ones to a certain degree, provided them with some fun, enabled them to socialize at a certain level, and changed their perspectives of this process. I believe it has been a productive, supportive, and educating process for them." (Positive feedback regarding the students)

"While they were writing their stories about happiness, they revealed the events that made or could make them unhappy. They started the writing journey by not knowing what and how to write and not being able to write anything, but they proved to be quite good in the process. Although they were hesitant about writing at the beginning as they came to their schools through a multiple-choice test and they had spent the last few years preparing for the entrance exam, but they later felt more comfortable. Seeing what they could do through the feeling of creating their own protagonists and keeping them under control enabled them to trust themselves in this respect. At the beginning of each class, we talked about their stories for a few minutes. They gave each other ideas while they were telling what they planned about their protagonists. Besides, while they were fictionalizing their stories and after they finished them, they got their families' opinions. They improved themselves in spelling rules, correct use of punctuation marks, and writing essays. Most importantly, they owned their stories a lot. They would call it 'my story' rather than just 'a story.' (Positive feedback regarding the students)

"As a teacher, it made me very happy to see that their lack of motivation which I previously observed started to disappear, they have revived again, and they started to motivate each other. Especially the last year when we would collect the fruits of the preparation process for the university entrance exam was very important for our students, and losing their motivation was a situation that would negatively affect their future careers. Developing and applying a project in this regard made a positive contribution in the preparation process. Frankly, I was satisfied as an educator who applied this project when my students developed a faith that they would succeed in the exam, set a target, studied in this direction, and shared ideas that would encourage each other." (Teacher's professional satisfaction)

"...“In this sense, I felt that when good things came together, they would become stronger, and that I managed to integrate into education the process of utilizing the powers of humanity that brought people together even in difficult times through both student and family education. As a result, the percentage of student participation in

class increased every passing day thanks to this study. As an educator, I myself draw my energy from their happiness.” (Teacher's professional satisfaction)

Discussion and Conclusion

The findings of the study are discussed below under the headings of the projects developed by the teachers in the context of positive thinking and their evaluations regarding project application process at schools.

Developed projects

Within the scope of the study, the teachers first received training on positive thinking in the fall semester, and then, in the spring semester, they developed their own projects and applied them at their schools. In line with the branches and duties of the teachers, 17 projects were carried out in the fields of Turkish, visual arts, guidance and counselling, technology, science, music, literature, scouting, games, and history. It was seen that the projects were mostly applied as general group projects. It is thought that the low number of the projects that proceeded as small group studies may have been related to the difficulty for the teachers to access and guide multiple small groups due to the pandemic process. Only one project for the education of the parents was carried out, and all the other projects were planned to be student-oriented.

Teachers' displaying an attitude towards carrying out the projects with students that they could have access to in a distance education process in which even student participation was difficult was seen as an acceptable justification for the project to be implementable. It was seen that the projects covered motivation, communication-interaction, environmental awareness, healthy living, and values education. 6 projects were designed as motivation projects, 5 projects as communication-interaction projects, 3 projects as nature/environmental awareness-sensitivity projects, 1 project as values education projects, 1 project as competition, and 1 project as healthy life project. Various studies conducted indicate that the COVID-19 process has affected student motivation negatively (Susilawati, & Supriyatno, 2020; Zacoletti et al., 2020; Rahman et al., 2021). According to Holzer et al. (2021), studies in which students feel competent have an impact on positive emotions. And this promotes students' motivation. Richardson and Hamlin emphasize that nature and environmental awareness support well-being and positive emotions in students. Here, it is important that students feel themselves competent and think that they make a contribution. Students' feelings of having improved themselves, relaxation, being appreciated, being productive, and making a contribution, and being in communication even at a distance increase their well-being. The teachers' observations and their statements about the scopes of the projects were in this direction. Rahman et al. (2021) emphasize the importance of communication-interaction focused and distance education focused studies in the context of supporting motivation and well-being in students in the COVID-19 process.

The teachers' views with regard to project application process at schools

As a result of the analysis of the teachers' views, the sub-themes of expectations, difficulties experienced, and evaluations emerged. The teachers' expectations of the projects they developed point to the codes of shaping the lives of the students, positive feelings related to the education process and promoting social sensitivity.

The code of shaping the lives of the students was the expectation that was expressed the most. With the perspective of shaping the lives of the students, the teachers tried to design projects that emphasized the importance of thinking positively by benefiting from the technology, contributed to the awareness of the students based on various examples, were supported with examples and descriptions that they could adapt to their lives, and made them creative and productive. In their evaluations on the code of positive emotions related to the education process, the teachers expressed views such as making the process fun, encouraging the students to participate rather than being in a passive status, using the technology in an effective way, making the students feel themselves a part of the process, and motivating them to develop products in line with their skills. With regard to the code of promoting social sensitivity, it was aimed for the students to develop sensitivity projects to raise social awareness together, and to do studies to contribute in this respect. As for the use of technology, it

was observed that teacher-student and student-student communication and interaction were kept alive with the effective use of WhatsApp groups, Google Classroom, Zoom, and Microsoft Teams programs, and thus the students actively participated in the process by providing feedback to each other and their teachers. Also, the virtual exhibitions organized together with the students at the end of the process provided feedback about the studies for both the students and the parents and enabled the students to see the project process as a whole in a concrete form.

As regards the difficulties experienced, it was seen that the teachers commented on the codes of technological problems, student participation problems, and lack of motivation created by uncertainties. Within the scope of these comments, the views expressed by the teachers were students' internet access problems, inability to produce home-based solutions in terms of technology, the pressure to follow the academic curriculum in a limited time period due to shorter lesson periods in online education, drop in the students' motivation for education in the online process, and the uncertainty in the pandemic process causing the students to postpone certain targets and lose their motivation. It is thought that the low motivation of the students due to the pandemic process prevented them from producing solution-oriented approaches in terms of technology. However, it was also observed and expressed by the teachers that the students displayed more active participation in the project process. In this context, it can be stated that students show more effort to participate in the studies which attract their interest and in which they can be more active.

In the context of the teachers' evaluations regarding the project process they carried out with their students, descriptions were made regarding the codes of positive feedback regarding the students and the teacher's professional satisfaction. The descriptions made with regard to positive feedback regarding the students were that the students explained to their teachers that they adapted what they had learned to their lives by giving examples, the teacher-students bond became stronger, the students supported communication with each other, they showed efforts to produce creative products, and they made statements about using time in a more qualified way. Within the framework of the teacher's professional satisfaction, the teachers made statements on their feeling satisfied with observing their contribution to the positive developments in students and the increase in their motivation and participation in the education process, and their feeling happy due to observing that their students were happy.

In the study they conducted, Achterberg et al. (2021) stated that both students and parents entered a negative emotional period along with the lockdown process experienced due to the pandemic and could not develop positive coping strategies and that this situation was reflected in students' behaviors, and situations such as continuously saying that they are bored (negative emotional expressions and becoming passive), drops in participation in school activities and spending more time on social media and games emerged. The COVID-19 process has negatively affected the communication and interaction between students and caused them to spend time ineffectively in a passive manner (Andrews et al., 2020). Social isolation has negative effects on the brain and behaviors. In cases where face-to-face social interaction is not possible, activities in which technology is used to support social communication and interaction may lessen these negative effects (Orben et al., 2020). Susilawati & Supriyatno (2020) emphasize that technology can be effectively used in order to promote students' participation and motivate them. Yustina et al. (2020) point out that technology-based projects that are built upon well-designed and effective student-teacher interaction promote students' motivation and participation in the COVID-19 process. Studies that will attract students' attention, support their social interaction, and make them feel competent make important contributions to them in terms of participation, motivation, and effective gains (Sitar-Taut, 2021). Pelikan et al. (2021) found that the students who felt themselves competent could better cope with the difficulties they experienced in independent learning, effective time management, motivation, task-oriented working, distance learning, and peer interaction and that they could display more solution-oriented approaches. Studies conducted present evidence that positive thinking applications positively support the students' motivation for the education process, their social communication, their effective problem solving skills when faced with difficult situations, and their self-competence (Jarrar, 2013; Wang et al., 2017; Roman, 2018).

As a result, based on the teachers' observations and comments, it can be stated that the projects designed by teachers in line with their branches in order to promote positive thinking and carried out online (technology

supported) and with effective teacher-student communication contribute to the students' social communication and motivation and that the students try to implement positive thinking in their lives.

However, the fact that 32 out of 60 teachers who applied in the context of project applications at schools at the beginning of the study withdrew from the study on the grounds that they could not carry out technology-oriented studies as a result of the inability to shift to face-to-face education process was a situation encountered in the study. In this context, it can be stated that teachers are in need of being supported in terms of ensuring student participation by effectively integrating technology into education.

It is possible to claim that the developments experienced in the technological field with the advent of the information age have deeply affected educational activities just as they have influenced all aspects of life. Ignoring the problems resulting from the users (lack of equipment, lack of the Internet, being unable to solve technological problems, etc.), as a result of the pandemic process that has had impacts all over the world, it has been proven that technology can effectively assist educational activities. It can be stated that the effects of this radical change experienced along with the process will be felt more in the educational activities. Especially with the integration of new technologies (smart devices, distance learning systems, virtual reality, etc.) and the Internet into the education process, technology and education have intertwined as never before.

Based on this, it can be stated that providing the teachers with training on positive thinking in order to promote the students' effective education process and social-emotional well-being and developing and applying projects at schools that will support positive thinking will positively support the students, and the fact that technology can be used as a part of this process should also be considered. Besides, the situation of the students who experience difficulties in participating in online education should not be disregarded, and in this context, training on efficient and effective use of technology should be provided to both students and parents.

In addition, based on the fact that teachers' feeling emotionally well will reflect on their students, it can be suggested that training programs that will support their well-being in processes such as the COVID-19 process which affect the world or the society should be organized. Also, considering that the parents' emotional well-being will be an effective factor for their children, parent training programs aimed at positive thinking will also make meaningful contributions to the students.

The data of the study are limited to the observations and views of 28 teachers, and the content analysis of the 17 projects applied by these teachers at their schools. Further research is needed in this regard in order to make generalizations by obtaining more valid data.

References

- Achterberg, M., Dobbelaar, S., Boer, O. D., & Crone, E. A. (2021). Perceived stress as mediator for longitudinal effects of the COVID-19 lockdown on well-being of parents and children. *Scientific Reports*, 11(1), 1-14. <https://doi.org/10.1038/s41598-021-81720-8>
- Andrews, J. L., Foulkes, L. & Blakemore, S. J. (2020). Peer influence in adolescence: public-health implications for COVID-19. *Trends in Cognitive Sciences*, 24, (8), 585–587. <https://doi.org/10.1016/j.tics.2020.05.001> Available at: <http://repository.uin-malang.ac.id/6923/1/6923%20jurnal%20UM%202020%2013670-20567-1-SM.pdf> (Accessed: 16.07.2021)
- Bal, H. (2016). Nitel araştırma yöntem ve teknikleri (Qualitative research methods). Istanbul, Turkey: Sentez.
- Chaturvedi, K., Vishwakarma, D. K., & Singh, N. (2021). COVID-19 and its impact on education, social life and mental health of students: A survey. *Children and youth services review*, 121, 105866. <https://doi.org/10.1016/j.childyouth.2020.105866>
- Doidge, N. (2019). *Kendini değiştiren beyin* (Self-changing brain). Istanbul, Turkey: Pegasus.
- Friedrickson, B. (2010). *Positivity: Top-notch research reveals the 3 to 1 ratio that will change your life*. USA: Harmony
- Gür, Ç. (2018). Erken çocukluk dönemi ve gelişim (Education in the early years). *Erken çocukluk döneminde gelişim (Development in early childhood)* (pp.1-24) C. Gur (Ed.). Ankara, Turkey: Pegem Akademi.

- Gür,Ç., Eser,B.; Taşkentli,G.D.; Sultanoğlu,D., Gürdörük,S., Gümüşören,C. & Erlinoğlu,N. (2021). Okul öncesi eğitimde pozitif düşünme ve etkinlik örnekleri (Positive thinking and activity samples in early childhood education). Ankara, Turkey: Anı.
- Gür,Ç., Koçak,N. & Demircan,A. (2016). *Okul öncesi dönemde çok boyutlu bakış açılarıyla düşünme eğitimi (Multidimensional thinking education in preschool period)*. Ankara, Turkey: Anı.
- Holzer, J., Lüftenegger, M., Korlat, S., Pelikan, E., Salmela-Aro, K., Spiel, C., & Schober, B. (2021). Higher education in times of COVID-19: University students' basic need satisfaction, self-regulated learning, and well-being. *Aera Open*, 7, 23328584211003164. <https://doi.org/10.1177/23328584211003164> (Accessed: 16.07.2021)
- Jarrar, A. G. (2013). Positive thinking & good citizenship culture: from the Jordanian university students' points of view. *International Education Studies*, 6(4), 183-193. EJ1067597
- Lyubomirsky S. (2001). Why are some people happier than others? The role of cognitive and motivational processes in well-being. *American Psychologist*, 56(3), 239-249. <https://doi.org/10.1037/0003-066X.56.3.239>.
- Malloy, J. M., Bohanon, H., & Francoeur, K. (2018). Positive behavioral interventions and supports in high schools: A case study from New Hampshire. *Journal of Educational and Psychological Consultation*, 28(2), 219-247. <https://doi.org/10.1080/10474412.2017.1385398>
- Orben, A., Tomova, L., & Blakemore, S. J. (2020). The effects of social deprivation on adolescent development and mental health. *The Lancet Child & Adolescent Health*, 4(8), 634-640. [https://doi.org/10.1016/S2352-4642\(20\)30186-3](https://doi.org/10.1016/S2352-4642(20)30186-3)
- Pelikan, E. R., Lüftenegger, M., Holzer, J., Korlat, S., Spiel, C., & Schober, B. (2021). Learning during COVID-19: the role of self-regulated learning, motivation, and procrastination for perceived competence. *Zeitschrift für Erziehungswissenschaft*, 24(2), 393-418. <https://doi.org/10.1007/s11618-021-01002-x>
- Peterson, C.(2009). Positive psychology. *Reclaiming Children And Youth*. 18 (2): 3-7. ISSN 1089-5701.
- Rahman, M. H. A., Uddin, M. S., & Dey, A. (2021). Investigating the mediating role of online learning motivation in the COVID-19 pandemic situation in Bangladesh. *Journal of Computer Assisted Learning*.: 1-15. <https://doi.org/10.1111/jcal.12535>. Available at: <https://onlinelibrary.wiley.com/doi/full/10.1111/jcal.12535> (Accessed: 16.07.2021)
- Richardson, M., & Hamlin, I. (2021). Nature engagement for human and nature's well-being during the Corona pandemic. *Journal of Public Mental Health*,1. <https://doi.org/10.1108/JPMH-02-2021-0016>. (Accessed: 16.07.2021)
- Roman, A. F. (2018). Training master's students for implementing the positive thinking program in schools. *Educatia Plus*, 20(2), 7-12.
- Schwartz, J.M. & Begley,S. (2002). *The mind and the brain: Neuroplasticity and the power of mental force*, New York: Regan Books/ Harper Collins.
- Schweizer,S.,Gotlib,I.H. & Blakemore,S.J.(2020). The role of an active control in emotion regulation during Adolescence, *Emotion*, 20, 80-86.
- Seligman, M. & Csikszentmihalyi, M.(2000). Positive psychology: An introduction;*American Psychologist*,55 (1): 5-14.
- Seligman,M.E.P. (2012). *Flourish (A visionary new understanding of happiness and well-being)*. USA: Atria Books
- Siegel,D.J. & Bryson, T.P. (2018).*Dramsız disiplin (Discipline without drama)*. Istanbul, Turkey: Pegasus.
- Sitar-Taut, D. A. (2021). Mobile learning acceptance in social distancing during the COVID-19 outbreak: The mediation effect of hedonic motivation. *Human Behavior and Emerging Technologies*, 3(3), 366-378. <https://doi.org/10.1002/hbe2.261>
- Susilawati, S., & Supriyatno, T. (2020). Online learning through WhatsApp group in improving learning motivation in the era and post pandemic COVID-19. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, 5(6), 852-859.
- Szigethy,E., Weisz,J.R. & Fidling,R.L. (2019). Çocuk ve Ergenler İçin Bilişsel Davranışçı Terapi (Trans.Ed. G. Karaçetin) (Cognitive Behavioural Therapy for children and adolescence).Istanbul, Turkey: Ema.
- Turkcapar, H. (2021). Bilişsel Davranışçı Terapi (Cognitive Behavioral Therapy) (17th ed). Istanbul, Turkey: Epsilon.
- Wang, H. H., Chen, H. T., Lin, H. S., & Hong, Z. R. (2017). The effects of college students' positive thinking, learning motivation, and self-regulation through a self-reflection intervention in Taiwan. *Higher Education Research & Development*, 36(1), 201-216. <https://doi.org/10.1080/07294360.2016.1176999>
- Young, K.S., Sandman, C.F.& Craske, M.G.(2019). Positive and negative emotion regulation in adolescence: Links to anxiety and depression. *Brain Science*, 9 (4), 76-81. <https://doi.org/10.3390/brainsci9040076>
- Yustina, Y., Halim, L., & Mahadi, I. (2020). The Effect of 'Fish Diversity' Book in Kampar District on the Learning Motivation and Obstacles of Kampar High School Students through Online Learning during the COVID-19 Period. *Journal of Innovation in Educational and Cultural Research*, 1(1), 7-14. <https://doi.org/10.46843/jiecr.v1i1.2>

Zaccoletti, S., Camacho, A., Correia, N., Aguiar, C., Mason, L., Alves, R. A., & Daniel, J. R. (2020). Parents' perceptions of students' academic motivation during the COVID-19 lockdown: A cross-country comparison. *Frontiers in psychology*, 11,592670. PMC7775314. doi: 10.3389/fpsyg.2020.592670 . Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7775314/> (Accessed: 16.07.2021)



The Coach-Athlete Relationship and School Experience as the Determinant of Sports-Specific Life Satisfaction

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Abstract

The present study is aimed at determining coach athlete relationships, perceived school experiences and sports life satisfaction levels of athlete high school students and to examine the levels based on certain variables. The sample of the research consisted of a total of 306 students, 117 (38.2%) male and 189 (61.8%) female, who continued their education at different high schools in Trabzon in the 2019-2020. "Personal Information Form" designed by the researcher, "The Coach-Athlete Relationship Questionnaire (CART-Q)," "The Sport-Specific Satisfaction with Life Scale (SSWLS)" and "Perceived School Experiences Scale (PSES)" were used as data collection tools in the research. In the statistical method of the study, descriptive statistics, t-test, pearson correlation tests and regression tests were used. In the research findings, while there was a significant difference in the sub-dimensions of the coach-athlete relationship and sportive life satisfaction according to gender, no significant difference was found in the perceived school experiences. A significant difference was found in all scales and sub-dimensions according to the status of playing in the school team. As a result, a high level of positive correlation was found between the coach-athlete relationship and sportive life satisfaction, and between perceived school experiences and sportive life satisfaction. In addition, another important result is that the coach-athlete relationship (51%) and school experiences (32%) have important roles in predicting the satisfaction with sportive life.

Keywords: Student Athlete, Coach, Experience, Life Satisfaction

1. Introduction

Countries develop various policies to raise young generations and maintain these policies by applying them in the educational environment. If we include sports policies in these policies, the concept of athlete student, which will make this expansion and make a great contribution, has an important place (Çetinkaya, 2019). International organizations state that doing sports and active participation in sports have positive effects and they implement many programs (World Health Organization [WHO], 2010; Organization for Economic Co-operation and Development [OECD], 2013).

School is seen as the second most influential institution on the individuals (Çaplı, 1993). Education and sports are two indispensable touchstones for individuals and society. Therefore, the important responsibilities of families and schools, especially teachers and trainers, should not be ignored in the joint conduct of education and sports, understanding the benefits of sports, and disseminating sports to all layers (Hergüner, 1992). There are studies in the literature that participation in sports activities increases academic achievement and contributes positively to the development of perception towards school (Göktaş & Şentürk, 2019; Öcal & Koçak, 2010; Özdoğru, 2018; Linder, 1999; Saygılı, Atay, Eraslan & Hekim, 2015; Singh, Uijtdewilligen, Twisk, Van Mechelen, & Chinapaw, 2012; Whitley, 1999). In addition to the cognitive and socio-emotional benefits of students' orientation to sports activities outside of school, it also contributes to the desired development and learning results with school curriculum programs (Özdoğru, 2018).

From another point of view, athlete students are in contact with their teacher at school and with their trainer during training. In order to be successful in education, the relationship between the teacher and the coach should be positive for effective performance in sports. The relationship between the coach and the athlete should not be ignored in success in sports (Martens, Christina & Harvey, 1981). It is thought that the perception of the behaviors of the coach observed by the athlete significantly affects the performance of the athlete, and examining the studies from this framework is of great importance for successful or effective coaching (Altıntaş, Kazak-Çetinkalp & Aşçı, 2012). The coach-athlete relationship plays an important role in athlete performance (Güven & Öncü, 2012) and athletic success (Sunay & Saracaloğlu, 2003). Researchers have stated that the quality of the coach-athlete relationship, the character and performance of the athlete (Jowett & Cockerill, 2003), the concept of self (Jowett, 2008), internal motivation (Felton & Jowett, 2013) contributes to development sports satisfaction (Jowett & Nezlek, 2011), athlete and coach life satisfaction (Jowett & Poczwardowski, 2007), team cohesion (Jowett & Chaundy, 2004) and collective effectiveness (Hampson & Jowett, 2014).

Another subject of the research is the school experiences of the athletes. Perceived school experience is also of great importance for individuals with dual careers. The knowledge and experiences of students about school throughout their school life constitute their school experiences (Akin et al, 2013). The term of perceived school experience was conceptualized by Butcher, Amorose, Iachini & Ball (2012) by gathering the concepts of school commitment, academic motivation and academic pressure in the literature under one umbrella term, and it has found an area of application in Turkish literature with the studies of Akin and Sarıçam (2014). Studies on perceived school experiences (Akin, 2015; Baytemir, 2019; Baytemir, Kösterelioğlu, & Kösterelioğlu, 2015; Güler, 2019; Özkara & Kalkavan, 2018) are found in the literature. Jowett and Nezlek (2011) reported that the coach-athlete relationship is effective in the life satisfaction of the athletes, and contentment between the two increases the duration and quality of the relationship.

The fact that the relationship of the coach-athlete relationship has an important place in increasing the performance of the athlete has become one of the popular topics today, especially in our country, the insufficient number of studies in this field and the will to reach important results with the obtained findings have laid the groundwork for the studies. In short, athlete students lead a life with their school experiences, sports activities, relationships with their teachers or trainers and other experiences. The more positive these experiences are, the higher the performance in sports activities and the more success in the field of education. If these experiences of the athletes are negative or they cannot overcome the difficulties they experience, their educational success and sportive performance may also decrease. When considered from a psychological point of view, the satisfaction received from sports life will also decrease and will be affected in many ways. In this context, the aim of the research is to compare the perceived school experiences, coach-athlete relationship and sportive life satisfaction according to the determined variables, to reveal their relations with each other and to reveal whether the coach-athlete relationship and perceived school experiences have an effect on sportive life satisfaction.

2. Method

2.1. Research Model

The research was carried out with the screening method within the framework of the quantitative approach. The scanning method, which describes the pre-existing and present situation as it is (Kuzu, 2013), is to be able to convey the situation, person or object under investigation as it exists within the existing conditions and to observe the conditions without changing them (Karasar, 2012).

2.2. Research Group

The study group of the research consists of a total of 306 athlete students, 189 female and 117 male, studying at schools affiliated with the Ministry of National Education in the 2019-2020 academic year. These students are between the ages of 14 and 18 (Mean age = 16.16 ± 1.28). In addition, 192 of the students are athletes in school teams, while 114 of them do not play in any school team.

2.3. Sampling Procedures

In order to determine the group (sample) to represent the research, first the research proposal was presented to the Ministry of National Education, General Directorate of Innovation and Educational Technologies, and after the necessary permissions were obtained, a survey was conducted at schools on a voluntary basis by using the "Easy to Find Sampling" method. Sampling that can be found easily, if it does not cover a region in question, is the sampling made on volunteers who are in the immediate vicinity and can be easily reached (Erkuş, 2009). In addition, this method brings speed and practicality to the researcher (Şimşek & Yıldırım, 2005).

2.4. Data collection

The "Personal Information Form" designed by the researcher, "The Sport-Specific Satisfaction with Life Scale (SWLS)," Perceived School Experiences Scale (PSES) and The Coach-Athlete Relationship Questionnaire (CART-Q) were applied to collect data in the study.

2.4.1. The Sport-Specific Satisfaction with Life Scale (SSWLS)

The Satisfaction with Life Scale (SWLS), developed by Diener, Emmons, Larsen, and Griffin (1985), consists of 5 items and a 7-point scale adapted to sports by Mangan (2018). Diener et al. (1985) stated that in the factor analysis of the scale, it explained 66% of the total variance with a single factor and the internal consistency of the scale was .87. Mangan (2018) found the Cronbach α coefficient for internal consistency to be .89. The adaptation study of SSWLS was adapted to Turkish by Somoğlu (2021). In the results of the analysis performed during the adaptation process, the linguistic equivalence of the scale was found to be significantly positive between the two forms (English and Turkish) of SSWLS ($r = .97, p < .01$). In the content validity study, he stated that the Content Validity Index score ($0.96 > 0.62$) obtained for the 5 statements of the SSWLS scale was at a good level when the Content Validity Criterion was taken into account. As a result of the EFA findings, it was determined that the total explained variance was 81,730%. The eigenvalues of the scale items were determined as a result of EFA, which combined under a single factor greater than 1. It was stated that the ratio of the CFA chi-square value to the degrees of freedom ($8,898 / 5 = 1,780$) had a good fit level below 5. When the fit indices RMSEA= .057, SRMR= .039, GFI= .986, NFI= .992, RFI= .984, CFI= .996 and IFI= .996 were examined, it was revealed that the model fitted well and the model was fit. As a result of similar scale validity analysis, a moderate level of .50 between the Sports-Specific with Contentment with Life Scale and a .68 level close to high correlation between the Sports-Specific with Life Satisfaction Scale and the Athlete Identity Scale were found. Cronbach alpha internal consistency reliability coefficient of Sports-Specific with Life Satisfaction Scale. It was found to be 0.87. As a result of the retest reliability analysis, it was determined that there was a highly significant positive correlation between the two applications ($r = .89, p < 0.01$). As a result of the item-total correlation analysis to determine the differences between the 27% upper-lower group items of the SSWLS, it was stated that

the item-total correlations of the Sports-Specific with Life Satisfaction Scale scored between .89 and .92, and the t-values were significant ($p < .001$).

2.4.2. Perceived School Experiences Scale (PSES)

The Perceived School Experiences Scale includes the three basic concepts of school engagement (SC), academic motivation (AM) and academic pressure (AP) (Butcher et al., 2012) dimensions to determine students' perceptions of school life. Butcher et al. (2012) and adapted into Turkish by Akin and Sariçam (2014). The item pool of the scale was composed of 32 items, and as a result of the EFA analysis, a structure consisting of 16 items and 3 sub-dimensions was obtained. As a result of the CFA analysis, the scale items took their final form consisting of 14 items and sub-dimensions. The scale is in 5-point Likert format and the total score that can be obtained from the scale varies between 14-70. Getting a high score on the scale is an indication of having a high perceived school life. The internal consistency coefficient Cronbach's Alpha values for the reliability of the scale was in the PSES and its sub-dimensions (SC, AM, AP); It was determined as .83, .69, .67,.67. The scale form was developed for children and adolescents to evaluate themselves. Baytemir et al. (2015) translated the scale into Turkish in the form of perceived school experiences on high school and secondary school students, and the Turkish adaptation was made again. Akin and Sariçam (2014) stated that as a result of the EFA of the scale, the overall scale explained 62.47% of the total variance, the academic pressure dimension 20.06% of the total variance, the academic motivation dimension 21.13% of the total variance, and the school engagement dimension 21.28% of the total variance, they have determined.

2.4.3. The Coach-Athlete Relationship Questionnaire (CART-Q)

The scale is a self-assessment tool developed by Jowett and Ntoumanis (2004) to determine the structure of the coach-athlete relationship and adapted into Turkish by Altıntaş, Kazak-Çetinkalp, and Aşçı (2012). It consists of two forms in the form of athlete and trainer form and 11 items each. In the present study, the athlete form of the scale was used. The scale, which is a 7-point Likert type, can be used in both general dimensions and sub-dimensions. Among its sub-dimensions, closeness consists of 4 items, commitment consists of 3 items, and complementarity consists of 4 items. Its validity and reliability have been tested in many countries. Confirmatory factor analysis was applied to test the construct validity and it was found to be consistent with the original form. While the internal consistency values for the athlete form of the scale vary between 0.82 and 0.90, it varies between 0.69 and 0.78 for the coach form. It has been determined that the inventory is a valid and reliable measurement tool suitable for Turkish culture for coaches and athletes (Altıntaş, Kazak-Çetinkalp & Aşçı, 2012).

2.5. Analysis of Data

The data collected from the research group were interpreted with the statistical package program IBM SPSS 25. Before the analysis -the data was checked with the values of Skewness and Kurtosis (normal distribution of the data) whether the parametric tests met the prerequisites, and it was seen that the data showed a normal distribution. Thus, parametric tests were used in the analysis (Tabachnick & Fidell, 2015). Descriptive statistics (frequency, arithmetic mean, standard deviation) were used as the statistical method, t-test for independent groups, Simple Linear Pearson Correlation analysis and Regression test to determine the relationship between the scales.

3. Results

Table 1: Scores obtained from the of SSWLS, CART-Q, and PSES

Scale	Number of items	n	\bar{x}	Sd	Skewness	Kurtosis
SSWLS	5	306	5.63	1.06	-.691	-.163
Closeness	4	306	5.72	1.63	-1.381	1.065
Commitment	3	306	5.35	1.61	-.915	-.090

Complementarity	4	306	5.56	1.53	-1.247	.869
Academic Press	4	306	3.49	0.77	-.532	.376
Academic Motivation	6	306	3.62	0.77	-.441	-.305
School Connectedness	4	306	3.45	0.88	-.567	-.010

In the table below, the descriptive statistical results of the scores obtained from the "The Sport-Specific Satisfaction with Life Scale (SSWLS)", the "The Coach-Athlete Relationship Scale (CART-Q/C-C-C)", and the "The Perceived School Experience Scale (PSES/AP-AM-SC)" are given. Based on the skewness and kurtosis values (Table, 1).

Table 2: T-test Results of SSWLS, CART-Q/C, C, C and PSES/AP/AM/SC by Gender Variables

Scale	Gender	n	\bar{x}	Sd	df	t	p	
SSWLS	Famale	189	5.22	1.38	304	4.427	0.00**	
	Male	117	4.96	1.51				
CART-Q	Closeness	Famale	189	5.90	1.53	304	4.154	0.00**
		Male	117	5.64	1.65			
	Commitment	Famale	189	5.48	1.58	304	3.871	0.03*
		Male	117	5.23	1.70			
Complementarity	Famale	189	5.70	1.49	304	4.144	0.00**	
	Male	117	5.45	1.58				
PSES	Academic Press	Famale	189	3.61	0.97	304	1.503	0.13
		Male	117	3.55	1.03			
	Academic Motivation	Famale	189	3.67	0.91	304	.370	0.71
		Male	117	3.66	0.93			
	School Connectedness	Famale	189	3.61	1.00	304	1.213	0.23
		Male	117	3.56	1.01			

*p<0.05, **p<0.01

In Table 2, the t-test results of the students' scores obtained from the Gender-related, "The Sport-Specific Satisfaction with Life Scale (SSWLS)", the "The Coach-Athlete Relationship Scale (CART-Q/C-C-C)", and the "Perceived School Experience Scale (PSES/AP-AM-SC)" are given. While there were significant differences in favor of female participants in the SSWLS and CART-Q (C-C-C) sub-dimensions, no significant difference was found in the PSES/AP-AM-SC dimensions.

Table 3: T-test Results of SSWLS, CART-Q/C, C, C and PSES/AP/AM/SC by the variable of playing in the school team

Scale	School Team	n	\bar{x}	Sd	df	t	p	
SSWLS	Yes	192	5.08	1.46	304	2.600	0.00	
	No	114	4.93	1.49				
CART-Q	Closeness	Yes	192	6.16	1.22	304	-2.775	0.00
		No	114	6.47	0.69			
	Commitment	Yes	192	5.65	1.51	304	-2.317	0.02
		No	114	5.99	1.011			
Complementarity	Yes	192	5.96	1.12	304	-2.417	0.01	
	No	114	6.21	0.70				
PSES	Academic Press	Yes	192	3.59	1.01	2948	2.141	0.03
		No	114	3.51	1.01			
	Academic Motivation	Yes	192	3.71	0.91	2948	3.602	0.00
		No	114	3.58	0.93			
	School Connectedness	Yes	192	3.63	1.00	2948	4.257	0.00
		No	114	3.58	1.00			

No	114	3.47	1.00
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*p<0.01

In the table below, the t-test results of the scores obtained from "The Sport-Specific Satisfaction with Life Scale (SSWLS)", the "The Coach-Athlete Relationship Scale (CART-Q/C-C-C)", and the "Perceived School Experience Scale (PSES/AP-AM-SC)" are given according to the variable of "playing in a school team". Significant differences were found in favor of the students in the school team in the SSWLS, sub-dimensions of CART-Q/C-C-C, and PSES/AP-AM-SC (Table 3).

Table 4: Correlation Results between CART-Q and SSWLS

	SSWLS		
	n	r	p
CART-Q	306	0.71	0.00**
Closeness	306	0.69	0.00**
Commitment	306	0.67	0.00**
Complementarity	306	0.70	0.00**

**p<0.01

In Table 4, Pearson Correlation test results are presented in order to test the relationship between "The Sport-Specific Satisfaction with Life" and "The Coach-Athlete Relationship". As can be seen in Table 4, in the correlation analysis between CART-Q and SSWLS, it was observed that there was a high level and significant positive correlation between "SSWLS and sub-dimensions of CART-Q/C-C-C"

Table 5: Correlation Results between PSES and SSWLS

	SSWLS		
	n	r	p
PSES	306	0.56	0.00**
Academic Press	306	0.49	0.00**
Academic Motivation	306	0.50	0.00**
School Connectedness	306	0.45	0.00**

**p<0.01

In Table 5, Pearson Correlation test results are presented in order to test the "Sport-Specific Satisfaction with Life" and "Perceived School Experience". As seen in Table 5, in the correlation analysis performed between perceived school experiences and sportive life satisfaction, it was seen that there was a moderate and significant positive relationship between SSWLS and sub-dimensions of PSES/AP-AM-SC"

Table 6: Regression Results between CART-Q and SSWLS

	B	Standard Error	β	t	P
Constant	1.229	.071		17.218	.000
CART-Q	.687	.012	.714	55.361	.000

R=.714. R²=.510. F_(1,2948) =3064.788

The regression analysis results regarding the prediction of "Sport-Specific Satisfaction with Life" according to the "The Coach-Athlete Relationship" are shown in Table 6. As a result of the regression analysis, it was determined that the coach-athlete relationship was a significant predictor of sport-specific satisfaction with life in athlete students. There is a positive and highly significant relationship (R=0.714) between the coach-athlete relationship of the athlete students and sport-specific satisfaction with life, and the coach-athlete relationship of the students explains 51% of the total variance in their perceptions of their sportive life satisfaction. According to the results of the regression analysis, the equation regarding the prediction of the sport-specific satisfaction with life of the athletes is shown below: Sportive Life Satisfaction= 1.23+0.5* The Coach-Athlete Relationship

Table 7: Regression Results between PSES and SSWLS

	B	Standard Error	β	t	P
Constant	1.612	.095		16.942	.000
PSES	.947	.026	.564	37.040	.000

$R=.564$. $R^2=.318$. $F_{(1,2948)}=1371.988$

The regression analysis results regarding the prediction of “Sport-Specific Satisfaction with Life” according to perceived school experience are shown in Table 7. As can be seen a result of the regression analysis, it was determined that the sport-specific satisfaction with life was a predictor of the school experience perceived in the athlete students. There is a positive and moderately significant relationship ($R=0.564$) between the athletic students' perceived school experience and their sportive life satisfaction, and students' perceived school experiences explain 32% of the total variance in their perceptions of sportive life satisfaction. According to the results of the regression analysis, the equation regarding the prediction of perceived school experiences is shown below: The Sport-Specific Satisfaction with Life= $1.61+0.5*$ Perceived School Experiences

4. Discussion

As a result of this research, it was seen that the sports life satisfaction, coach-athlete relationship and perceived school experience of the athlete students were above the average. When the literature is examined, the results of the current research show parallelism. Studies have been found showing that hearing impaired high school athlete students (Somoğlu, 2016) and sports high school students (Somoğlu Yüksek, Kılıçaslan, Sivrikaya & Yazıcı 2017) have high satisfaction with sports life. In addition to studies on people with disabilities such as participation in sports, active sportsmen, participating in physical activities, paralympic olympics athletes and similar studies have shown that doing sports increases the level of life satisfaction. (Yazıcıoğlu, Yavuz, Göktepe, & Tan, 2012; Nemcek, 2016; Tasiemski, Kennedy, Gardner, & Taylor, 2005; Mockevičienė & Savenkoviėnė, 2012; Ziolkowski, Zubrzycki, Blachnio, Drobnik, Zaranska, & Moska, 2016).

For many athletes, the quality of the coach-athlete relationship characterizes the athletes' entire sporting experience (Poczwadowski, Barott, & Henschen, 2002). When the literature is examined, studies show that the coach-athlete relationship is high in a positive sense (Avcı, Çepikkurt & Kale, 2018; Bülbül, 2019; Güllü, 2018; Özşaker, Sarı & Omrak, 2016; Selağzı & Çepikkurt, 2015). It has been concluded that football players (Tolukan & Akyel, 2019) and students in high school sports teams (Keskin et al., 2018) have positive coach-athlete relations. This finding can be interpreted as the high level of relationship between athlete students and their coaches. In other words, if it is high, the athlete focuses on the task, makes more effort and enjoys training; when it is low, they conclude that reluctance in training, less struggle, and a sense of superiority.

When the arithmetic means and standard deviation of the scores obtained from the PSES and its sub-dimensions of the athlete students are evaluated, it is seen that the scores obtained from the total and sub-dimensions of PSES are above the average. This finding can be interpreted as the students' perceptions about school, their commitment to school, their academic motivation and academic pressure levels are high. In the study conducted by Güler (2019), it is seen that the data are above the average. Whitley (1999), in his longitudinal study among high schools between 1993 and 1996, found that their course achievement was high and they had a high graduation rate, and that their absenteeism rates, disciplinary problems, and dropout rates were low. Therefore, it can be said that participation in sports activities increases school experience perceptions.

Athlete students' sportive life satisfaction and coach-athlete relations and all sub-dimensions differed in favor of female participants, but there was no significant difference between men and women in school experiences. The reason why there is a significant relationship between sportive life satisfaction in favor of female students is that female students in Turkish societies generally have a structure that does not welcome female students to spend time at home and do sports. It can be said that these students who have the opportunity to do sports show higher life satisfaction than their other peers. When the results of the sportive life satisfaction literature were examined, it was found that the studies supporting the research findings (Dikmen, 1995; Duman, Baştuğ, Taşgın, & Akandere, 2011; Danielsen, Samdal, Hetland & World, 2009) had higher life satisfaction in favor of women.

Again, significant results were found in favor of undergraduate students (Yıldırım, 2017) and women participating in physical activity (Baştuğ & Duman, 2010).

The coach-athlete relationship is largely characterized as "emotional tone". (Jowett & Cockerill, 2003; Salminen & Liukkonen, 1996). Some studies with male and female athletes show that men focus on winning and performance; showed that women value relationships and communication (Gill, 2004; Holmes, McNeil, Adorna, & Procaccino, 2008). The reason why female students have higher coach-athlete relationships in the CART-Q sub-factors may be due to the fact that female students are more emotional, prone to attachment and attach more importance to relationships than boys.

Different research findings stand out in the literature on perceived school experiences. In the study conducted by Güler (2019), it was stated that female students had a higher perceived school life. Özkara and Kalkavan (2018) found a significant difference in favor of female students in the dimension of academic pressure in their study called perceived school experiences of sports high school students. Considering the literature review results, it is in favor of female participants in America and Europe (Butcher, Iachini & Amorese, 2007; Misra, McKean, West & Russo, 2000; Snyder & Dillow, 2010) and in eastern societies (Chen, 2008; Hong-Fincher, 2014; Ramaprabou & Dash, 2018; Tian & Lu, 2017) we see in studies that they see higher academic pressure in favor of male students. The reason why there was no significant difference in perceived school experiences in the current study may be that the school experiences did not differ according to gender, since both genders had their own preferences in choosing to study at high schools.

When the research findings were evaluated according to the status of playing in the school team, there was a significant difference in the sportive life satisfaction of the athlete students and their perceived school experiences in favor of those playing in the school team, while a significant difference was found in favor of the students who did not play in the school team in the coach-athlete relationship and all sub-dimensions. In other words, the student's sportive life satisfaction and perceived school experience are high, and the coach-athlete relationship is low. Somoğlu (2021) found significant differences in the dimension of commitment to coach-athlete relationship, perceived school experience total and sub-dimensions, and sportive life satisfaction according to being in the school team. Being a part of the school teams of the athletic students can be interpreted as they increase their school experience, they are more attached to the school, they have more academic motivation and they experience less academic pressure. Extracurricular sports activities, including school sports, have a motivating feature for students to lead an active life. The reason for the low trainer-athlete relations of the students in the school team may be that they do not equate the sports trainer or physical education and sports teacher at the school with the trainers in sports clubs.

It was determined that there was a high level and significant positive relationship between the coach-athlete relationship/sub-dimensions (CART-Q/C-C-C) and sportive life satisfaction. It can be interpreted that the positive relationship established between these two increases the sports life satisfaction of the athletes, in other words, it improves the well-being and psychological state of the athletes. The subjective well-being scores of the athletes and their coach-athlete relationship scores were evaluated, and the subjective well-being scores of the athletes in both branches (taekwondo, protected football) and the three sub-dimensions of the coach-athlete relationship inventory (closeness, loyalty, Complementarity) was found to have a moderately significant positive correlation between the scores obtained (Gönen, 2019). In his study, in which Mangan (2018) adapted the life satisfaction scale to sports, he found that there was a high level of positive correlation between the coach-athlete relationship and life satisfaction. To sum up, it can be explained that as the level of coach-athlete relationship increases, the sports life satisfaction levels of the athletes also increase. In this research, it was determined that there was a positive, moderate and significant relationship between perceived school experiences and sportive life satisfaction. It can be said that the school experiences of the athletic students are moderately related to their sportive life satisfaction and it affects their sportive life satisfaction. The concepts of happiness and subjective well-being are used as synonyms in the literature (Diener, Scollon & Lucas, 2009). It has been determined that the level of happiness of adolescent students increases as their interest in school increases, and the level of happiness decreases as the level of interest towards school decreases (Aypay & Eryılmaz, 2011; Baytemir, 2019; Doğan & Çelik, 2014; Elmore & Huebner, 2010). Furlong, You, Renshaw, O'Malley, & Rebelez, (2013) and

Pennell, Boman, and Mergler (2015) stated that there was a significant relationship between the positive environment created by positive experiences at school and students' well-being. In another study conducted with sports high school students, it was determined that there were positive and high-level relationships between the attitudes towards sports and its sub-dimensions (interest in sports, living with sports and active sports) and school climate perception (Göktaş & Şentürk, 2019).

It has been determined that the coach-athlete relationship and perceived school experiences are significant predictors of sportive life satisfaction. It has been revealed that the coach-athlete relationship of the athlete students explains 51% of the sportive life satisfaction, and the perceived school experience explains 36% of the sportive life satisfaction. The result shows that the relationship between the coach-athlete and the perceived school experiences of the athlete students have an important role on their sportive life satisfaction. School satisfaction is one of the important areas of satisfaction that makes students happy in their lives (Casas, Bello, González, & Aligué, 2013; Telef, Arslan, Mert, & Kalafat, 2015). School satisfaction is a subjective and cognitive evaluation of how school life is perceived (Baker, Dilly, Aupperlee, & Patil, 2003). School satisfaction, gratitude, enthusiasm for life, optimism and perseverance explain 24% of middle school students' happiness (Telef, 2020). Göktaş and Şentürk (2019) reported that the attitude towards sports explains approximately 98% of the total variance in the perception of school climate.

5. Conclusion

High school students' coach-athlete relationships, school experiences and sportive life satisfaction are above the medium level. Sportive life satisfaction is explained by 51% coach-athlete relationship and 36% by perceived school experiences. It is seen that students' coach-athlete relationships and perceived school experiences positively affect their sportive life satisfaction. For this reason, students are required to take part in sports activities and sports competitions and sports events need to be organized. Families, teachers and administrators should support students in directing them to sports and they should be encouraged by the people in charge to act consciously in this regard. In this context, students' coaches, school administrators, teachers and families can be encouraged to carry out the school and sports together by adopting those sports are an important tool in increasing the psychological well-being of the students, the development of relationships, their commitment to the school and developing positive emotions. In addition, suitable course hours and training programs can be arranged for dual-career students (athlete-student). Considering the positive effect of sports participation on the coach-athlete relationship and sports-specific life satisfaction of students, it may be beneficial for families and competent people to follow a guiding role in ensuring that students participate in sports activities. Coaches and physical education teachers can increase school sports activities and diversify sports branches, and enable students to participate in school sports activities. By increasing the types of sports activities that students participate in, studies can be carried out for the types of sports activities that will appeal to wider audiences.

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References

- Akın, A., & Sariçam, H. (2014). Okul deneyimleri ölçeği türkçe formu: Geçerlik ve güvenilirlik çalışması. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, 36(36), 77- 86.
- Akın, A., Gediksiz, E., Akın, Ü., Arslan, S., Çardak, Ü., Akbaş, Z. Ş., & Sariçam, H. (2013, Nisan). *Okul deneyimleri ölçeği Türkçe formu'nun geçerlik ve güvenilirliği*. International Conference on Innovation and Challenges in Education 2013 (CICE 2013)
- Akın, U. (2015). Do school experiences predict life satisfaction in Turkish college students? *International Online Journal of Educational Sciences*, 7(1), 87-96.
- Altıntaş, A., Kazak-Çetinkalp, Z., & Aşçı, H. (2012). Antrenör-sporcu ilişkisinin değerlendirilmesi: Geçerlik ve güvenilirlik çalışması. *Spor Bilimleri Dergisi Hacettepe Journal of Sport Sciences*, 23(3), 119-128.

- Avcı, K. S., Çepikkurt, F., & Kale, E. K. (2018). Examination of the relationship between coach-athlete communication levels and perceived motivational climate for volleyball players. *Universal Journal of Educational Research*, 6(2), 346-353.
- Aypay, A., & Eryılmaz, A. (2011). Lise öğrencilerinin öznel iyi oluşları ve okul tükenmişliği arasındaki ilişkiler. *International Online Journal of Educational Sciences*, 3(1), 181-199.
- Baker, J. A., Dilly, L. J., Aupperlee, J. L., & Patil, S. A. (2003). The developmental context of school satisfaction: Schools as psychologically healthy environments. *School Psychology Quarterly*, 18(2), 206-221.
- Baştuğ, G. & Duman, S. (2010). Examining life satisfaction level depending on physical activity in Turkish and German societies. *Procedia Social and Behavioral Sciences*. 2(2), 4892-4895.
- Baytemir, K. (2019). Experiences of school as a mediator between interpersonal competence and happiness in adolescents. *Anales de Psicología*. 35(2), 258-267.
- Baytemir, K., Kösterelioglu, M. A., & Kösterelioglu, İ. (2015). Algılanan okul yaşantıları ölçeğinin türkçeye uyarlanması: geçerlik ve güvenilirlik çalışması. *Çankırı Karatekin Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 6(2), 597-608.
- Butcher, D. A., Amorose, A., Iachini, A., & Ball, A. (2012). The development of the perceived school experiences scale. *Research on Social Work Practice*, 22(2), 186-194.
- Butcher, D., Iachini, A. L., & Amorose, A. J. (2007). Initial reliability and validity of the perceived social competence scale. *Research on Social Work Practice*, 18(1), 47-54.
- Bülbül, A. (2019). *Sporcu perspektifinden istismarcı yönetim algısının antrenör-sporcu ilişkisine etkisinin incelenmesi*. (Yayımlanmamış yüksek lisans tezi). Gazi Üniversitesi, Sağlık Bilimleri Enstitüsü, Ankara.
- Casas, F., Bello, A., González, M., & Aligué, M. (2013). Children's subjective well-being measured using a composite index: What impacts Spanish first-year secondary education students' subjective well-being?. *Child Indicators Research*, 6(3), 1-28.
- Chen, D. I. R. (2008). Managerialism and its impact on female academics in Taiwan. *Journal of Asian Public Policy*, 1(3), 328-345.
- Çaplı, O. (1993). *Çocukların, gençlerin eğitimi*. Ankara: Bilgi Yayınevi.
- Çetinkaya, T., (2019). *Sporcu öğrenci kimliği oluşumunda etkili olan faktörler*. Ankara: Gazi Kitabevi.
- Çoban, M. S. (2019). *Antrenör-sporcu ilişkisini etkileyen faktörler (Türkiye hentbol 1. lig örneği)*. (Yayımlanmamış yüksek lisans tezi). İstanbul Gelişim Üniversitesi, Sağlık Bilimleri Enstitüsü, İstanbul.
- Danielsen, A. G., Samdal, O., Hetland, J., & Wold, B. (2009). School-related social support and students' perceived life satisfaction. *The Journal of Educational Research*, 102(4), 303-318.
- Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71-75.
- Diener, E., Scollon, C. N., & Lucas, R. E. (2009). The evolving concept of subjective well-being: The multifaceted nature of happiness. *Social Indicators Research Series*, 39, 67-100.
- Dikmen, A. A. (1995). *Kamu çalışanlarında iş doyumunu ve yaşam doyumunu ilişkisi*. (Yayımlanmamış yüksek lisans tezi). Ankara Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.
- Doğan, U., & Çelik, E., (2014). Examining the factors contributing to students' life satisfaction. *Educational Sciences: Theory & Practice*, 14(6), 2121-2128.
- Duman, S., Baştuğ, G., Taşgın, Ö., & Akandere, M. (2011). The evaluation of the relation between self confidence and level of life satisfaction of the physically handicapped athletes. *International Journal of Human Sciences*, 8(1), 1364-1373.
- Elmore, G. M., & Huebner, E. S. (2010). Adolescents' satisfaction with school experiences: Relationships with demographics, attachment relationships, and school engagement. *Psychology in the Schools*, 47(6), 525-537.
- Erkuş, A. (2009). *Davranış bilimleri için bilimsel araştırma süreci*. Ankara: Seçkin Yayıncılık.
- Felton, L., & Jowett, S. (2013). "What do coaches do" and "how do they relate": Their effects on athletes' psychological needs and functioning. *Scandinavian Journal of Medicine and Science in Sports*, 23(2), 130-139.
- Furlong, M. J., You, S., Renshaw, T. L., O'Malley, M. D., & Rebelez, J. (2013). Preliminary development of the positive experiences at school scale for elementary school children. *Child Indicators Research*, 6(4), 753-775.
- Gill, D. L. (2004). Gender and cultural diversity across the lifespan. In M. Weiss, *Developmental sport and exercise psychology: A lifespan perspective* (pp. 475-501). Morgantown, WV: Fitness Information Technology.
- Göktaş, N., & Şentürk, H. (2019). Spor lisesi öğrencilerinin okul iklimi algıları ile spora yönelik tutumları arasındaki ilişki. *SPORMETRE Beden Eğitimi ve Spor Bilimleri Dergisi*, 17(3), 78-92.
- Gönen, M. (2019). *Antrenör-sporcu ilişkisinin sporcuların durumluk kaygı, öfke ve öznel iyi oluş düzeylerine etkisi: taekwondo ve korumalı futbol örneği*. (Yayımlanmamış doktora tezi). Gazi Üniversitesi, Sağlık Bilimleri Enstitüsü. Ankara.

- Güler, G. (2019). *Ortaokul öğrencilerinde okul tükenmişliği: problem çözme becerileri, akran ilişkileri ve algılanan okul deneyimlerinin rolü.* (Yayımlanmamış yüksek lisans tezi). Maltepe Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.
- Güllü S. (2018). Sporcuların antrenör-sporcu ilişkisi ile sportmenlik yönelimleri üzerine bir araştırma. *Sportmetre Beden Eğitimi ve Spor Bilimleri Dergisi*, 16(4), 190-204.
- Güven, Ö., & Öncü, E., (2012). Antrenörlerin etik dışı davranışları ile ilgili sporcu algısı ölçeğinin geliştirilmesi. *Beden Eğitimi ve Spor Bilimleri Dergisi*, 10(2), 67-75.
- Hampson, R., & Jowett, S. (2014). Effects of coach leadership and coach-athlete relationship on collective efficacy. *Scandinavian Journal of Medicine and Science in Sports*, 24(2), 454-460.
- Hergüner, G. (1992). Eğitim ve spor ilişkisi. *Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi*, 7(1), 63-66.
- Holmes, R. M., McNeil, M., Adorna, P., & Procaccino, J. K. (2008). Collegiate student athletes' preferences and perceptions regarding peer relationships. *Journal of Sport Behavior*, 31(4), 338-351.
- Hong-Fincher, L. (2014). *Left over Women: The Resurgence of Gender Inequality in China.* (P. French, Ed.) (1.bs.). Chicago: Zed Books.
- Jowett, S. (2008). Moderator and mediator effects of the association between the quality of the coach-athlete relationship and athletes' physical self-concept. *International Journal of Coaching Science*, 2(1), 1-20.
- Jowett, S., & Chaundy, V. (2004). An investigation into the impact of coach leadership and coach-athlete relationship on group cohesion. *Group Dynamics: Theory, Research, and Practice*, 8(4), 302-311.
- Jowett, S., & Cockerill, I. (2003). Olympic medallists' perspective of the athlete-coach relationship. *Psychology of Sport and Exercise*, 4(4), 313-331.
- Jowett, S., & Nezlek, J. (2011). Relationship interdependence and satisfaction with important outcomes in coach-athlete dyads. *Journal of Social and Personal Relationships*, 29(3), 287- 301.
- Jowett, S., & Ntoumanis, N. (2004). The coach-athlete relationship questionnaire (CART – Q): Development and initial validation. *Scandinavian Journal of Medicine and Science in Sports*, 14(4), 245–257.
- Jowett, S., & Poczwadowski, A. (2007). Understanding the coach-athlete relationship. In S. Jowett & D. Lavallee (Eds.), *Social psychology in sport* (pp. 4-14). Champaign, IL: Human Kinetics.
- Karasar, N. (2012). *Bilimsel araştırma yöntemi.* Ankara: Nobel Akademik Yayıncılık.
- Keskin A., Özdemir A., Tunç A.A., Devrilmez E. (2018). Lise spor takımlarında antrenör sporcu ilişkisinin incelenmesi. *Sportive (Spor, Eğitim ve Rekreasyon Dergisi)*, 1(1), 1-11.
- Kuzu, A. (2013). *Bilimsel araştırma yöntemleri.* Eskişehir: Anadolu Üniversitesi Yayını.
- Linder, K. J. (1999). Sport participation and perceived academic performance of school children and youth. *Pediatr Exerc Sci*, 11(2), 129-143.
- Mangan, C. (2018). *Interpersonal communication in college athletics.* (Unpublished master's dissertation). The University of Western Illinois. Macomb.
- Martens, R., Christina, R., Harvey, J. S., & Sharkey, B.J. (1981). *Coaching young athletes.* Champaign: Human Kinetics Publishers.
- Misra, R., McKean, M., West, S., & Russo, T. (2000). Academic stress of college students: Comparison of student and faculty perceptions. *College student journal*, 34(2), 236-245.
- Mockevičienė, D., & Savenkoviene, A. (2012). Aspects of life quality of persons with physical disabilities. *Social Welfare Interdisciplinary Approach*, 2(2), 84-93.
- Nemcek, D. (2016). Life satisfaction of people with disabilities: a comparison between active and sedentary individuals. *Journal of Physical Education and Sport*, 16(2), 1084-1088.
- Organisation for Economic Co-operation and Development [OECD]. (2013). *Physical activity among children, in Health at a Glance 2013: OECD Indicators.* Paris.
- Öcal, K., & Koçak, M. (2010). Okul sporlarının orta öğretim öğrencilerinin akademik başarı ve davranış gelişimine etkisi. *Akdeniz Eğitim Araştırmaları Dergisi*, 0(7), 89-94.
- Özdoğru, A. (2018). Çocuk ve ergenlerin okul dışı zamanlarda spor aktivitelerine katılımı. *Spor ve Performans Araştırmaları Dergisi*, 9(2), 86-101.
- Özkara, A. B., & Kalkavan, A., (2018, Kasım). *Spor lisesi öğrencilerinin algılanan okul deneyimleri.* The 16. International Sport Sciences Congress'inde sunulmuş bildiri. Antalya.
- Özşaker, M., Sarı, İ., & Omrak, H. (2016). The importance of the quality of coach-athlete relationship for athletes' motivation. *Journal of Human Sciences*, 13(2), 3122-3129.
- Pennell, C., Boman, P., & Mergler, A. (2015). Covitality constructs as predictors of psychological wellbeing and depression for secondary school students. *Contemporary School Psychology*, 19(4), 276-285.
- Poczwadowski, A., Barott, J.E., & Henschen, K.P. (2002). The athlete and coach: Their relationship and its meaning. Results of an interpretive study. *International Journal of Sport Psychology*, 33(1), 116-140.
- Ramaprabou, V., & Dash, S. K. (2018). Effect of academic stress on achievement motivation among college students. *Journal on Educational psychology*, 11(4), 32-36.
- Salminen, S., & Liukkonen, J. (1996). Coach-athlete relationship and coaching behavior in training sessions. *International Journal of Sport Psychology*, 27(1), 59-67.

- Saygılı, G., Atay, E., Eraslan, M., & Hekim, M. (2015). Düzenli olarak spor yapan ve yapmayan öğrencilerin kişilik özellikleri ile akademik başarıları arasındaki ilişkinin incelenmesi. *Kastamonu Eğitim Dergisi*, 23(1), 161-170.
- Selağzı S., & Çepikkurt F. (2015). Antrenör ve sporcu iletişim düzeylerinin belirlenmesi. *CBÜ Beden Eğitimi ve Spor Bilimleri Dergisi*, 9(1), 11-18.
- Singh, A., Uijtdewilligen, L., Twisk, J. W., Van Mechelen, W., & Chinapaw, M. J. (2012). Physical activity and performance at school: A systematic review of the literature including a methodological quality assessment. *Arch Pediatr Adolesc Med*, 166(1), 49-55.
- Snyder, T. D., & Dillow, S. A. (2019). *Digest of education statistics 2009*. Washington: U.S. Department of Education.
- Somoğlu, (2021). Sporcu öğrencilerin antrenör-sporcu ilişkileri, okul deneyimleri ve sportif yaşam doyumları. Yayınlanmamış Doktora Tezi, Trabzon Üniversitesi, Trabzon.
- Somoğlu, M. B. (2016). *İşitme engelli öğrencilerin sporculuk durumuna göre algıladıkları sosyal destek düzeyleri ve yaşam doyumlarının incelenmesi*. (Yayımlanmamış yüksek lisans tezi). Karadeniz Teknik Üniversitesi, Eğitim Bilimleri Enstitüsü, Trabzon.
- Somoğlu, M. B., Yüksek, S., Kılıçaslan, U. Sivrikaya, T., & Yazıcı, Ö. F., (2017, Kasım). *Examining the life satisfaction of sports high school students: "The Sample of Trabzon"*. The 15th. International Sport Sciences Congress'inde sunulmuş bildiri, Antalya.
- Sunay, H., & Saracaloğlu, A. S. (2003). Türk sporcusunun spordan beklentileri ile spora yönelten unsurlar. *Spormetre, Beden Eğitimi ve Spor Bilimleri Dergisi*, 1(1), 43-48.
- Şimşek, H. & Yıldırım, A. (2004). *Sosyal bilimlerde nitel araştırma yöntemleri*. Ankara: Seçkin yayıncılık.
- Tabachnick, B. G., & Fidell, L. S. (2015). *Çok değişkenli istatistiklerin kullanımı* (M. Baloğlu, Çev.). Ankara: Nobel Yayın Dağıtım.
- Tasiemskia, T., Kennedy, P., Gardner, B. P., & Taylor, N. (2005). The association of sports and physical recreation with life satisfaction in a community sample of people with spinal cord injuries. *Neuro Rehabilitation*, 20(4), 253-265.
- Telef, B. B. (2020). Ortaokul öğrencilerinde okul doyumunu, okuldaki pozitif yaşantılar ve mutluluk arasındaki ilişki. *Eğitim ve Bilim, TEDMEM*, 1-13. DOI: 10.15390/EB.2020.5587
- Telef, B. B., Arslan, G., Mert, A., & Kalafat, S. (2015). The mediation effect of school satisfaction in the relationship between teacher support, positive affect and life satisfaction in adolescents. *Educational Research and Reviews*, 10(12), 1633-1640.
- Tian, M., & Lu, G. (2017). What price is the building of World-class universities? Academic pressure faced by young lecturers at a research-centered University In China. *Teaching in Higher Education*, 22(8), 957-974.
- Tolukan, E., & Akyel, Y. (2019). Futbolda antrenör-sporcu ilişkisi ve sürekli sportif kendine güven üzerine bir araştırma. *Spormetre*, 17(1), 103-112.
- Whitley, R. L. (1999). Those dumb jacksare it again: a comparison of the educational performances of athletes and nonathletes in North Carolina high schools from 1993 through 1996. *High School Journal*, 82(4), 223-233.
- World Health Organization [WHO]. (2010). *Global recommendations on physical activity for health*. Geneva. WHO.
- Yazıcıoğlu, K., Yavuz, F., Göktepe, A. S., & Tan, A. K. (2012). Influence of adapted sports on quality of life and life satisfaction in sport participants and non-sport participants with physical disabilities. *Disability and Health Journal*. 5(4), 249-253.
- Yıldırım, T. (2017). *Üniversite öğrencilerinde benlik saygısı ile algılanan sosyal destek ve yaşam doyumunu arasındaki ilişkinin incelenmesi*. (Yayımlanmamış yüksek lisans tezi). Haliç Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.
- Ziolkowski, A., Zubrzycki, I., Blachnio, A., Drobnik, P., Zaranska, B., & Moska, W. (2016). Sport activity on satisfaction with life and sense of coherence among physically disabled. *Balth J. Phys Act*. 8(4), 109-116.



General Foundation Programs (GFPs) Student Entry and Exit Standards

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Abstract

This paper assessed the performance of General Foundation Programs (GFPs) in Oman in the area of 'Student Entry and Exit Standards'. Data was collected from the GFP quality audit reports prepared and published by Oman Authority for Academic Accreditation and Quality Assurance of Education (OAAAQA). The study adopted a simple descriptive data analysis method, consisting of identifying the formal conclusions issued by OAAAQA (Commendations, Affirmations, and Recommendations) and analyzing their distribution (frequency of occurrence and percentages) and the issues they covered. The study found out that (a) HEIs are yet to establish sustainable practices in their GFPs in relation to entry and exit standards; and (b) the systems in the GFP are still underdeveloped and practices are largely unsystematic. The paper ended by highlighting four improvement suggestions in order to ensure GFP effectiveness.

Keywords: Affirmations, Commendations, GFP, Placement and Proficiency Tests, Recommendations

1. Introduction

Students generally enter the university environment with little knowledge or understanding of what they are going to face (Upcraft & Gardner, 1989; Roberts & Higgins, 1992 cited in Lowe & Cook, 2003; Greene and Foster 2003). The challenges they may encounter include, among many other aspects, coping with the new teaching style, period and nature of lectures, required study skills like note taking, critical reading, IT skills, communication skills, time management, English skills etc. Thus, they might lack engagement or a sense of belonging to the new environment which may adverse effects on their behaviour, emotional, and cognitive dimensions (Trowler, 2010) and, worst of all, their academic performance.

The failure of higher education institutions (HEIs) to secure to their new-comers adequate transition to university life can have long-term negative effects on the new students' careers, such as underachieving and, in some extreme cases, even dropping out. According to Trounson (2002 cited in Bettinger & Long, 2009), about 2200 students (nearly 7% of the freshmen) in the California State University in fall 2001 were expelled as they failed to master basic English and mathematical skills. Students who lack sufficient preparation for HEIs (that tend to enrol more students to fill their classes for financial reasons) need additional support and services to successfully complete a degree (Mulvey, 2008). The majority of dropouts indicate that they would have benefitted from adequate early academic and personal support (Rickinson & Rutherford, 1995).

The Foundation, 'pre-university', 'remedial', 'developmental' or 'preparatory' program aims to prepare students academically for the new environment¹. The importance of foundation programs grows especially with the growth of transnational education and the adoption of English as the language of instruction in many non-English-speaking developing countries in an attempt to have access to modern advanced sciences.

One such country that strives to modernize its education by adopting English as the language of instruction is the Sultanate of Oman. Since 1986, the date of establishing the first HEI, about 40 HEIs in the Sultanate of Oman opened and most of them embraced English as an official medium of instruction for many of their majors (Al-Mahrooqi & Denman, 2018). As English is not the mother tongue, most students would need some level of support in English language. The need for support in English language has been growing consistently, prompting decision-makers to take a radical response by establishing a structured remedial program rather than leaving students to rely on their own resources. The remedial pre-university program came to be known as the General Foundation Program and in 2008, the Ministry of Higher Education, Research and Innovation (MoHERI) standardized the GFP components (English, Mathematics, Information Technology (IT), and Study Skills) and made it mandatory in all HEIs.

2. Background to the study

Graduate students holding General Education Diploma (GED) or qualifications recognised by the Ministry of Higher Education, Research and Innovation (MoHERI) as equivalent to GED, may apply for higher education positions in their programs of choice through the Higher Education Admission Centre (HEAC) at MoHERI. About 44779 students registered in HEAC in 2020/2021 (al Numani in Oman Observer, 2021). After registration, students are informed about the programs they are admitted to. Each program has basic admission requirements that might be similar or different from others and students who meet the requirements will be admitted. However, HEIs are entitled to set additional requirements that align with the requirements of their programs. Newly admitted students, thus, will be given a placement test to determine if they meet the program requirements to enter undergraduate programs or not and to place them in the corresponding GFP level according to their performances. Students' performance in these placement tests opens the gate for a number of possibilities. Those candidates who get a score equivalent to IELTS band 5 in English (or a formal IELTS Score of 5) and meet the requirements set for Mathematics and IT may be exempted from the GFP, providing that the HEI undertakes to include the Study Skills in the first year of the undergraduate programs. GFP traditionally comprises four levels, known from the highest to the lowest, as A, B, C, or D. As each level is convertible into a semester of study, students who are placed in Level 'A' are supposed to study for one semester (about 3 months), while Level 'B' students study for 2 semesters (one academic year and so forth). However, students can skip one or two levels if they achieve determined grades on a challenging test.

HEIs, thus, offer GFPs to prepare students for their undergraduate studies. In line with this, GFPs in Omani HEIs have been designed to prepare students who graduate from schools for their postsecondary and higher education studies by providing them with the knowledge and skills that would help them complete their undergraduate studies successfully and in a timely manner (Oman Academic Standards for General Foundation Programs, 2009). GFP can be considered as a bridge to safely transfer students and fill in the gap between school and university environments and demands, as "The majority of students graduating from secondary school in Oman need to undertake a GFP in order to develop the knowledge, skills and competencies they need to successfully undertake a higher education program" (OAAAQA, 2017, p3)

Based on the decision of the former Higher Education Council (HEC) No.13/2008, the Ministerial Decision No.72/2008 ordained the implementation of GFPs in all public and private Higher Education Institutions (HEIs) in Oman starting from the first semester of the 2009 academic year.

¹ The term 'General Foundation Program' shall be used in the remainder of this paper, as it is the term used in Oman, the focus of this research project.

GFPs are licensed formal and structured programs to aid students to attain the prescribed learning outcomes in four areas. The four areas of learning in GFPs are: English Language, Mathematics, Information Technology, and General Study Skills. These courses contribute to helping students to acquire the basic skills they need for their degree courses. Most HEIs deliver their courses using English, thus enhancing English language skills is a priority. Figures about ELT in Oman demonstrate that a large number of secondary school graduates who enroll in various public and private higher education institutions lack using English four skills effectively and appropriately (Al-Issa & Al Bulushi, 2012). Benchmarks with experiences throughout the world also unveiled that university students need some levels of computer literacy (Computing), numeracy (Mathematics) and skills that may help them manage their studies (Study Skills such as summarizing, quoting, citations, etc).

3. Research Methodology:

3.1. Purpose of the study:

This paper aims to evaluate the performance of GFPs in Oman in terms of 'Student Entry and Exit Standards.'

3.2. Data and analysis:

The data analyzed in this study consists of official documents adopted by MoHERI and OAAAQA, including the GFP Quality Audit Manual and the Oman Academic Standard for General Foundation Programs (OASGFP). The main source of data, however, is the published GFP quality audit reports² which result from the OAAAQA auditing various GFPs. The paper's key focus is the formal conclusions which quality audit panels include in these reports; they were classified and their frequency analyzed using descriptive statistics (numbers and percentages).

4. The GFP Quality Audit

The Oman Authority for Academic Accreditation and Quality Assurance of Education (OAAAQA) is responsible for the quality audit of GFPs in Oman. The audit takes several months and can be conducted for a single GFP, which is the most frequent; for a multi-campus GFP, when an HEI runs a GFP across a number of institutional venues and as a network audit, for many HEIs running the same GFP. This last case was applied for the Colleges of Applied Sciences (CAS) and the Colleges of Technology (CoT) before these two networks were merged into the University of Technology and Applied Sciences (UTAS). The audit process involves the submission of a self-study by the GFP concerned; the formation of a review panel, known as the GFPQ Audit Panel, carefully selected to comprise experts covering the various GFP components. In light of the self-study, documentation submitted by the GFP and site visits the GFPQA panel writes a report documenting evidence-based formal conclusions. These reports are published on the OAAAQA website, except for those related to military institutions.

4.1 The GFP Review Framework

As mentioned above, the documents that constitute the basis for the GFP Quality Audit are the *General Foundation Programme Quality Audit Manual* (GFPQA Manual) and the *Oman Academic Standards for General Foundation Programmes* (OASGFP).

4.1.1. The General Foundation Quality Audit Manual

The GFPQA Manual sets the general and specific areas for GFPs to cover in their self-studies and audit panels to include in their review reports. These are known as the audit scope and comprise the four areas of Governance and Management, GFP Student Learning, Academic and Student Support Services, and Staff and Staff Support

² http://www.oaaa.gov.om/GFPAccredation.aspx#Inst_DownloadGFPQA

Services. Each of these four scope areas has a number of more specific 'sub- scope' areas. These sub-scope areas address specific aspects by outlining what the HEIs need are expected to focus on. The aspects with regard to GFP entry and exit standards- the primary focus of the present paper- are as follows:

The HEI should describe and evaluate how GFP entry and exit standards are set, implemented and reviewed. This may include consideration of, for example:

- Entry levels in different subject areas in relation to the lowest GFP study levels and duration of the program;
- Entry levels in relation to any pre-GFP program;
- Exit levels in all subject areas in relation to the Oman Academic Standards for General Foundation Programs, national and international benchmarks and the entry requirements of the higher education programs that the GFP is preparing students for;
- Entrance and/or placement testing systems and procedures;
- How entry standards are set, communicated and implemented;
- Exit testing systems and procedures;
- Monitoring of GFP student entry and exit standards to ensure they are being implemented fairly and consistently;
- how the rigour of entry and exit testing is assured; and
- Monitoring of student cohorts in terms of progression in GFP relative to entry standards and progression of GFP alumni on higher education programs.

How does the HEI know that the student entry and exit standards are appropriate, implemented and monitored effectively?

Source: General Foundation Program Quality Audit Manual, p.26

Two key characteristics of the GFP quality audit process are worth highlighting. The first is OAAAQA's emphasis on 'effectiveness'. As a value-free review process, the GFP quality audit does not prescribe how GFPs manage their processes in order to improve their performance. Instead, it has been designed to assess the ability of these processes to help the GFPs achieve the goals and objectives they would have set for themselves. In other words, the primary focus of the GFP quality audit is to assess whether the GFP under audit is doing things the right way i.e., whether its processes are 'fit for purpose'. To help ensure the effectiveness of processes, OAAAQA encourages GFPs to adopt a systemic approach to all aspects of their activities. In other words, GFPs are prompted to establish systems for their activities rather than content themselves with disconnected practices that may not be sustainable. The systemic approach OAAAQA champions consists of four key stages, namely the stages for (a) planning; (b) implementation; (c) monitoring and (d) review. Highly reminiscent of the PDCA (Plan, Do, Check, Act) adopted in ISO-based audits, OAAAQA's systemic approach is known as ADRI (Approach, Deployment, Results, Improvements). Applying this systemic approach to the 'Student Entry and Exit Standards' would give four dimensions GFPs should address in the management of their activities and report in their self-study portfolios. These would be the same dimensions the GFP quality audit panels cover in their reports.

Table 1: Analysis of the ‘Student Entry and Exit Standards’ according to the OAAAQA ADRI approach

Dimension	Key Question(s)	Useful Documents
Approach	What does the HEI attempt to achieve?	<ul style="list-style-type: none"> • Statements in strategic plans in relation to entry and exit standards • Specific targets in operational plans (Key Performance Indicators (KPIs)) • Directions from senior management • Policies, manuals, guidelines, action plans, etc. developed to achieve the strategic goals and/or targets • Bodies established or restructured to implement the plans
Deployment	Is action on the ground in line with the planned activities?	<ul style="list-style-type: none"> • Evidence of meetings (correspondences, meeting minutes) • Evidence of appropriate involvement in this process
Results	How far is GFP successful in the implementation of its plans?	<ul style="list-style-type: none"> • Evidence of progress in implementation (progress reports, periodic reports as per policies above) • Evidence of issues, if any, being addressed
Improvement	What is GFP doing to improve its performance in this area (Entry and Exit Standards)	<ul style="list-style-type: none"> • Evidence of decisions being taken and plans adjusted in the event of failure to achieve targets; • Evidence of targets improved once achieved

The second key characteristic of the OAAAQA review approach is that the formal conclusions reached by audit panels are highly structured. As Table 2 shows, there are three types or levels of conclusions, namely commendations, affirmations and recommendations (known for short as CAR). A fourth type is the so-called non-CAR text which is likely to take place when the review panel concludes that the HEI’s practice in the concerned area is within the required norms.

Table 2: Nomenclature of formal conclusions in GFP quality audit reports

Conclusion	OAAAQA Definition	Interpretation
Commendation	‘A formal Commendation recognises an instance of particularly good practice [in GFP]’	The practice of the GFP follows a clear system deliberately developed for the purpose, carefully monitored and regularly reviewed to ensure it is effective and remains as such. The outcomes of the system are sustainable (i.e., they can be reproduced over a period of time). The practice may have some elements of innovation or good practice.
Non-CAR		The practice of the GFP is at the required level; there is no aspect significantly below or beyond the normal level of practice which warrants special attention
Affirmation	A formal Affirmation recognises an instance in which the HEI has accurately identified a significant opportunity for improvement [in relation to GFP] and has demonstrated appropriate commitment to addressing the matter.	There is a major aspect of the GFP which requires attention. By the time of the audit, the panel found that the HEI had already identified this aspect and started dealing with it. In other words, the Panel finds that the HEI has started taking action in response to this issue.

Recommendation	A Recommendation draws attention to a significant opportunity for improvement [in relation to GFP] that the HEI has either not yet accurately identified or to which it is not yet adequately attending.	A Recommendation may be issued in either of the two cases below: There is a major aspect of the GFP which requires attention. By the time of the audit, the panel finds that the HEI has not yet identified this aspect (unaware of it). There is a major aspect of the GFP which requires attention. By the time of the audit, the panel finds that the HEI has already identified this aspect but no action has been taken to start addressing it.
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4.1.2 The Oman Academic Standards for General Foundation Programs

The second tributary of the GFP review is the OASGFP. Formally adopted by the Ministry of Higher Education, Research and Innovation (MoHERI) in 2009, the document specifies in explicit, often numeric, terms the learning outcomes for each of the four GFP components (English, Mathematics, Information Technology and Study Skills) and the knowledge and skills standards required for progressing from GFP to undergraduate programs. It also sets criteria for exemption from the entire GFP or any part of it. The requirements related to the area of ‘student entry and exit standards’ in this document are too many to contain within the limited scope of this study; specific examples will be provided whenever the specific context allows.³

4.2. *The Interface between the two documents*

Together, the two documents form an audit platform that may be regarded as a combination of process and product requirements: while the GFP Quality Audit Manual outlines the generic decision-making processes GFPs are expected to follow to ensure they are fit for purpose, the OASGFP provides measurable descriptors of the achievement levels required to enter and/or exit GFPs. This combination should not, however, be regarded as a failure, on the part of the OAAAQA to observe the generic, non-prescriptive nature of its audit principles. Once these entry and exit standards are formally instated by MoHERI, they become national requirements which neither OAAAQA nor the HE sector can afford to ignore.

The combination also provides a comprehensive audit scope that covers all aspects of the GFP. In the case of ‘Student Entry and Exit Standards’, for example, the audit extends from the GFP relationship with the study levels preceding it (such as the Basic School qualifications) to the performance of the GFP graduates in their undergraduate studies (GFP alumni). This audit continuum may be analysed into three key stages, as follows:

- Pre-GFP requirements: They generally refer to GFP entry requirements as they set the levels attained in any programmes preceding the GFP. The most obvious example is the candidate’s score in the General Education Diploma and their achievement in specific subjects relevant to the higher education specialisation the candidate wishes to pursue. These requirements are centrally set by the Higher Education Admission Centre (HEAC) at MoHERI and used to allocate scholarships. As indicated earlier, however, HEIs may set higher or additional requirements which they feel better to serve their higher education programmes.
 - In-GFP requirements: While running GFPs, HEIs are expected to demonstrate that their programmes meet the standards set in the OASGFP to ensure that the exit levels meet the requirements of the higher education programmes. This may be achieved through the continuous review and improvement of the entry and exit standards through mechanisms such as benchmarking and external moderation. During this phase, HEIs are also expected to disseminate information about GFP accurately and ethically and to implement the related requirements and procedures fairly and consistently.
- Post-GFP requirements: In the post-GFP stage, HEIs are expected to maintain communication with the GFP graduates in order to seek their feedback about the programme. The GFP graduates’ experience with their undergraduate programmes, the feedback they receive from their lecturers and in particular their

³ OASGFP may be retrieved at: <http://www.oaaa.gov.om/Docs/GFP%20Standards%20FINAL.pdf>

progression, retention and completion rates may provide useful information to the HEI to improve the GFP offerings and services.

The various taxonomies offered above help us determine the following key characteristics of the formal conclusions in GFPQA reports that will be covered in this study:

- Formal conclusions must be directly related to the scope area ‘Student Entry and Exit Standards’.
- Formal conclusions must address the requirements explicitly stated in the scope area ‘Student Entry and Exit Standards’. For the sake of consistency, transparency and fairness between GFPs, no additional requirements may be added by review panels.
- Formal conclusions may be issued in the form of Commendations, Affirmations, Recommendations (CARs) or non-CAR texts.
- Formal conclusions should reflect the ADRI cycle in their identification of good practices or opportunities for improvement. In other words, a Commendation should demonstrate how a practice helped improve the performance of a GFP developing, implementing and reviewing effective processes. By the same token, a Recommendation should demonstrate how addressing the OFI identified would help the GFP attain sustainable results.

5. Findings of the GFP Reviews

During the period between March 2018 and January 2021, the Oman Authority for Academic Accreditation and Quality Assurance of Education (OAAAQA) reviewed 20 GFPs. The present study included, however, only 18 of them. The remaining two were the Colleges of Applied Sciences (CAS) and the Colleges of Technology (CoT). They both underwent GFP quality audits as networks, but their GFPQA reports were archived as they became part of the University of Technology and Applied Sciences (UTAS).

5.1. A General GFP Profile

It may be worth noting at this stage that OAAAQA cautions that the formal conclusions it issues in GFPQA reports should not be regarded as the sole indicator of quality in the GFPs. These conclusions, however, help draw a global picture of the performance of all the GFPs in the Sultanate, whether in general (all areas) or in specific areas, such as the performance of the sector in the area of entry and exit standards, the primary focus of this paper.

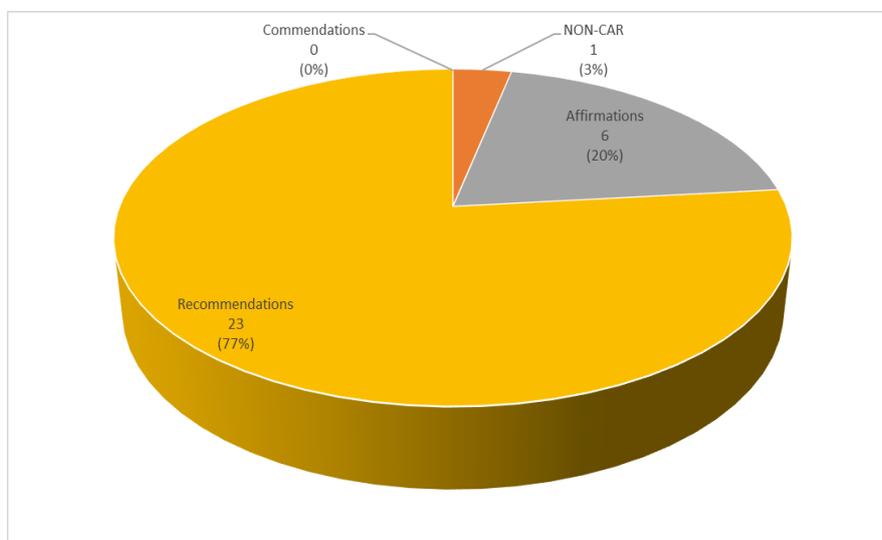


Figure 1: Performance of GFPs in the area of ‘Student Entry and Exit Standards’ according to OAAAQA Report Conclusions

Figure 1 suggests the following patterns with regard to the performance of HEIs in the management of their GFP student entry and exit standards:

- With no commendations and one Non-CAR conclusion, HEIs are yet to establish sustainable practices in their GFPs in relation to entry and exit standards. While this may be understood in view of the fact that GFP quality audits started only as late as 2017, quality audit has been practised at the institutional level since 2008 (Institutional Quality Audit-IQA) and refers explicitly to the role of the GFP:
The HEI should describe and evaluate its system for setting, implementing and reviewing the student entry standards. This may include benchmarking nationally and internationally; entrance testing; links to General Foundation Programs.... (IQAM, p.20)
- The systems in the GFP are still underdeveloped and practices are largely unsystematic. The high percentage of Recommendations (77%) provide evidence that HEIs are still largely unaware of the systems that need to be put in place to ensure the GFP entry and exit standards they adopt to support the effectiveness of their GFPs. The fact that the number of recommendations (n=23) exceeds the number of GFPs (n=18) means that HEIs need to address more than one aspect of their entry and exit standards.
- As mentioned above, Affirmations denote work in progress to bring some substandard practices to the required levels. The rate reported (20%) may, however, be positively perceived as an indicator of growing awareness of the need to actively attend to GFP entry and exit standards so as to align them with the prescribed requirements

5.2. Opportunities for Improvement

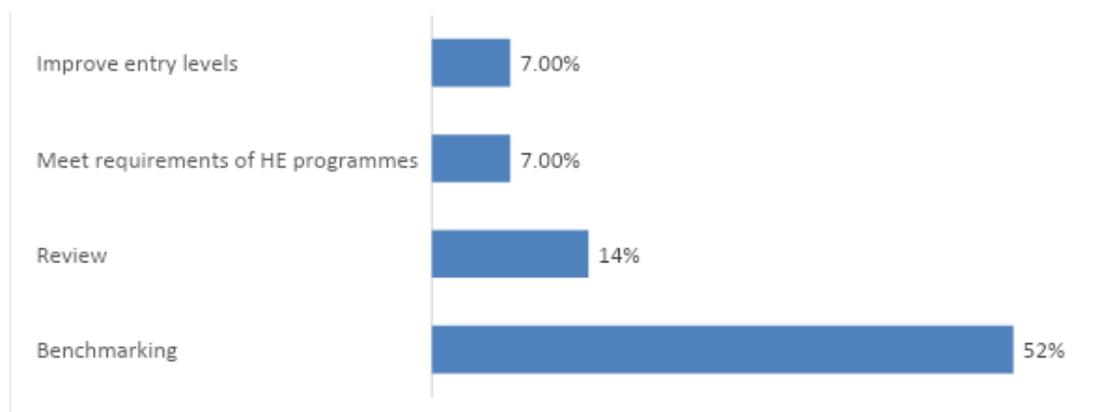


Figure 2: Distribution of OAAAQA Formal Conclusions related to Student Entry and Exit Standards

Figure 2 offers a detailed analysis of the distribution of OAAAQA formal conclusions (CARs). Merging Recommendations and Affirmations as opportunities for improvement, the analysis suggests an order of frequency in which four topics account together for around 80% of the formal conclusions. As reported in Figure 1 above, 29 Recommendations and Affirmations were issued, touching on a variety of subjects related to student entry and exit standards. Out of these 29 conclusions, 2 (7%) were prompts for HEIs to “improve entry levels” and “meet requirements of HE programmes”, 4(14%) about review, and 15 (52%) were directly about benchmarking.

5.3. Discussion of Findings

- The improvement of entry standards: the fact that the GFP entry requirements are centrally determined by HEAC does not invalidate OAAAQA’s call for entry standards to be improved. The HEAC, on behalf of MoHERI, sets the level at which students become eligible for government scholarships and to which HEIs and specialisations they would be streamed. HEIs are expected, however, to set their own entry standards which they believe should be adequate for the prospective students to complete their GFP studies

successfully. The dilemma in which HEIs find themselves is undeniable: setting higher entry standards may secure 'good' students who can complete the GFP in time or even get exemptions from it if their placement test scores meet the exemption requirements. By the same token, lifting the standards may limit the numbers of new admissions, thus leading to the decrease in much-needed revenues. It has to be noted, however, that some HEIs have started addressing this conflicting state of affairs by setting pre-GFP levels and developing special courses for them.

- The need to meet the requirements of higher education programs: while the successful completion of the GFP is a prerequisite for enrolment on higher education programs, HEIs, or their academic affiliates, have the option to impose additional admission requirements (OASGFP, Point 1.4(a), p.11) if they deem the standards set in the OASGFP not adequate for the successful progression of students in their undergraduate studies. Once any such additional requirements are instated and announced by the HEI (such as in student booklets), it becomes incumbent upon the GFPs to abide by them.
- Review of entry and exit standards: GFPs have much to gain from the review of their entry and exit standards. Firstly, review is a key component of the ADRI cycle and the GFPs' failure to review their processes will deny them of the opportunity to assess their progress in the attainment of their goals and, more importantly, deprive them of the chance to improve their provision. Secondly, the effectiveness of entry and exit standards is relative rather than absolute. It is affected by a variety of factors within GFP and outside such as the ever-changing requirements of the job market and changes in the curricula of undergraduate programs to remain relevant for employment purposes. An HEI, for instance, has an Information Technology programme and the GFP exit standards have been designed accordingly. If, for any reason, the HEI decides to add a 'Graphic Design' major to this program, the initial GFP exit standards will not serve the purpose and need to be updated in order to close the emerging gap. It is probably this ever-changing nature of entry and exit standards, much like any other area of the audit scope, that prompted MoHERI to consider the requirements set in the OASGFP as 'minimum requirements' (OASGFP, p.4) and OAAAQA to approach it 'as an external reference point' (GFPQA Manual, p.16).
- Benchmarking of entry and exit standards: OAAAQA obviously accords special attention to benchmarking. It devotes a whole section of the GFPQA Manual (Section 26) to it and prompts GFPs to use it in almost every scope area. This position may well be a reflection of the universally growing awareness of the importance of benchmarking as a development tool. By the end of the twentieth century, UNESCO authored a set of papers on benchmarking and branded them as:

Early contribution to what will inevitably become an area of increasing interest in the years to come, and it is likely that a concern with benchmarking and associated quality management initiatives will become increasingly central to future UNESCO activities within the field of higher education (UNESCO, 1998, p.5)

UNESCO's reading of the developments in the higher education sector has been accurate. The search intensified for tools to improve provision "in an increasingly diversified higher education sector" (Burquel & Vught, 2009, p.4). More importantly, "among the improvement strategies and techniques, benchmarking has emerged as a useful, easily understood, and effective tool for staying competitive" (Achim et al., 2009, p.850). The theoretical momentum built around benchmarking was sooner than later translated into action, with the birth of tens of benchmarking clubs and groups in developed countries (UNESCO, 1998, Burquel & Vught, 2009).

Interestingly, with regard to 'Student Entry and Exit Standards', benchmarking may be a useful tool for the GFPs' response to the three remaining opportunities for improvement. Running foundation programs has become a universal experience, particularly as more and more knowledge seekers travel around the world to study in languages other than their mother tongues. This provides GFPs in Oman with various opportunities to learn how issues such as low entry and/or exit levels have been addressed. The same applies to the review of GFP entry and exit standards which can be conducted for numerous purposes, including alignment with national requirements and meeting the requirements of undergraduate programs. Ensuring that GFPs remain in tandem with their counterparts throughout the world may not be achieved without being aware of how these programs operate, i.e., benchmarking.

6. Conclusion

The GFP Quality Audit reports published by the OAAAQA have been analyzed in order to evaluate the performance of GFPs in Oman in the area of ‘Student Entry and Exit Standards’. The formal conclusions (CARs) issued by review panels were used as indicators. The study found that the GFP performance in this area is yet to reach acceptable standards, as recommendations were prevalent in the reports included in this study. Four opportunities for improvement were identified as requiring attention of GFPs and one of them, benchmarking, stood out as it accounted alone for about half of the recommendations. This finding suggests that HEIs continue to prefer taking the journey in solo. It is not clear whether this reluctance to embrace such a proven effective tool is due to the confusion between ‘collaborative’ and ‘competitive’ benchmarking (UNESCO, 1998) or simply a case of misconstrued implementation of which Shoffield (1998) explicitly warned in his assertion that,

Benchmarking will not be effective if it simply takes a snapshot of a comparative situation. It needs to be an on-going, systematic process for measuring and comparing the work processes of one organisation with those of another by bringing an external focus on internal activities (Shoffield, A.,1998, p.10).

References

- Achim, M., Cabulea, L., Popa, M., & Mihalache, S. (2009). The role of benchmarking in the higher education quality Assessment. *Annales Universitatis Apulensis Series Oeconomica*, 11(2), 850-857.
- Al-Issa, A. & Al-Bulushi, A. (2012). English language teaching reform in Sultanate of Oman: The case of theory and practice disparity. *Educational Research for Policy and Practice*, 11(2), 141-176. doi:10.1007/s10671-011-9110-0
- Al-Mahrooqi, R. & Denman, C. (2018). Introduction: English education in Oman: Current scenarios and future trajectories. In R. Al-Mahrooqi & C.J. Denman (Eds.), *English education in Oman: Current scenarios and future trajectories* (pp.1-8). Singapore: Springer.
- Bettinger, E. P. & Long, B. T. (2009). Addressing the Needs of Underprepared Students in Higher Education: Does College Remediation Work? *The Journal of Human Resources*, 44 (3), 736-771.
- Greene, J. & Foster, G. (2003). Public High School Graduation and College Readiness Rates in the United States. *Education Working Paper No. 3*.
- Lowe, H. & Cook, A. (2003). Mind the Gap: Are students prepared for higher education? *Journal of Further and Higher Education*, 27(1), 53-76.
- Mulvey, M. (2008). Under-Prepared Students - A Continuing Challenge for Higher Education. *Research in the Teaching of Developmental Education*, 24 (2), 77-87
- OAAAQA (2017). *General Foundation Program Quality Audit Manual*. Oman Authority for Academic Accreditation and Quality Assurance of Education. Retrieved online at: <http://www.oaaa.gov.om/Docs/To%20upload-FINAL-GFP%20Quality%20Audit%20Manual%20April.pdf>
- OAAAQA (2008). *Institutional Quality Audit Manual*. Oman Authority for Academic Accreditation and Quality Assurance of Education. Retrieved online at: http://www.oaaa.gov.om/KeyDocument/Files/qam_2008_final2.pdf
- Oman Academic Standards for General Foundation Programs. (2010). Retrieved from <http://www.oaaa.gov.om/Docs/GFP%20Standards%20FINAL.pdf>
- Oman Observer. (2021). Retrieved from <https://www.omobserver.om/article/1103368/oman/44779-students-registered-in-heac>
- Rickinson, B. & Rutherford, D. (1995). Increasing undergraduate student retention rates. *British Journal of Guidance and Counselling*, 23 (2), 161-72.
- Shoffield, A. (1998). Benchmarking: An overview of approaches and issues in Implementation in ‘Benchmarking in Higher Education: A study conducted by the Commonwealth Higher Education Management Service. *New Papers on Higher Education* (21). UNESCO, 10-30.
- UNESCO, (1998). Benchmarking in Higher Education: A study conducted by the Commonwealth Higher Education Management Service. *New Papers on Higher Education* (21). UNESCO.
- Trowler, V. (2010). *Student Engagement Literature Review*. York: The Higher Education Academy. Retrieved from https://s3.eu-west-2.amazonaws.com/assets.creode.advancehe-document-manager/documents/hea/private/studentengagementliteraturereview_1_1568037028.pdf

Context and Pragmatics

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Abstract

By exploring the faces of context from the perspective of components, knowledge and cognition, this article concludes that context is at the core of pragmatic studies, which examines how context contributes to meaning and pragmatics will gain momentum when linguists and non-linguists tap into the field of context.

Keywords: Context, Pragmatics, Cognitive, Relevance, Function

1. Introduction

Pragmatics is centrally concerned about the use of language in context. The role and significance of context for pragmatics cannot be overestimated. “Context is a constitutive concept of pragmatics, because without context pragmatics simply could not exist.” (Poznan, 2004:45) It’s when the context has joined the family of semantic studies that pragmatics begins to find suitable channels to make its voice heard and develops into a relatively independent discipline. (He, 2000:4) More importantly, context provides a link for cognitive and psychological bend of pragmatics. Context is important and indispensable for the study of pragmatics. (Yi, 2016:17) This article will explore the changing faces of context, the new dynamics it has acquired from cognitive linguistics and its function. And it concludes that as a dynamic notion, context will gather momentum for pragmatic studies.

2. The changing faces of context

There are two broad categories to expound on the notion of context. Context can be understood as some factors abstracted from concrete situations and will have some influence on participants. Context can also be viewed as background knowledge shared by participants. This article will present the changing faces of context from the perspective of components and perspectives of knowledge based on the classification made by He Ziran and Cheng Xinren in their book *Contemporary Pragmatics*.

2.1. Understanding context from the perspective of components

According to M.A. Halliday, there was a theory of context before there was a theory of text. Anthropologist Bronislaw Malinowski coined the term context of the situation while he needed a term to express the total environment, including the verbal environment, but also including the situation in which the text was uttered. Malinowski also introduced the notion of context of culture, when he found cultural background behind the immediate sounds and texts played a significant part in the interpretation of meaning. (Wolf, 1989:259)

English linguist Firth borrowed Malinowski's idea and developed it for the purpose of "expounding the meaning of particular instances of language use." (Halliday, 1985:6) Firth wanted a framework that could be used for the study of texts as part of a general linguistic theory.

American anthropologist Dell Hymes also worked on the definition of context. He put forward a S-P-E-A-K-I-N-G model with 16 components and he grouped the 16 components into eight divisions. He identified the setting and scene, participants, ends, act sequence, key, instrumentalities, norms and genre.

For him, setting and scene refer to time and place of a speech act. Participants mean speaker and audience. The audience can be distinguished as addressees and hearers. Ends include purposes, goals and outcomes. Act sequence refers to the form and order of the event. Key can be explained as clues that establish the tone, manner or spirit of the speech act. Instrumentalities include forms and styles of speech. Norms refer to social rules governing the event and the participants' actions and reactions. Genre is the kind of speech act or event.

Later Lewis introduced factors concerning former texts, and he used the concept of aforementioned to describe the context.

Halliday focused on the success of our actual communication and established the framework of the context of the situation. This framework includes three features: the field, the tenor and the mode.

The field refers to what is happening. It concerns the nature of the social action that is taking place. The tenor refers to who is taking part. It mainly looks after the notion of the participants, their statuses and roles. The mode refers to what part the language is playing. It includes what it is that the participants are expecting language to do for them. (Halliday, 1985:9-11)

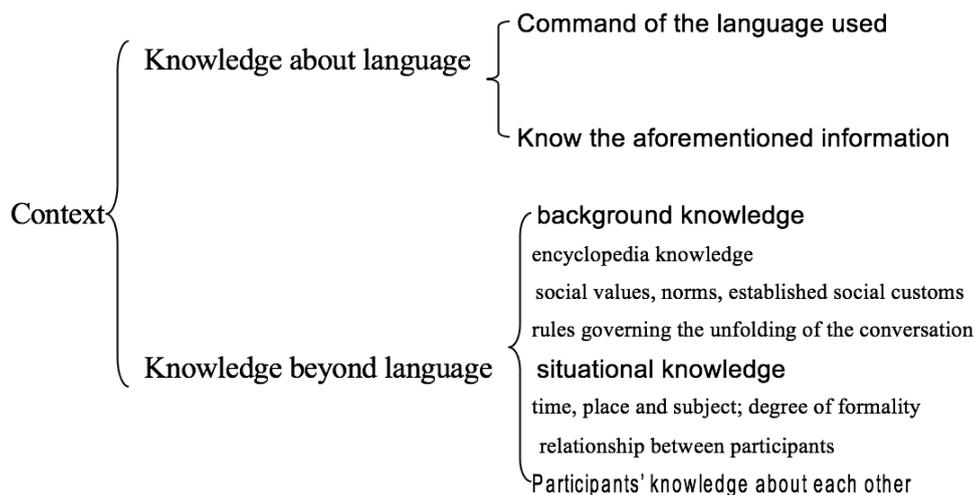
Mey presented a broad view of context as knowledge, situation and co-text. He believed that context was a dynamic rather than static phenomenon; therefore, contextual factors were in steady development during the process of social interaction. He also introduced the idea of "wording the world." He said, "in order to understand another person's wording, I have to participate in his or her contexts, to world the word with him or her." (Poznan, 2004:49)

Jeff Verschoren located "language users within contextual correlates of adaptability represented as a linguistic context and the mental world, social world and physical world. He found a broad framework which included knowledge, situation and co-text. His mental world activated in language use contains cognitive and emotive elements. He extended it to include personality, beliefs, desires, wishes, motivations, and intentions. The social world is examined by its social settings, institutions, cultural norms, and values. The physical world refers to participants' bodily posture, gestures, gaze, gender and physical appearance. (Moyer, 1995:136)

2.2. Understanding context from the perspective of knowledge

Lyons tries to understand context from the perspective of knowledge. He summarized six dimensions of knowledge that can construct context. According to Lyons, every participant should be aware of the part he played in the speech act and his status; each side should note the time and place of the speech act; participants are conscious of the degree of formality of the speech act and can decide the proper communicative medium accordingly; participants know how to adapt their language to the topic of the speech act and properly decide the dialect used in the specific situation; participants understand the importance of the scope of language (He Ziran and Chen Xinren, 2004:113).

Chinese scholars He Zhaoxiong and Yu Dongming also put forward their framework. They summarized the knowledge factors of context as follows: (He, 2000:21)



Leech viewed context as “any background knowledge assumed to be shared by speaker and hearer and which contributes to the hearer’s interpretation of what speaker means by a given utterance.” (Poznan, 2004:51)

Levinson restricted context to the basic parameters of the context of utterance which include participants’ identity, role, location, and assumptions about knowledge. Dijk established “new context models” and believed “for each proposition and speech act they must know what recipients know. Hence, they must also model such knowledge as relevant part of the communication event.” (Dijk, 2008a:7) He also proposed a knowledge device (K-device) for the management of knowledge in discourse.

3. Relevance theory and context

Based on the cognitive environment and aimed at establishing relevance, cognitive context sheds new light on the concept of context. Blakemore explained that people generally aim to bring about the greatest improvement to their overall representations of the world for the least cost in processing. Sperber and Wilson assumed that this would be achieved by processing only information that is relevant.

3.1. Principle of relevance

Sperber and Wilson’s theory began with the idea of manifest. A fact is manifest to a person at a given time if he/she understands it and accepts its representation as true. The cognitive environment of an individual is the set of facts and assumptions that are manifest to him/her at a given time. To be manifest is to be capable of being perceived or inferred. An individual has certain cognitive abilities and exists in a particular environment, and these together determine what he/she can and cannot perceive or infer.

Sperber and Wilson assumed that human beings attempt to aim at the most efficient information processing possible. For them an individual’s particular cognitive goal at a given moment is always maximizing the relevance of the information processed. (Wilson, 2016)

Sperber and Wilson believed any individual would have a body of manifest assumptions in his/her command. They are the products of each individual’s cognitive ability, cultural and social group identity, educational background, and physical environment. In a communication process, some of these assumptions are retrieved or are inferred from two or more assumptions. Thus, in a conversation, interpreting meaning means to work out the consequences of adding the assumption expressed by the utterance to the set of assumptions already present in the hearer’s mind and Sperber and Wilson named these pre-existing assumptions as context. They believed a context is a psychological construct, representing the hearer’s assumptions about the world at any given time. (Wilson, 2016)

3.2. Principle of relevance and the notion of context

From the standpoint of relevance theory, context can be seen as a set of premises, namely, assumptions, mental representations, which are used in the deductive process of interpretation. The context behaves as a dynamic mental representation in which memory, information, knowledge, and the inferential capacities of the individual are used.

How does an individual select a particular set of assumptions from among all possible contexts available to him/her? Sperber and Wilson argued that context selection depended on relevance considerations. An individual selects a context that will maximize the relevance of the information being processed. Any individual has a great amount of information available, but only a small part of it is useful to process new information. When a deductive process starts, the speaker has in memory an initial set of assumptions to begin the interpretation process. Actually, the initial context includes information recently processed. If one cannot find the optimum relevance, he/she will extend the context until the optimum relevance is present. (Luchjenbroers, 1992:603-604)

3.3. Contextual effect

What effects can an utterance have on a context? According to Sperber and Wilson, the process of interpreting utterances implies the achievement of contextual effects. Information is relevant to an individual if it has a contextual effect in an accessible context. New information is processed automatically by the deductive system in relation to the assumptions stored in the mind. There exist three different contextual effects:

First, the assumptions already present in the context together with the assumptions expressed by an utterance can logically imply one or more new assumptions by way of a deductive process. In this way old and new information combine to create new information.

Second, a new assumption can cause the erasure of one or more assumptions from the context.

Third, a new assumption can strengthen or weaken one or more assumptions in the context.

All in all, relevance is constant and context is the variable and relevance provides the baseline for the construction of the context. (ibid, 605)

4. Function of context

In terms of its relationship with pragmatics, the function of context mainly lies in its influence on the expression and interpretation of meaning.

Context cannot exert its influence on its own. It participates in the process of decoding meaning. From the speakers' point of view, its function can be understood at least from three aspects:

First, it will decide the content to be expressed according to the purposes and goals of communication.

Second, it will define the style of speech act according to the setting or scene.

Third, it will decide the channel of communication in accordance with the situation presented.

And from the audience's point of view, the function of context includes the following three dimensions:

First, it helps to assign reference

Second, it serves as an anchor to get rid of pragmatic ambivalence and vagueness. (He Ziran and Chen Xinren, 2004:118-121)

Semantic enrichment is realized when context helps the audience to fill the information gulf. And Dijk believed that his model for understanding context would offer "a general foundation for pragmatics." (van Dijk, 2008b:5)

5. Conclusion

Exploring the notion of context is at the core of pragmatic studies. Almost all the landmarks in pragmatic studies are erected with a new understanding of context. Fortunately, context is a breathing concept, so pragmatics will gain new momentum when linguists and non-linguists continuously use fresh perspectives to tap into the field of context.

References

- Van Dijk, Tenu A. (a) Text, Context and Knowledge. (2008), <http://www.discourse.org>.
- Van Dijk, Tenu A. (b) Context Theory and the Foundation of Pragmatics. 语用论研究第 10 号, 2008 年, pp1-13.
- Halliday, M.A.K. and Ruquaiya Hasan. (1885) *Language, Context and Text*. Victoria: Deakin University.
- Luchjenbroers, June. (1992) Relevance theory and context discussion. *Journal of the American Society for Information Science*, Oct, 1992, PP590-615.
- Moyer, Melissa G. (1996) Pragmatics, the state of the art: a talk with Jef Verschueren. *Links & Letters*, 1996, PP12-140.
- Poznan, Roman Kopytko. (2004) What is wrong with modern accounts of context in linguistics. *Views*, Sept, 2004, PP45-60.
- Yi Luo. Context Theory and the Foundation of Pragmatics. *International Journal of Humanities and Social Science*. Vol 5, Issu.8, 2016, pp17-21.
- Wilson, Deirdre. Relevance Theory in Y. Huang (ed.) *Oxford Handbook of Pragmatics*. Oxford University Press, Oxford:2016.
- Wolf, George. Malinowski's Context of Situation. *Language and Communication*, Vol. 9, NO.4, 1989, pp259-267.



An Investigation of the Handball Attitudes of Secondary School Students in Terms of Some Variables

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Abstract

The aim of this study is to examine the behaviours of secondary school students towards the branch of handball according to some variables. The group of study occurs of a total of 727 students, 424 male and 303 female, who were voluntarily participated in the research and educated in the 5th, 6th, 7th and 8th grades of secondary schools in Gaziosmanpaşa district of Istanbul province in the 2020-2021 academic year. "Handball Attitude Scale for Secondary School Students" developed by Görgüt and Güllü (2017) was used as a datum collection appliance in the study. Statistical analysis of the data has been done with SPSS 26 program, t-test and One Way Anova tests. According to the classes that the students have studied and the sports branches they are interested in; If it is one-way, the One Way Anova test has been used to define the resource of the difference in cases where the relationship between the variables has been significant, and in cases where the variances have been homogeneous, the LSD test, one of the PostHoc tests, has been used. In the research findings, in the LSD tests, it has been revealed that there has been no positive or negative significant difference in the handball branch according to the classes that the students studied, and it has used a positive impact on the handball branch according to the sports branches of interest. ($p < 0.05$). With reference to the conclusions of the t-test performed by looking at the gender of the students, It was concluded that there had been a significant difference between their attitudes towards the branch of handball ($p < 0.05$). However, there has been no significant difference in the attitudes of the students against the branch of handball according to the sports status of the students and the sports status of their parents. It has emerged that the interest of secondary school students and their families in sports does not affect the handball branch positively or negatively.

Keywords: Student, Handball, Physical Education, Attitude, Team Sports

1. Introduction

Activities that attract attention from the masses and require physical activity and sports are also seen as the image of healthy life. In general culture, sports are considered as healthy life, leisure time activities, learning by having fun. The organization, which is held not only for the athlete performing the sportive activity, but also for the audience watching the activity, is the representative of a political, economic and social field (Solmaz & Oguz

Aydın, 2012). In addition to being a tool for individuals to stay healthy and fit, sports is becoming a broad economic sector with each passing day (Yetim, 2014). At the same time, since it is a collective activity, it causes the development of social relations of people and an increase in social participation. By playing a role in bringing people together, sports contribute to the development of freedom consciousness and increase the solidarity and cooperation among people (Kat, 2009). Sports can be defined as improving the mental and physical health of people, which is the basic element in social, economic and cultural development, supporting the development of character and personality traits, ensuring adaptation to the environment by gaining talent, knowledge and skills, providing cohesion, solidarity and peace between individuals and societies in the international arena, fighting, competing and getting excited within the framework of certain rules by increasing the fighting power of individuals and activities to gain superiority in competition. In this context, today's sport is a very useful, versatile, universalized phenomenon with various purposes and dimensions (Soyer et al., 2010).

Sport, which improves the physical and mental health of the person, is also a pedagogical, biological and social factor that regulates the social behavior of the person and increases the motoric and mental characteristics at a certain level. In other words, sports is one of the most important social factors that ensure the development of the soul, body and idea of the person, the coordination between them and socialization. Also, since sports appeal to the human element, whether it is aimed at creating a healthy society, whether it is a tool that can be used for social dissolution and alienation, whether it is aimed to raise innovative, constructive youth who can look to the future with confidence, today, it is undeniable that sports are an indispensable and effective social phenomenon (Yetim, 2014).

Sportive behaviors in individuals contribute to their development in every way. Participating in sports games as a team player enables the development of feelings such as working together with time, mutual assistance, game order and respect for other players. Working as a team teaches the individual how to act in this environment. It is accepted that team sports strengthen the bonds and social relations between people and groups and shorten social distances (Taşkıran, 1997). Handball, as in many sports, is an activity created by various movements, aiming to gain superiority over the opponent and to play well together with each team's teammates at the possible level (Bağırhan, 1990). Handball, successfully develops the athlete's movement habits and his/her collective thinking skills. During the game, the athletes have to harmonize their wishes with the requirements of the team and are directed to cooperate. As a result of this, they learn that they can achieve success only through collective play and cooperation. As it is aimed in sportive games, it is also aimed to develop the ability of individuals to act independently in the branch of handball. The handball branch is also very effective in personality training. In particular, it provides the development of the qualities of courage, honesty, willpower and perseverance (Sevim, 2002).

People are in constant communication and interaction with both themselves and their environment from the moment of birth. As a result of this, they can develop attitudes towards events, objects, groups or streams of ideas. Attitude is a mood, state or attitude that directs the behavior of individuals towards a thought or event. In other words, attitude is a mental, physical, behavioral and emotional reaction that an individual organizes based on his/her motivation, ability, experience and knowledge against an event, object or social issue in his/her environment (İnceoğlu, 2011).

The common point in the definitions made about attitude is that attitude is a preliminary predisposition that is understood by the individual's reactions to the social events around his/her. Attitude, first of all, expresses the social attitude. In addition, the concept of attitude also expresses the readiness for a reaction behavior and the continuous systematic organization of knowledge and emotions for the realization of the attitude consisting of cognitive, behavioral and emotional elements.

The individual is able to form an attitude towards the objects located around him/her. These objects can be a business, a profession, a political opinion, a public organization, a region and a course. For example, an individual may develop an attitude towards the site management, supermarkets, doctors, political parties, grocery stores, and similar objects in the region where he/she lives. If the attitude developed towards the object is in a positive direction, positive behaviors such as appreciating, loving, supporting the object are exhibited.

Otherwise, in adverse situations, negative behaviors such as moving away from the object and avoidance are exhibited (İnceoğlu, 2011).

By explaining the basic concepts of the study, it is aimed to investigate the attitudes of secondary school students representing different segments of the society identified as the target group in the study towards the branch of handball in terms of some variables.

2. Method

The purpose of this study is to examine the attitudes of secondary school students against the branch of handball according to some variables. The group of the research consists of a total of 727 students, 424 male and 303 female, who were voluntarily participated in the study and who are studying in the 5th, 6th, 7th and 8th grades of secondary schools in Gaziosmanpaşa borough of Istanbul city in the 2020-2021 academic year.

2.1 Data Collection Tool

In the research, the “Handball Attitude Scale for Secondary School Students” developed by Görgüt and Güllü (2017) has been used to define the injury anxiety levels of the athletes as a data collection tool (Görgüt & Mehmet, 2017) The scale used consists of 16 items. There is not negative (conflicting) item on the scale. It is scored as I strongly disagree 1, I disagree 2, I am indecisive 3, I agree 4, and I strongly agree 5, on a 5-point Likert-type scale. High marks obtained from the scale specify that students have a positive attitude towards handball.

2.2 Analysis of Data

By transferring the obtained data to IBM SPSS 26 program, reliability, frequency, percentile slices, arithmetic averages and standard deviations have been computational. In order to determine the assumption of normal distribution of the data, Kolmogorov-Smirnov test has been used for the analysis of independent variables (Büyüköztürk et al., 2011; Büyüköztürk, 2011). As a result of the results obtained, kurtosis and skewness values have been also examined (Büyüköztürk et al., 2011; Büyüköztürk, 2011; George & Mallery, 2010). As a result of the analysis, these values have been found to be between -1.5 and +1.5. For this reason, it has been determined that it provides the assumption of normality (Tabachnick & Fidell, 2013). Parametric tests have been used for the analysis and interpretation of the data. In this direction, t-test analysis was carried out to explain the attitudes of the students towards the handball branch according to gender. According to the classes that the students have studied and the sports fields that the students are interested in, one-way Anova test has been used if it is one-way. When a significant difference has been found in the relationship between the variables used, the LSD test, one of the PostHoc tests, has been used to determine the source of this difference, provided that the variances have been homogeneous.

3. Findings

In this part of the research, the statistical analysis results of the data obtained from the Handball Branch Attitude scale applied to the participants have been interpreted in terms of some variables by tabulating them.

3.1 Descriptive Qualities

Table 1: Frequency and Percentage Distributions of the Research Group's Descriptive Qualities Regarding Handball Branch Attitudes.

Variables	<i>f</i>	%	
Gender	Male	424	58.3
	Woman	303	41.7
Class	5th grade	173	23.8
	6th grade	284	39.1

	7th grade	148	20.4
	8th grade	122	16.8
Status of Doing Sports in Family Members	Yes	305	42.0
	No	422	58.0
Active Sports Status of Students	I do active sports	297	40.9
	I don't do sports	430	59.1
Sports Branches That Students Are Interested In	football	242	33.3
	basketball	89	12.2
	volleyball	121	16.6
	Handball	9	1,2
	Gymnastics	12	1.7
	Karate	20	2.8
	taekwondo	49	6.7
	wrestling	6	8
	Swimming	123	16.9
	Other	56	7.7

When Table-1, which contains the data on the descriptive demographic qualities of secondary school students, is examined, 424 of the students participating in the research are male and 303 are female. Looking at the class variables, it is seen that 173 of the students participating in the research are in the 5th grade, 284 are in the 6th grade, 148 are in the 7th grade, and 122 are in the 8th grade. It is seen that 297 of the participants do active sports, 430 people do not do active regular sports, and 42% of their family members do active sports, 58% are those who do not do sports. When looking at the sports branches that students are interested in, it is seen that 242 people are interested in football, 89 people are interested in basketball, 121 people are interested in volleyball, 9 people are interested in handball, 12 people are interested in gymnastics, 20 people are interested in karate, 49 people are interested in taekwondo, 6 people are interested in wrestling, 123 people are interested in swimming and 56 people are those who are interested in other sports branches.

The results of the t-test analysis conducted to determine the statistical differences between the Handball Branch attitudes of the participants studying in secondary school and their gender are given in Table-2.

Table 2: T-Test results of secondary school students according to their gender and attitude scores related to handball branch.

Variables	Groups	N	x	ss	t test		
					t	sd	p
Gender	Male	424	3.44	1.10	6.81	597	.001*
	Woman	303	2.83	1.25			

* Significant difference at $p < 0.05$ level

When the handball branch attitudes of the participants given in Table-2 are analyzed by gender, it is seen that there is a significant difference between men and women ($t[597]=6,81$; $p < 0,05$). It is seen that male students' handball attitudes ($X=3.44$) are higher than female students' attitudes ($X=2.83$).

The t-test analysis results conducted to determine the statistical differences between the handball branch attitude scores of the secondary school students according to their doing sports status are given in Table-3.

Table 3: T-Test results of the handball branch attitude scores of the secondary school students according to their doing sports status.

Variables	Groups	N	x	ss	t test		
					t	sd	p
Doing Sports Situations	I do active sports	338	3.12	1.23	-1,427	713	.153*
	I don't do sports	377	3.25	1.17			

* Significant difference at $p < 0.05$ level

When the handball branch attitude scores of the participants given in Table-3 are examined according to their doing sports status, there is no statistically significant difference according to the difference in the students' doing sports status ($t[713] = -1,427$; $p > 0,05$). Those who do active sports are seen as 3.12 ± 1.23 , while those who do not do sports are seen as 3.25 ± 1.17 .

The results of the t-test analysis conducted to determine the statistical differences between the handball branch attitude scores according to doing sports status of the family members of the secondary school students are given in Table-4.

Table 4: T-Test results of the handball branch attitude scores according to doing sports status of the family members of the secondary school students.

Variables	Groups	N	x	ss	t test		
					t	sd	p
Doing sports status in family members	Yes	314	3.13	1.22	-1,072	725	.284
	No	413	3.23	1.19			

* Significant difference at $p < 0.05$ level

When the handball branch attitude scores of the participants given in Table 4 are examined according to doing sports status of the family members, there is no statistically significant difference according to the difference in doing sports status of the family members ($t[725] = -1,072$; $p > 0,05$). Family members who do active sports are seen as 3.13 ± 1.22 , while those who do not do active sports are seen as 3.23 ± 1.19 .

The results of the one-way analysis of variance (ANOVA) conducted to determine whether or not the handball branch attitudes of secondary school students differ according to the classes they study are given in Table-5.

Table 5: Anova results of the handball branch attitude scale scores according to the grades of the students.

School Type	N	x	ss	Source of Variance	KT	sd	KO	F	p	meaningfulness
5th grade (1)	173	3.15	1,174	Between G.	0.4	3	0.133	.091	.965	
6th grade (2)	284	3.19	1,230	Within G.	1059.139	723	1,465			
7th grade (3)	148	3.22	1,191	Total	1059,540	726				
8th grade (4)	122	3.20	1,234							
Total	727	*	.1,208							

When Table-5 is examined, it does not show a statistically significant difference according to the classes of secondary school students ($F = .091$; $p > .05$).

The results of the one-way analysis of variance (ANOVA) conducted to determine whether or not the handball branch attitudes of secondary school students differ according to the sports branches they are interested in are given in Table-6.

Table 6: Anova results of the handball branch attitude scale scores according to the sports branches that students are interested in.

School Type	N	x	ss	Source of Variance	KT	sd	KO	F	p	meaningfulness
football (1)	242	3.38	1.092	Between G.	27,308	9	3.034			
basketball (2)	89	3.07	1.198	Within G.	1032.232	717	1.440			
volleyball (3)	121	2.99	1,284	Total	1059,540	726				
Handball (4)	9	2.88	1,364							
gymnastics (6)	12	2.45	1,233							1-2,3,6,8;
Karate (7)	20	3.07	1,248					2.108	.027	10-6; 11-6
taekwondo (8)	49	2.94	1,191							
wrestling (9)	6	2.91	1.685							
Swimming (10)	123	3.26	1,194							
Other (11th)	56	3.31	1,363							
Total	727	3.19	1,208							

When Table-6 is examined, it shows a statistically significant difference according to the sports branches that secondary school students are interested in ($F=2.108$; $p<0.05$).

According to the results of the LSD test conducted to determine that the "handball branch attitudes" differ according to the sports branches that the participants are interested in, it has been determined that the students who are interested in football ($X=3,38$) have higher attitudes towards basketball ($X=3.07$), volleyball ($X=2,99$), gymnastics ($X=2,45$), taekwondo ($X=2,94$) and handball branches. It is seen that the attitudes of the students who are interested in swimming sport towards the handball branch are higher than the attitudes of those who are interested in Gymnastics ($X=2,45$) and other branches. There is no significant difference among sports branches such as basketball ($X=3,07$), volleyball ($X=2,99$), handball ($X=2,88$), gymnastics ($X=2,45$), karate ($X=3,07$), taekwondo ($X=2,94$) and wrestling ($X=2,91$) in the context of handball branch attitudes and behaviors.

4. Conclusion and Recommendations

In the study, the handball branch attitudes of secondary school students have been examined in terms of gender, class, the status of doing sports in family members, active sports status of students and the sports branches that students are interested in. No studies have been found in the literature on the determination of attitudes towards the branch of handball. It is seen that the studies generally focus on physical education lessons and sportive activities. Since the handball branch is also a sportive activity, the findings of the study are discussed as follows. According to the gender variable and the scores of the attitude dimensions of the students of the secondary schools in Gaziosmanpaşa, Istanbul, who have participated in this study (Table 2), it has been seen that the male students' attitude scores towards the handball branch have been significantly different and their scores have been higher than that of the female students ($p < 0,05$). In similar studies in the literature, studies supporting the findings of our study have been found.

In the studies conducted by Smoll and Schutz, 1980 and Kangalgil et al., 2006, (Kangalgil et al., 2006; Smoll & Schutz, 1980) a difference which supports our study has been found in favor of male students in the mean scores of attitudes towards gender. It has been determined that male students' attitude levels are higher than female students. In the study conducted by (Tomik et al., 2012), it has been determined that male students have shown higher attitudes towards sports and physical education than female students. In the study conducted by Türkmen and his/her friends (2016) and examining the attitudes of university students towards sports, it has been determined that there has been a significant difference between the gender variable of the students and their attitudes towards sports. In the study, it has been observed that male students have had higher attitudes than females. Similarly, in the study conducted by Singh and Devi (2013) (RK & Devi, 2013), it has been determined that the participant students' attitudes towards sports branches and game activities have been positive, and that male participants have shown positive and higher attitudes than women. In the study conducted by Yıldız and his/her friends (2017). (Yıldız et al., 2017), differences in favor of men have been determined according to gender in the total attitude scores of the participants towards sports. These studies support the findings of our study. In the study conducted by (Şişko & Demirhan, 2002), it has been determined that there has been no significant difference between male and female participants in terms of student attitudes ($p > 0,05$). It can be stated that these findings do not support the results of our study.

In the study, when the handball branch attitude scores of secondary school students (Table-3) have been examined according to their doing sports status, It has been determined that there has been no statistically significant difference according to the variable of students' doing sports status ($p > 0,05$). In studies conducted in the literature, it has been determined that there has been a significant difference in favor of those who do sports (Kangalgil et al., 2006; Koçak, 2014; Türkmen et al., 2016; Yıldız et al., 2017). These results do not seem to support the findings of our study. The probable reason for this difference is that the studies have been conducted with university student participants other than secondary school students.

In the study, it has been determined that there has been no statistically significant difference in the handball branch attitude scores of secondary school students (Table-4) according to the variable of doing sports status of family members ($p > 0,05$). The findings of the studies conducted in this field in the literature contradict the findings of our study. In the study conducted by (Kotan et al., 2009), It has been observed that if one of the family members plays sports, students are encouraged to play sports according to the students who do not play sports in their family. In the study conducted by (Serarslan & Akkaya, 2000) it has been determined that there has been a significant difference in the attitude scores of secondary school students according to the variable of family members' doing sports status. As a result of the study conducted by (Sunay & Seda Saracaloğlu, 2003) with 451 athletes from 15 different sports branches, it has been determined that family members have been the first to encourage them to do sports. In the study conducted by (Baxter-Jones & Maffulli, 2003), the effect of families on the participation of athletes in sports has been examined. As a result of the study, it has been seen that the effect of the families of the athletes has been high in starting sports. In the study conducted by [Atalay and his/her friends \(2015\)](#), It has been determined that the fact that there is someone who does sports in the family of the participants causes a significant difference in their attitudes towards sports. The findings of these studies contradict with the findings of our study. The main reason for this can be shown as the increasing interest

of students in sports with each passing time. In the study, It has been determined that the handball branch attitude scores of secondary school students (Table-5) haven't shown a statistically significant difference according to the class variable ($p>0,05$). It is seen that there are studies in the literature that support the results of our study. Accordingly, in the study conducted by (Hergüner et al., 1997), It has been determined that sports do not affect the communication skills of students and there has been no significant difference in comparisons made in terms of variables such as between classes, between departments, parents' educational status, marital status, number of family members, social activities and income status. In the study conducted by (Kızılyallı, 2012), and examining the opinions of female university students about participation in sports activities, It has been determined that there has been no significant difference between the opinions of the students in the preparatory class and the 4th grade in the average of attitude scores according to the class variable. It is seen that the results of these studies support the findings of our study.

In the study, it has been determined that the handball branch attitude scores of secondary school students (Table-6) have shown a statistically significant difference according to the sports branches that the students are interested in ($p<0.05$). Since there is no study in the literature based on the variable of sports branches that students are interested in, we haven't had the opportunity to compare the findings of our study.

As a result, it has been tried to reach a conclusion about the attitudes of the secondary school students towards the handball branch according to the variables of gender, class, doing sports status in family members, active sports status of the students and the sports branches that the students are interested in. It has been determined that the handball branch attitudes of secondary school students have been positively affected by the variables of gender and the sports branches that students are interested in, but the variables of class, doing sports status in family members, active sports status of students haven't had a positive or negative effect on handball branch attitudes. Although it can be said that the attitudes of the participant students towards the handball branch are at a good level, a large-scale investigation of the attitudes towards the handball branch will contribute to the spread of this sport branch to large masses if similar studies are carried out on students with different education levels.

References

- Bağırhan, T. (1990). Hentbol* da Antrenman. *Set Ofset Matbaacılık, Ankara*, 10-11.
- Baxter-Jones, A. D. G., & Maffulli, N. (2003). Parental influence on sport participation in elite young athletes. *Journal of sports medicine and physical fitness*, 43(2), 250.
- Büyüköztürk, Ş., Çokluk, Ö., & Köklü, N. J. P. A. A. (2011). Sosyal bilimlerde istatistik (7. Baskı).
- Büyüköztürk, Ş. J. A. P. A. (2011). Sosyal bilimler için veri analizi el kitabı (17. bs.).
- George, D., & Mallery, M. (2010). SPSS for Windows step by step: A simple guide and reference (p. Pearson).
- Görgüt, İ., & Mehmet, G. (2017). Ortaokul Öğrencileri İçin Hentbol Tutum Ölçeği Geliştirilmesi. *Beden Eğitimi ve Spor Bilimleri Dergisi*, 11(1), 49-58.
- Hergüner, G., Güven, Ö., & Yaman, M. (1997). The Effect Of Sports On The Communication Skill Level Of The University Students. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*(3), 95-101.
- İnceoğlu, M. (2011). *Tutum-algı iletişim*. Siyasal Kitabevi.
- Kangalgil, M., Hünük, D., & Demirhan, G. (2006). Comparison of elementary school, high school and university students' attitudes toward physical education and sport. *Hacettepe Journal of Sport Sciences*, 17(2), 48-57.
- Kat, H. (2009). Bireysel sporcularla takım sporcularının stres düzeyleri ve problem çözme becerilerinin karşılaştırılması. *Yayımlanmamış Yüksek Lisans Tezi, Kayseri: Erciyes Üniversitesi Sağlık Bilimleri Enstitüsü*.
- Kızılyallı, M. (2012). Ankara Üniversitesi öğrencilerinin kadınların spor etkinliklerine katılımlarına ilişkin görüşleri. *Yayımlanmamış yüksek lisans tezi, Ankara Üniversitesi Sağlık Bilimleri Enstitüsü. Beden Eğitimi ve Spor Anabilim Dalı, Ankara*.
- Koçak, F. (2014). Üniversite öğrencilerinin spora yönelik tutumları: bir ölçek geliştirme çalışması. *Sportmetre Beden Eğitimi ve Spor Bilimleri Dergisi*, 12(1), 59-69.
- Kotan, Ç., Yaman, Ç., & Hergüner, G. (2009). The effects of school and family factor son sports activities for sports students in primary schools: a case study of Sakarya. *Beden Eğitimi ve Spor Bilimleri Dergisi*, 3(1), 49-58.
- RK, C. S., & Devi, K. S. (2013). Attitude of higher secondary level students towards games and sports. *International Journal of Physical Education, Fitness and Sports*, 80-85.

- Serarslan, Z., & Akkaya, L. (2000). Kocaeli'de Ortaöğretim Gençliğinin Sportif Tercihlerini Etkileyen Sosyo-Ekonomik Faktörler; 3. *Uluslar arası Spor Bilimleri Kongresi, Marmara Üniversitesi, İstanbul.*
- Sevim, Y. (2002). Hentbol Teknik-Taktik (2002); Nobel Yayınevi, Geliştirilmiş 4. Baskı, Ankara, 1-7.
- Smoll, F. L., & Schutz, R. W. (1980). Children's attitudes toward physical activity: A longitudinal analysis. *Journal of Sport and Exercise Psychology*, 2(2), 137-147.
- Solmaz, B., & Oğuz Aydın, B. (2012). Popüler kültür ve spor merkezlerine yönelik bir araştırma. *Gümüşhane Üniversitesi İletişim Fakültesi Elektronik Dergisi*, 1(4).
- Soyer, F., Yusuf, C., & Türkel, Ç. (2010). İlköğretim Çağı Öğrencilerinin Sportif Faaliyetlere Katılım Düzeyi İle İletişim Beceri Düzeyleri Arasındaki İlişkilerin İncelenmesi. *Sakarya Üniversitesi Eğitim Fakültesi Dergisi*(19), 73-88.
- Sunay, H., & Seda Saracaloğlu, A. (2003). Türk sporcusunun spordan beklentileri ile spora yönelen unsurlar. *Spormetre Beden Eğitimi ve Spor Bilimleri Dergisi*, 1(1), 43-48.
- Şişko, M., & Demirhan, G. (2002). The attitudes of male and female students from the primary and secondary schools towards physical education courses. *Hacettepe University Journal of Education*, 23, 205-210.
- Tabachnick, B. G., & Fidell, L. S. J. P. (2013). Using multivariate statistics: International edition.
- Taşkıran, Y. (1997). *Hentbol'da performans*. Bağırhan Yayınevi.
- Tomik, R., Olex-Zarychta, D., & Mynarski, W. (2012). Social values of sport participation and their significance for youth attitudes towards physical education and sport. *Studies in Physical Culture and Tourism*, 19(2), 99-104.
- Türkmen, M., Abdurahimoğlu, Y., Varol, S., & Gökdağ, M. (2016). The attitudes of the students attending to faculty of islamic sciences towards sports [The sample of Bartın University]. *International Journal of Contemporary Educational Studies [IntJCES]*, 2(1), 48-59.
- Yetim, A. (2014). Sosyoloji ve spor.
- Yıldız, A. B., Arı, Ç., & Yılmaz, B. (2017). Üniversite Öğrencilerinin Spora Yönelik Tutumlarının incelenmesi (Ankara Yıldırım Beyazıt Üniversitesi Örneği). *Muş Alparslan Üniversitesi Uluslararası Spor Bilimleri Dergisi*, 1(1), 35-45.



Analysis on the Existing Main Problems and Countermeasures of Rural Education

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Abstract

At the Fifth Plenary Session of the 19th CPC Central Committee, the party put forward the 14th five year plan and the long-term goal of 2035, it put forward that we should not only give priority to the development of agriculture and rural areas and comprehensively promote rural revitalization, but also strive to build an educational power, improve farmers' scientific, technological and cultural literacy and promote the revitalization of rural talents. Human resources are the first resource for China's economic and social development, and education is the main way to develop human resources. Rural Revitalization needs talent revitalization, which is inseparable from the revitalization of rural education. However, there are still some problems to be solved in rural education. This paper combs the problems existing in the school running conditions, teachers, family education, education quality, local culture and the development status of rural vocational education, analyzes the causes of the problems, and puts forward the countermeasures for the development of rural education. Such as increasing investment in Education funds, strengthening the construction of school standardization; Improving the economic treatment and social status of rural teachers, strengthening the construction of rural teachers and enhancing their sense of rural belonging; Strengthening the role of family education and sharing the responsibilities of vulnerable groups; Improving the quality of education and creating local characteristic courses; Vigorously developing rural vocational education. Through these measures, we can promote the healthy and sustainable development of rural education. At the same time, the government, society, schools and families need to work together to attach great importance to and strive to solve the problems existing in rural education. Therefore, this article combs the problems existing in rural education and seeks solutions in order to help the rapid development of rural education.

Keywords: Rural Education, Rural Teachers, Home education, Local culture, Rural Vocational Education

The 19th CPC National Congress put forward the strategy of Rural Revitalization. In the implementation of rural revitalization, it is guided by reshaping the relationship between urban and rural areas, focusing on consolidating

the rural management mechanism, deepening the supply side reform as the key, and focusing on innovating in the governance system. The core of deepening supply side reform and innovating governance system is to cultivate high-quality talents. *The strategic plan for Rural Revitalization (2018-2022)* also requires that "we must give priority to the development of education as a first hand to promote the Rural Revitalization Strategy and provide strong talent support for the Rural Revitalization Strategy." The cultivation of excellent talents is inseparable from schools. However, due to the urban-rural dual economic structure, the gap of wealth between urban and rural areas is widening. Economic base decides the superstructure, the rural economic foundation is weak, the distribution of educational resources is uneven, the gap between urban and rural areas is large, and rural education is in a weak position. In addition, rural education is always indispensable. It is the main head of China's basic education and the main focus of promoting educational equity. It determines whether urban and rural educational equity can be realized and the level of realization. At the same time, giving priority to the development of education is also the primary measure to improve the level of ensuring and improving people's livelihood and strengthen and innovate in social governance. Therefore, this paper combs the main existing problems of rural education and the root causes of these problems, and puts forward countermeasures to promote the development of rural education, so as to help the healthy and sustainable development of rural education.

1 The main problems existing in rural education

1.1 *There is a big gap between urban and rural educational resources and school running conditions*

1.1.1 The distribution of educational resources between urban and rural areas is uneven, and rural areas are in a weak position

There is an obvious correlation between the spatial distribution of educational resources and economic development and even the overall income of residents (Du, 2007), the rural economic foundation is weak, the income of residents is low, and the educational resources obviously lag behind the cities. The distribution of educational resources in China is inclined, with developed urban areas occupying more, while rural areas distribute the remaining educational resources (Liu, 2021). In addition to the fact that the rural economy lags behind the cities, it is also related to national policies and investment in education funds. Although the state has continuously increased the investment in rural education funds and resources in recent years, it's still limited. Moreover, the country's early policies and educational resources were more oriented towards cities. In recent years, even if the state has increased investment and inclination in rural areas, there will be a time lag.

1.1.2 The conditions for running rural schools are poor

The standard of rural school construction is low and the school running conditions are poor. There are mainly the following problems: The scale of rural schools is generally small, and the number of rural teaching points is reduced, some schools have small class teaching, multi-disciplinary or general subject teaching and compound teaching (Qin, 2017). Infrastructure and teaching equipment are not complete, hardware facilities are weak, software facilities are backward, and there is a lack of sports facilities, experimental equipment, new media-related equipment, etc. Information construction is lagging behind, and the supply of modern educational resources is insufficient. In *the China rural education development report 2019* issued by China Rural Education Development Research Institute of Northeast Normal University, the rates of establishing campus network in rural primary schools and ordinary junior middle schools were 56.81% and 68.37% respectively; the establishment rates of campus network in urban and township primary schools were 82.64% and 69.69% respectively, and the establishment rates of campus network in urban and township junior middle schools were 86.33% and 77.17% respectively, which were higher than those in rural areas (Table 1). The number of boarding students in rural areas is increasing, however, the living and sanitary conditions, dormitory conditions and canteen construction of boarding schools are insufficient. There are serious problems in the transportation of rural students to school (Lan, 2021), students face the dilemma that it is far from school and difficult to go home. Good school running conditions are the premise to ensure the normal work and learning needs of teachers and students and promote the comprehensive and healthy development of students. In recent years, the school running conditions of rural schools have been greatly improved, but there is still a big gap compared with cities.

There are still deficiencies in school scale, infrastructure, modern educational resources, boarding schools and school transportation, which restrict the high-quality development of rural education.

Table 1: Establishment rate of campus network in primary and secondary schools in 2017

	primary school	junior middle school
rural	56.81%	68.37%
town	69.69%	77.17%
urban	82.64%	86.33%

1.2 The teachers are weak

1.2.1 The number of rural teachers is small, the stability and professionalism are poor

The number of rural teachers is insufficient, the number of teachers in small-scale schools is small, and the pupil-teacher ratio is high; most schools are not equipped with enough teachers in Physical Education, Music and Art; there is a shortage of life teachers and psychological teachers in rural boarding schools. Poor stability refers to the large mobility of rural teachers, and most of them are one-way flow from rural to urban. There are two main aspects of poor professionalism. On the one hand, the subjects taught by teachers are not related to their majors. What's more, there is a teacher who teaches many subjects. On the other hand, although they are professional counterparts, they lack professional training and further study. There are also problems of lack of pertinence and effectiveness in post service training (Chu, 2021). As a result, the professional development of rural teachers is limited. The number of rural teachers itself is small, the loss is serious, and the remaining professional growth is also limited. If these problems cannot be solved, the revitalization of rural education is impossible.

1.2.2 The structure of teachers is unreasonable

In the elementary education stage, the unreasonable structure of rural teachers mainly includes age, gender, qualifications and staffing. The unreasonable age structure refers to the aging of rural teachers, most of whom are elderly teachers and lack of excellent young teachers. The unreasonable gender structure refers to the feminization of teachers. Most rural teachers are women, the number of male teachers is small, and some are in administrative posts without giving lectures to students. The unreasonable academic credential structure refers to the low educational background of rural teachers compared with cities. According to the Ministry of Education, in 2019, the proportion of teachers with junior college degree or above in primary schools nationwide was 97.3%, including 99.1% in urban primary schools, 96.3% in rural primary schools, and the gap between urban and rural areas was 2.8 percentage points. The proportion of teachers with a bachelor's degree or above in junior middle school reached 87.4%, including 93.1% in urban junior middle school and 84.0% in rural junior middle school, with a difference of 9.1 percentage points between urban and rural areas. There are a large number of substitute teachers in rural schools. Rural teachers do not have an advantage in the evaluation and employment of professional titles, and there are few teachers with senior professional titles.

1.2.3 Rural teachers lack a sense of identity and belonging

Rural teachers have low income, low status and lack of social identity. Some people look down on the profession of rural teachers and think that excellent people will not come to rural areas as teachers, rural teachers lack social support, recognition and respect. At the same time, rural teachers themselves are not confident and lack professional identity and happiness. Nowadays, many rural teachers lack the understanding of rural culture, have no confidence in local culture, nor have a sense of belonging to the countryside, and lack of faith in the countryside. Studies have shown that teachers' occupation identity level and social support level are negatively correlated with turnover intention. The identity of rural teachers is lack of social identity and self-identification, and their sense of belonging to the countryside is low, which will greatly increase their tendency to leave and transfer posts, and will easily lead to job burnout.

1.3 Family education is deficient and the scale of vulnerable groups is large

1.3.1 Lack of family education

Education not only refers to school education, but also includes family education and social education, which are interrelated and indispensable. However, in rural areas, family education is seriously lacking. The vast majority of rural parents have low educational backgrounds, low cultural literacy, backward and conservative educational concepts. They have the following three problems in their children's learning. First, they do not pay attention to children's learning or there is a view that studying is useless. Second, parents attach importance to their children's education, but they are powerless due to restrictions such as family economy and their own cultural level. Third, parents believe that education is the responsibility of the school and place all their hopes on the school, making rural education increasingly separated from the family and become the responsibility of the school, society and the government. In addition to not participating in their children's learning, these parents also lack moral education, safety education, patriotic education and other family education for their children.

1.3.2 The scale of vulnerable groups in rural education is large

The vulnerable groups in rural education can be divided into three categories: children of migrant workers, left-behind children and underprivileged children. With the widening economic gap between urban and rural areas, more and more rural people are working in cities, a large number of rural people are pouring into cities and towns, and the number of accompanying children is also increasing (Table 2). However, these students will be subject to a certain degree of policy restrictions and social exclusion in terms of enrollment opportunities and school quality. Moreover, it will also cause the shortage of urban resources and the waste of rural resources, and form the polarization of large classes in cities and hollow in villages. The number of left-behind children (Left-behind children refer to minors under the age of 16 whose parents are both migrant workers or one of them is migrant workers and the other has no guardianship) has been decreasing in recent years. According to statistics, the number of rural left behind children in China has decreased from 9.02 million in 2016 to 6.436 million in 2020, but the overall number is still huge. Because the family structure is incomplete and mostly inter-generational education, they are prone to psychological problems and personality defects. Underprivileged children are those whose families have financial difficulties. China has now fully realized that rural poor people are free from worries over food and clothing and have access to compulsory education, basic medical services and safe housing, of which the guarantee of compulsory education is mainly to ensure that children from poor families do not drop out of school. However, in addition to the difficulty of going to school, underprivileged children are also faced with the problem of poor nutrition (Qin, 2018). The number of these three kinds of vulnerable groups has increased and decreased, but the overall number is enormous, which is a major problem facing the development of rural education.

Table 2: Changes in the number of children of migrant workers in cities at the stage of compulsory education in China (ten thousand people)

	2016	2017	2018	2019	2020
Primary school attendance	1036.71	1042.18	1048.39	1042.03	1034.86
Junior high school	358.06	364.45	375.65	384.93	394.88
Total	1394.77	1406.63	1424.04	1426.96	1429.73

Note: according to the "statistical bulletin of education development" on the official website of the Ministry of education.

1.4 Poor quality of education and lack of local culture

1.4.1 Poor education quality, teaching technique and device falling behind

The shift of the focus from poverty alleviation to Rural Revitalization Strategy also drives the transformation of the focus of rural education development. One of the manifestations of the transformation of the focus of rural education development is that the education goal has changed from ensuring the quantity of education to ensuring the quality of Education (Du, 2021). Nowadays, there are still many problems in rural education, which restrict the improvement of its education quality.

These problems are mainly the following aspects: The shortage of excellent teachers and the loss of excellent students. The school curriculum is single, the educational concept is backward, the teaching mode and teaching method are traditional, which lack of innovation. The teaching content is limited to textbooks and lacks of extracurricular extension. Rural schools ignore the all-round development of students and lack psychological and physical health education and safety education for students.

1.4.2 De localization of rural education

Rural schools gradually lose their local culture in the process of catching up with the city, which is mainly reflected in the following aspects: the lack of local cultural requirements for school training objectives, the separation of curriculum content from local cultural background and activity design from local cultural factors (Tian, 2016), which makes rural education gradually deviate from local culture. Education and culture complement each other. Rural education without local culture becomes rootless duckweed, which is easy to cause rural students to alienate local culture and lack love for the countryside, and rural education also loses its own characteristics.

1.5 The development of rural vocational education is backward

Rural vocational education is all kinds of Vocational Education held by counties, townships and villages. It is an important part of the whole education system. Rural vocational education is an important condition to activate the vitality of the rural economy and promote the prosperity of agricultural industry; It is the internal requirement to achieve targeted poverty alleviation and poverty alleviation; It is an important way to develop rural human resources and cultivate new professional farmers; It is the power source to meet the spiritual needs of farmers and promote rural civilization (Zhang, 2018). However, the development of rural vocational education is backward and in a weak position. The main problems are the backward concept of rural vocational education, the scarcity of vocational teachers, the small scale of vocational training (Li, 2021), the uneven quality of school running and talent training of rural vocational education, the tendency of non-agricultural and the difficulty of recruiting students for agriculture related majors, the unstable support measures of the national government for vocational education and the imperfect relevant legal system. Enterprises' enthusiasm to participate in cooperative school running is not high.

2 Analysis on the causes of rural education problems

2.1.1 Reasons for uneven distribution of educational resources between urban and rural areas

The urban and rural economic development is unbalanced. The urban-rural dual economic structure causes the imbalance of urban and rural economic development, and the economic development restricts the development of education. The funds of local governments are limited, and the funds invested in education are also limited. In addition, the country's overall investment in education is insufficient, and the distribution system of educational resources is unreasonable. Various educational policies are more inclined to cities, which puts rural education in a weak position. Moreover, there is a gap in educational resources in rural areas in different regions. In recent years, the state has continuously increased investment and policy preference in rural education, but the implementation of various policies and systems is from top to bottom, and there may be deviation when they finally reach the countryside. The effect is certain but will be discounted, and it will take some time from implementation to achievement.

2.1.2 Analysis of the causes of poor school running conditions

Insufficient investment in education funds makes the infrastructure of rural schools incomplete, and the information construction obviously lags behind the city. The poor school running conditions of rural schools are also related to the remote geographical location of rural areas and the inflow of population into cities. The scale of rural schools is small and the number of teaching sites is decreasing. In some small-scale rural schools, there are few pupils and teachers, only a few students or no students in a grade and there are few teachers. There will be small class teaching, one teacher teaching general subjects and combined instruction. In order to reduce the waste of educational resources and reasonably plan the layout of rural schools, the usual method is to withdraw points and combine schools. However, this method will lead to new problems which increase the burden of families and the distance for students to go to school, which makes the number of boarding students increase. But there are obvious deficiencies in the construction of rural boarding schools, which cannot meet the basic living needs of students. The transportation of students to school is also a major issue. If parents pick up their children, they face the problem of limited means of transportation, while there is no safety if students go to and from school by themselves.

2.2 Analysis on the causes of weak teachers

The treatment gap between urban and rural teachers is large, the treatment of rural teachers is low, and the conditions of schools, accommodation, medical treatment and transportation are poor. In addition, teachers have little room for promotion, which is not conducive to development. Therefore, rural schools cannot attract or retain excellent teachers. The reasons for the poor stability of teachers are as follows: In order to better develop, excellent rural teachers flow to the city in various ways, and rural schools become the training base of urban schools. Urban teachers come to rural schools through job rotation and supporting education. The term is short, and once it expires, they will return to the city. Others who in order to evaluate professional titles, promote or be forced to rotate posts are not willing to stay in rural schools. Some rural teachers who teach can't stand the difficult environment and choose to leave. Substitute teachers will leave at any time once they face better choices.

There is an imbalance in the allocation of teachers in rural schools. If there is a lack of teachers in some subjects, teachers in other subjects will make up for it. "Rural teachers are bricks that need to be moved wherever they are needed." These teachers with mismatched majors have not received relevant professional education, lack of professional knowledge and low level of professional skills. Due to the remote geographical location, inconvenient transportation, heavy workload of teachers, limited school funds and other reasons, teachers cannot go out to participate in training. However, some ideas and educational models learned by rural teachers in college are single, which cannot adapt to the development of the times, which will lead to the poor professionalism of rural teachers.

Some rural teachers are old, but because the school can't recruit teachers, they continue to stay in the school to give play to the waste heat. At the stage of compulsory education, the treatment of rural teachers is low, and most men have to bear the burden of supporting their families. Therefore, rural male teachers are scarce, and most of them are women. Rural school teachers' posts lack of attraction and cannot recruit excellent teachers, which will reduce the threshold of teacher recruitment. At the same time, the unqualified teachers in the teacher team (teachers from private schools to public schools, teachers assigned) do not retreat, which will lead to the low educational background of rural school teachers. Due to the limited educational funds and the lack of teachers in schools, there will be a large number of substitute teachers.

Because the conditions of rural schools are not good, the salary level of teachers is not high, the educational background is not dominant, and the interpersonal circle is narrow, the social recognition of rural teachers is not high, and rural teachers themselves lack professional happiness and identity (Wu, 2021). The identity of rural teachers is in an awkward situation. On the one hand, they do not belong to the city, on the other hand, they cannot integrate into the countryside, and their identity is marginalized. Urban teachers and college students who work in shifts or support education will leave the countryside sooner or later, so they have no sense of belonging

to rural schools. Rural teachers mostly study the educational concept of urbanization in school, but rarely involve local culture. Some teachers have not even lived in the countryside and have no rural life experience. At the same time, they lack local knowledge, folk culture, humanistic and historical experience, production and life technology and other related knowledge. These make it difficult for rural teachers to have confidence in local culture and love for the countryside. Rural teachers lack a sense of identity and belonging to the countryside, do not understand local culture, rural schools lack competitiveness, coupled with limited development space, teachers' teaching is hindered by students' families and their treatment is not good, so it is very easy to lack faith in the countryside and produce job burnout.

2.3 Reasons for weakening family education

There are three main reasons for the weakening of family education: For one thing, parents' educational concept is wrong and the educational method is single. Parents have misunderstandings about education, such as "the idea of the uselessness of study" and the wrong idea that education is a matter of school. Parents' awareness of education is weak and they do not realize the importance of family education. At the same time, the way of education is single and lacks of scientific and correct guidance. For another, affected by economic conditions, many rural parents go out to work and are not around their children for a long time, so they can't take into account their children's education. Last but not least, there are problems in home school communication, and home school cooperation is difficult to achieve.

The biggest reason for the large scale of vulnerable groups in rural education is family economy. Farmers' income is so low that they have to go to the city to work for a living. If they are able, they can take their children with them. If they are unable, they can only leave their children at home to become left-behind children. Poor families are unable to provide good nutrition, health and education conditions for their children. Without the help of the state and society, it is easy to cause the intergenerational transmission of poverty.

2.4 Analysis on the causes of poor education quality and lack of local culture in rural schools

The poor quality of rural school education is affected by many factors, but there are mainly the following reasons. First, the school cannot recruit and retain excellent teachers and excellent students, so it is difficult to improve the teaching quality. The loss of students leads to the loss of scale effect of rural education, and the lack of high-quality teachers leads to the loss of guarantee of rural education quality. Second, rural schools cannot keep up with various hardware and software facilities, so it is difficult to learn from the curriculum of cities. Third, school leaders and teachers lack competitive awareness and enterprising spirit. Teachers only teach, but do not learn new theories, new models, new information technology, let alone innovate. Some teachers are waiting for retirement, their teaching content is limited to textbooks, and the teaching plan is repeated and single every year, which cannot broaden students' horizons and cultivate students' interests. Fourth, there are misunderstandings in the school's educational value orientation and educational objectives. It is in the examination oriented education mode, deviates from quality education, unilaterally pursues the enrollment rate (Zhang, 2021), only pays attention to intellectual education, while ignoring other education, such as students' psychological and physiological health education and safety education (children's sex education is seriously missing), etc.

The huge gap between urban and rural education makes people lose confidence in rural education, and today's educational concept and educational model are obviously more suitable for cities, without considering the needs of rural children. In order to narrow this gap, and to enable rural students to break away from the soil and go out of the countryside, rural schools continue to learn, imitate and even copy the educational ideas and models of the city, but ignore the differences between urban and rural areas. The students trained by this kind of education mostly serve the city, while there are no talents available for rural construction, or the training of talents is not commensurate with the required talents (An, 2019). At the same time, in the process of catching up with the city, the local culture is constantly impacted, and the rural education gradually deviates from the local culture. The school curriculum does not involve rural teachers, and the teachers who participate in the curriculum do not understand the needs of rural and rural children. The curriculum is divorced from the local society and does not

respect children's life experience and original cognitive foundation. The textbook does not link education with life, place and ecology. The huge educational resources contained in local culture have not been excavated and utilized. Rural school education also does not reflect the value orientation of rural service (Wu, 2021). Today's rural education, on the one hand, cannot adapt to the concept of urban education because of its own differences and particularity, on the other hand, it has lost confidence in its own local culture, lost its own characteristics and is in a dilemma.

2.5 Analysis on the reasons for the backward development of Rural Vocational Education

The main reasons for the lagging development of rural vocational education in China are as follows: First, People have prejudice against vocational education, which lack recognition of vocational education and lack of understanding of its importance. Many rural students who fail in the high school entrance examination may have to go out to work. Because their parents feel that there is no future in vocational schools. In fact, it is not. Rural Revitalization needs talents from all walks of life. Vocational education is one of the two key points of rural education development (Chen, 2021). It is the type of education most closely related to rural social development and plays a natural link role in strengthening the connection between urban and rural areas (Yuan, 2021). Second, the lack of funds for rural vocational education has become the main problem restricting the development of rural vocational education. The lack of funds leads to the stagnation of professional construction, outdated teaching instruments and poor training conditions. Third, rural vocational education is still in a low position, lack of government system guarantee and policy support, and of course, lack of social support. Fourth, with the impact of modernization and urbanization, fewer and fewer people are willing to engage in agriculture, the rural vocational education system has been broken, there are few agricultural majors in vocational colleges, and colleges with agricultural majors are facing great enrollment pressure. The development of rural vocational education is restricted by many factors, such as wrong ideas, insufficient funds, imperfect policies and systems and the impact of modernization. If we want to promote its rapid development, we need to break it one by one.

3. Countermeasures

3.1 It is necessary to increase capital investment, balance the allocation of resources, and strengthen the construction of school standardization

In view of the limited educational funds, we can solve it from two aspects. On the one hand, we should start from the countryside, stimulate the endogenous driving force of the countryside and vigorously develop the rural economy. On the other hand, external assistance is provided. The state needs to increase investment in education, strengthen the overall planning of the government and broaden the channels of fund-raising. The government should improve the investment mechanism of education funds. It is feasible to reform the supply side of rural education, move the focus of the guarantee mechanism of rural education funds upward, and the provincial government as the main body of responsibility to alleviate the pressure of local government financial expenditure. Improving the supervision mechanism of rural education funds to ensure that the capital expenditure meets the regulations, the funds are earmarked for special purposes and the funds are in place (Lian, 2019). Only by combining internal and external forces can we realize the sustainable development of rural education.

To achieve educational equity, we should "targeted poverty alleviation" in policy. Firstly, the country should unify urban and rural education planning, clarify the responsibilities of governments at all levels, cooperate with each other and develop in a coordinated manner. Secondly, the government needs to make statistics on the allocation of educational resources, seek truth from facts, and set up policy basis scientifically and accurately according to the actual situation. Thirdly, it is critical to identify the root causes, make policy compensation for vulnerable areas of education, and share high-quality educational resources between urban and rural areas (Tian, 2020). After the policy formulation is completed, it can play its due role only if it is effectively implemented. Therefore, the supervision of the policy is also very important. It is necessary to unblock the information feedback channels and refine the supervision methods.

Educational units should strengthen the standardization construction of rural schools and reasonably plan the layout of schools. The government and education departments should improve the basic conditions for running schools in poor areas and weak schools, and strengthen the construction of infrastructure, modern information technology and boarding schools. Transport agency should improve the rural passenger transport network to ensure the safety of rural students on their way to school.

3.2.1 Improving teachers' treatment and social status

To improve the treatment of teachers, the treatment of teachers should be higher than that of civil servants, and the change should be from formalism to pragmatism. The country should provide subsidies and allowances for rural teachers. Differentiated subsidies can be implemented according to the degree of remoteness. The more remote areas are, the more subsidies should be increased. Meeting the basic needs of teachers' life, by providing teachers' turnover rooms for teachers in remote areas, providing subsidies in housing, transportation, accommodation and health care, and the state ought to establish and improve various security mechanisms for rural teachers, and ensure the basic living needs of teachers (Tang, 2015). Giving priority to rural teachers and teachers who go to rural areas to support teaching and rotate their posts, such as policy preference, job promotion and professional title evaluation. It is necessary to conduct performance appraisal, supervision and evaluation on teachers, and give material awards and relevant honorary commendations to teachers with excellent performance. To improve the social status of teachers, in addition to increasing economic income, we should also create a social public opinion environment of respecting teachers and valuing education.

3.2.2 Strengthening the construction of Teachers

Rural schools should expand the teaching staff in many aspects, carry out the training plan for master of education teachers in rural schools, the plan for public funded normal students, the special post plan for school teachers in the stage of rural compulsory education and the "three supports and one assistance" plan. Importing high-quality teachers into rural schools will change the current situation of lack of quantity and general quality of rural teachers from the source (Shi, 2018). It is necessary to improve the exchange and rotation system for teachers in urban and rural areas so that teachers can really go down and stay. The state should further establish and improve the survival of the fittest system for rural teachers, let unqualified teachers retire and inject fresh blood, and gradually rationalize the structure of rural education teachers. We should make rational use of educational resources in colleges and universities and train professional teachers in rural schools.

With regard to the staffing of teaching staff, specific verification standards and implementation measures shall be formulated in combination with the actual situation of rural schools, which can be adjusted at any time in case of changes. On the premise of meeting the current staffing management regulations, local governments can explore the establishment of a "turnover pool" system for faculty staffing. It is necessary to standardize the personnel management of rural schools, strictly prohibit the occupation, misappropriation and interception of the staffing of rural teachers, and gradually reduce the proportion of non-teaching personnel using the staffing (Ministry of education, 2020). At the same time, we should also strengthen the management of in-service teachers, and it is strictly prohibited for teachers to leave their posts for a long time without justifiable reasons and hire temporary personnel to replace them without permission.

3.2.3 Strengthening the professional development of rural teachers

It is necessary to provide rural teachers with opportunities for professional development and strengthen the communication and interaction between urban and rural teachers. The local government should increase the capital investment in the training of rural teachers, strengthen the sending of teachers to the countryside, and improve the transportation facilities, so that the training of teachers can be carried out and the experts can be sent to teach. Improving the social support system for rural teachers' professional development, including professional system support, professional value support, professional culture support and professional belief support (Wu, 2015). It is a good measure to strengthen the construction of learning community, research community and development community between rural teachers, urban teachers and normal universities in the

new era. Making use of local university resources, strengthening the cooperation between rural middle schools and universities, and helping teachers carry out relevant further education. It is important to strengthen urban-rural integration exchanges, regular exchanges between urban and rural schools, and two-way flow of urban and rural teachers.

The professional development of rural teachers should be unique. Therefore, the training of rural teachers should be targeted, targeted at the actual development of rural education and rural students. The training content is mainly practical knowledge, and should meet the standard of "useful, sufficient and easy to use." In addition to teaching skills, teacher training should also stimulate teachers' professionalism (Chu, 2021), so that rural teachers can take the initiative to reflect and improve themselves. The training of rural teachers should not be a mere formality, or exactly the same as that of cities, but should better promote their professional growth on the basis of meeting the needs of rural teachers.

3.2.4 Enhancing rural teachers' sense of belonging

To enhance the sense of belonging of rural teachers, we need to improve the ideological and political quality of rural teachers, let rural teachers participate in rural social governance and rural cultural reconstruction, guide rural teachers to go deep into rural life, identify with rural culture, understand the situation of rural students, and have the courage to take root in rural society. On the one hand, the school should establish a local knowledge training system integrating induction training and post-employment education, and increase the training content of local knowledge in induction training and post-employment education. On the other hand, we should establish a website to learn local knowledge and build a platform to teach local knowledge. Teachers themselves should also improve the awareness of self-learning of local knowledge (Wu, 2021). Teachers in rotation should be managed by the county-level government rather than the school, so that they can change from the people in the school to the people in the county compulsory education system. They don't have to worry that they can't integrate into the original school after the rotation, and they can also devote themselves to rural education with more peace of mind. Finally, the local government should strengthen the training of localized teachers and let teachers come from the countryside to the countryside.

3.3 *Helping family education and rural vulnerable groups*

To strengthen the role of family education, we first need to clarify the responsibilities of family education in the legal sense, strengthen the main responsibility of family guardianship, clarify that parents bear the primary responsibility for their children, and stipulate that both parents should jointly fulfill their children's educational obligations (Meng, 2019). Then, we should change parents' wrong educational ideas. The school can change parents' educational ideas by carrying out offline methods such as parents' meetings, educational symposiums and family visits and online methods such as Internet media technology, guide parents to establish a correct outlook on education, create a good family atmosphere for children and educate children scientifically. Parents can also make full use of the achievements of modernization, especially with the help of modern information technology to reconstruct the family education system and solve the problem of lack of family education caused by the separation of time and space (Zhou, 2018). At the same time, under the Rural Revitalization Strategy, the state and government should also vigorously develop rural industries, drive the rural economy, provide employment opportunities for farmers and improve the economic conditions of rural families.

The problem of rural vulnerable groups needs to be solved by all parties together. The state should improve the policy of sending migrant workers' children to school nearby, and ensure that migrant workers' children enjoy the same treatment as urban children in education (Ba, 2020). Cities and towns must assume the responsibility for the education of accompanying children. The urban government should implement the policies of "Two-oriented," "Two Inclusion" and "Three Unification", ensure that accompanying children can achieve full inclusion in urban enrollment opportunities, reflect quality equity in schools, show care and concern in the learning process, and do not let any accompanying children fall behind (Qin, 2017). For left behind children, the state should improve the service system for rural left behind children. The society should widely carry out voluntary activities, and set up community organizations such as "home for left behind children" at the grass-

roots level. The school shall formulate the education work plan for left behind students as an important part of the school education work. First of all, the school should understand the specific family situation of left behind children, establish family files of left behind children, assign special personnel to manage them, and timely collect and update the files to ensure that the contents of the files are true and effective (Lian, 2019). Then the school should strengthen the construction of boarding schools to provide good accommodation, learning and living environment for left behind children. At the same time, schools should also be equipped with psychological teachers to pay attention to the mental health of left behind children at any time. Teachers should give left behind children care, organize extracurricular activities to enrich left behind children's amateur life and spiritual world, and communicate with their parents frequently. Parents should perform their guardianship duties on the left behind children, try to leave one party to take care of the children at home, even if they go out to work, they should participate in the children's life with the help of telephone, video and monitoring, often contact the children and go home in time. For poor children, the state should further improve the financial aid policy system for students from families with financial difficulties, continue to consolidate the achievements of "controlling students' dropping out of school and ensuring that school-age children and adolescents complete nine-year compulsory education", ensure that poor children enter school, and pay attention to the education of poor children and the cultivation of good quality. The local government should strengthen the education, training and assistance of parents of poor children to help alleviate poverty. To solve the nutritional problem of poor children, the civil affairs department should ensure that poor families have sufficient nutritional supply at home, and the education department should ensure the nutritional balance of poor children in schools (Qin, 2018). The problem of vulnerable groups in rural education cannot be solved in a short time, which needs to pay more attention and gather all forces.

3.4 Improving the quality of education and creating local characteristic courses

It is necessary to strengthen the construction of schools, increase the attractiveness of teachers' posts, attract rural students back with high-quality educational resources, and reduce the ratio of students to teachers in rural schools. The relevant departments should reasonably plan the layout of rural schools, integrate scattered schools, make schools relatively concentrated and integrate educational resources. Strengthening teachers' professional training, providing rural teachers with opportunities to learn new educational concepts and teaching models, and encouraging rural schools and rural teachers to actively explore and innovate according to local conditions. Using Internet resources, rural schools actively develop "Internet plus rural education" to make up for the shortage of local teachers and curriculum resources.

The state should establish an independent rural education system, establish an education system and curriculum system according to the economic, cultural and development of rural areas, fully tap rural education resources, and add excellent rural traditional culture, social customs and habits and folk crafts to the curriculum. At the same time, teachers can open classes to all parts of the countryside to cultivate students' love for the countryside. Changing the evaluation indicators of rural education, no longer take the enrollment rate as the evaluation indicator of education quality, strengthening other education in schools, and promoting the healthy and all-round development of students.

3.5 Vigorously developing rural vocational education

Developing rural vocational education and training all kinds of talents for Rural Revitalization. First of all, to change people's prejudice against vocational education, the state should provide policy support and financial support. Secondly, schools should set up characteristic courses conducive to rural economic development, and vocational colleges should train students to finally devote themselves to rural revitalization. Thirdly, it is necessary to expand the scale of vocational education and training, create a training base in the school, increase the investment in training equipment, and improve farmers' agricultural skills. Finally, school enterprise linkage, it is essential to optimize the training mechanism of teachers' professional quality, and cultivate "double qualified" excellent teachers who not only have a high theoretical teaching level, but also be proficient in operating skills in high-level vocational colleges.

Rural education is the short board of China's education. At present, the development of rural education is restricted by limited educational funds, low school construction standards, insufficient construction of teachers, lack of family education, large number of vulnerable groups, poor quality of rural education, loss of local culture and backward development of vocational education. The main reasons are the underdevelopment of rural economy, the imperfection of relevant policies and systems, and the backwardness and lack of innovation of rural people's thought. To solve the problem of rural education development requires rural "hematopoiesis" and external "blood transfusion." Rural "hematopoiesis" means that rural areas should develop rural economy in combination with their own characteristics, strengthen the training of local teachers and localized training of teachers, and create unique rural education courses. Vocational colleges should combine with local industries and face local farmers. In addition to training farmers in skills, schools should also improve their civilized quality. External "blood transfusion" requires the state to continue to increase investment in education funds, formulate relevant policies and improve relevant systems, such as strengthening the standardization construction of rural schools, the construction of rural teachers, and improving relevant policies and systems for vulnerable groups in rural education. Rural education is the main focus of promoting educational equity, the basis of realizing rural agricultural modernization, an important carrier of inheriting Chinese civilization, and an important measure to strengthen and innovate in rural social governance. Therefore, it is imperative to solve the existing problems of rural education and promote its fair and high-quality development.

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References

- An L.J. (2019). Research on rural education development based on Rural Revitalization Strategy. *Nanchang University*.
- Ba Y. (2020). Research on the current situation of rural education under the background of Rural Revitalization. *Agricultural economy*, 5, 121-122.
- Chen J. (2021). Research on the development status and countermeasures of rural education under the strategy of Rural Revitalization. *Journal of Shandong Institute of agricultural engineering*, 38(6), 90-94.
- Chu H.Q. (2021). Teachers are the key to revitalizing rural education. *Chinese Journal of education*, 10, 7.
- Du R.S. (2007). Thoughts on the restrictive effect of uneven distribution of urban and rural educational resources on rural society. *Agricultural science, technology and information*, 8, 54.
- Du S.R., Zhu Y., You C.R. (2021). From poverty alleviation to Rural Revitalization: opportunities and challenges for the development of rural education in the new era. *Modern education management*, 5, 1-8.
- Lan X.Q., Yang Q.(2021). Research on the path of rural compulsory education helping rural revitalization. *Rural revitalization*, 9, 29-30.
- Li Y.X. (2021). Improving rural education and promoting Rural Revitalization. *Rural economy and science and technology*, 32(3), 289-291.
- Lian Y.H. (2019). Problems and solutions of rural education in China. *Agricultural staff*, 9, 36.
- Liu X.H., L Y.N. (2021). Research on the current situation and countermeasures of rural primary school education. *New agriculture*, 11, 88-89.
- Meng X. (2019). Problems and solutions of rural education development from the perspective of Rural Revitalization. *People's forum*, 28, 74-75.
- Ministry of Education. (2020). Opinions of six departments including the Ministry of Education on strengthening the construction of rural teachers in the new era. *Bulletin of the Ministry of education of the people's Republic of China*, 9, 31-35.
- Qin Y.Y., Wu Z.H. (2017). Development status and future development ideas of rural education in China. *Journal of Northeast Normal University (Philosophy and Social Sciences Edition)*, 3, 1-8.
- Qin Y.Y. (2017-12-11). Making up for the shortcomings of rural education development. *Learning times*, 4.
- Qin Y.Y. (2018). Preventing rural education from becoming a weakness in China's future development. *Education and economy*, 1, 13-18.

- Shi L.H., Tian X.M. (2018). Development and innovation of China's rural teacher team construction policy. *Educational research*, 39(9), 149-153.
- Tang S.L., Wang Z.L. (2015). The "students" of "thick" rural teachers: the strategy of balanced development of urban and rural teachers. *Journal of educational science of Hunan Normal University*, 14(3), 17-21.
- Tian B.J., Zhu M.L. (2016). Lack and improvement of local culture education in rural primary and secondary schools. *Teaching and management*, 33, 83-85.
- Tian C. (2020). Research on urban and rural education equity under the background of the new era. *Journal of Zhongzhou University*, 37(3), 105-109.
- Wu L.K. (2015). Contradictions, characteristics and social support system construction of rural teachers' professional development. *Research on educational development*, 35(24), 47-52.
- Wu Y.P. (2021). Dilemma and breakthrough of rural teachers' professional development from the perspective of Rural Revitalization. *Journal of South China Normal University (Social Sciences Edition)*, 1, 81-89 + 195.
- Wu Z.H.(2021). Achievements, challenges and trends of China's rural education development. *Exploration and contention*, 4, 5-8.
- Yuan L.P., Jiang J.W. (2021). Thoughts on the strategy of education serving rural revitalization. *Journal of Wuhan University (Philosophy and Social Sciences Edition)*, 74(1), 159-169.
- Zhang D. (2021). Dilemma and realization approach of high-quality development of rural education in China under the background of Rural Revitalization. *Rural economy and science and technology*, 32(13), 299-301.
- Zhang X.G. (2018). Rural Vocational Education Serving Rural Revitalization: Practical Dilemma and governance path. *Vocational and technical education*, 39(10), 59-64.
- Zhou X.G. (2018). The dilemma and outlet of rural education modernization. *Educational research and experiment*, 4, 1-6.



Examination of Fear of Missing Out (FOMO) States of Students Who Study at the School of Physical Education and Sports in Terms of Some Variables

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Abstract

The aim of this study is to examine the frequency rate of FOMO (Fear of Missing Out) in both male and female students under some variables. Social media platforms which became an inseparable part of daily life have caused individuals to spend more time in the virtual world. From Sports Sciences, a total of 465 students (274 males and 191 females) who study in different departments and who are in different grades have participated in the present study which is pretty limited available in Turkish in the literature. In the research, "Fear of Missing Out in Social Settings Scale" the Turkish version that is adapted by (Gökler et al., 2016) of the scale "Motivational, emotional, and behavioral correlates of fear of missing out" which is developed by (Przybylski, 2013) was used as a data collection tool. In the present study, statistical analysis of data has been performed through SPSS 26 program, t-tests, and One Way ANOVA tests. According to T-test results of FOMO averages based on sex, no significant difference has been found. It has been established that students who are not engaged in any sports activity ($X=4.05$) have a higher rate of FOMO on social media as compared to those who play sports ($X=2.95$), it has been established that students who check their phones right after they wake up ($X=3.70$) and students who spend time with their phones before sleeping ($X=3.75$) have higher FOMO averages as compared to those who don't check ($X=3.40$) or spend time with their phones ($X=3.42$). A significant difference has been detected ($p>0.05$). According to One Way ANOVA Post-toc tests which were based on daily social media usage durations and departments of the students. No significant difference has been established FOMO levels of students based on the grade they are in and the number of social media they own.

Keywords: Education, Physical Education, Student, FOMO, Social Media, Social Media Addiction, Computer

1. Introduction

When the last century is regarded, revolutionary developments have occurred through gradually undergoing a number of changes in the historical process. One of these developments is the internet, which has become a part

of our lives.

With the invention of the World Wide Web (www) by Tim Berners-Lee (Berners-Lee et al., 2001) at the European Organization for Nuclear Research (CERN) in 1990 (Castells, 2005) access to internet was provided to public majorly, along with the usage of the World Wide Web in 1991.

The concept of traditional media has undergone a radical change. During this period which is called Web 1.0, people have been offered some limited opportunities in which there are few servers to obtain information, information could be read unilaterally, and no one could interact with one another.(KAPAN & ÜNCEL). The development of Web 2.0 technology can be called the birth of the social media which enable communication and sharing.(Mavnacıoğlu, 2017). With this developing technology, social media stand out as one of the most effective platforms in terms of interpersonal communication with its features such as constant upgradability, the possibility for multiple usage, more widespread possibilities for virtual sharing, etc. The concept of social media has started to take place in our lives as an alternative to classical media since the day it appeared. Gradually, the usage of social media has become one of the main purposes of internet usage.

Within the scope of all these developments, the concept of FOMO (Fear Of Missing Out), which is originated from the individuals' fear of social exclusion(Blackwell et al., 2017; Przybylski et al., 2013).has been formulated, and this concept has also entered the Oxford dictionary and has effectively begun to appear in dictionaries. (Ulaşırın, 2017). The concept of FOMO (Fear of Missing Out) is defined in different ways in the literature. It is defined as “concern that others may have a good experience in his absence (Przybylski et al., 2013), in one of those definitions and in the Oxford dictionary, it is “Anxiety that an exciting or interesting event may currently be happening elsewhere”. It results in people constantly communicating via social media in order not to miss something (Oberst et al., 2017; Wiesner, 2017). Social media seems to be an important tool in eliminating FOMO, which arises from the need of individuals to belong to a group.(Wiesner, 2017).

It is seen that platforms which have been used most frequently and have had millions of users since the internet addiction (Aktan, 2018) such as WhatsApp, Instagram, Facebook, YouTube, Snapchat, Twitter, Swarm, Pinterest, Tumblr, LinkedIn, Google+, second life, Pinterest, flicker have a huge determinative impact on the youth.(Li et al., 2007). Along with the actively widespread usage of social media by the users from general public and university youth, presidents, universities, government agencies, corporations and firms(Ergenç, 2013), felt the need to be in this platform actively.

Along with the Internet, drastic changes have occurred in both fields such as individual, commercial, tourism activities (Çetinkaya & Şahbaz, 2019), social, military intelligence (Savaş & Topaloğlu, 2016; Tiryaki et al., 2020) and marketing strategies and social life.(İnce & KOÇAK, 2017). The decisiveness of social media plays an active role in the widespread usage of the Internet among young people especially, in Turkey and the whole world. Accordingly, it has been seen that many academicians also do their scientific research on students the most (Ayhan & Çavuş, 2014).

2. Method

2.1 The Aim of The Study

The aim of this study is to examine the fear of missing out on social media in which the youth and especially students who study in sports sciences show a great deal of interest, and FOMO prevalence in the rates of using social networks for both male and female students in terms of some variables.

2.2 Data Collection Tool

In the study, “Motivational, emotional, and behavioral correlates of fear of missing out” (Przybylski et al., 2013) and “Scale of FOMO On Social Media Platforms” which was adapted to Turkish by (Gökler et al., 2016). (AYDIN, 2016). There is no negative (reverse) item in the scale that consists of a single dimension and a total of 10 items. Items on the 5-point Likert-type scale are scored as 1 Not at all True, Partly Not True 2, Moderately True 3, Quite

True 4, and Extremely True 5. The more the total score which is taken from the scale increase the more the possibility of individuals having FOMO on social media platforms also increase.

2.3 Analysis of the Data

The data which were obtained through the Google form were transferred to the IBM SPSS 26 program and reliability, frequency, percentiles, arithmetic averages, and standard deviations of the data have been calculated. For the analysis of independent variables, the Kolmogorov-Smirnov test was used to determine the supposition of normal distribution of the data. (Büyüköztürk et al., 2011; Büyüköztürk, 2011). As a result of the conclusions that were obtained, kurtosis and skewness values were also examined. JAPA (Büyüköztürk et al., 2011); (George & Mallery, 2010). As a result of the analysis, these values were found to be between -1.5 and +1.5. For this reason, it was determined that it fulfilled the assumption of normality.(Tabachnick & Fidell, 2013). Parametric tests were used for the analysis and interpretation of the data. Accordingly, the t-test analysis was performed to determine whether there was a significant difference the FOMO on social media based on the parameters such as Sex, Active Sporting Activity, Checking The Smartphone Right After Waking Up, Spending Time With The Smartphone Before Sleeping and The Sports Group That Is Engaged With.

One-Way Anova test analyzes were examined based on The Departments of The Participants, Durations of Daily Social Media Usage, and The Number of Social Media Accounts Of Participants. After the examination, LSD tests among PostHoc tests were used in cases where the variances were homogeneous, and the Games-Howell test among PostHoc tests were used in cases where the variances did not fullfil homogeneity, in order to determine the source of the difference in cases where the relation between the variables was significant.

3. Findings

At this chapter, statical analysis conclusions of the data which are obtained from FOMO on social media platforms scale have been interpreted after being tabulated.

3.1. Definitive Characteristics

Table 1: Frequency and percentage distributions on the definitive characteristics of the research group

Variables	<i>f</i>	%	
Sex	Male	274	58.9
	Female	191	41.1
Departments	Physical Education	113	24.3
	Sports Management	124	26.7
	Coaching Education	116	24.9
	Recreation	112	24.1
Grades	1 st Grade	135	29
	2 nd Grade	129	27.7
	3 rd Grade	114	24.5
	4 th Grade	87	18.7
Engagement In a Sportive Activity Actively	Yes	187	40.2
	No	278	59.8
Duration of Daily Usage of Social Media	Less Than 1 Hour	130	28
	Between 1-3 Hours	124	26.7
	4-6 Hours	121	26

	7 Hours and Above	90	19.4
The Number of Accounts That Is Owned on Social Media	1	166	35.7
	2	147	31.6
	3 and More	152	32.7
The state of Checking The Smartphone Right After Waking Up	Yes	324	64.7
	No	141	35.3
The State of Spending Time with the Smartphone Before Sleeping	Yes	259	45.8
	No	206	54.2
Duration of Social Media Account Ownership	1-2 Years	164	35.3
	3-4 Years	149	32
	More Than 5 Years	152	32.7
Sports Group Branch Which Is Engaged	Individual Sports	225	48.4
	Team Sports	240	51.6

When Table 1, which includes data on descriptive demographic characteristics, is examined, 274 of the students who participate in the research are male and 191 of them are female. When the department variables are examined, 113 of the students who participate in the research study in Physical Education and Sports Education, 124 in Sports Management, 116 in Coaching Education, 112 in Recreation Department, and when the grade variable of the participants is examined, 135 are in 1st grade, 129 of them are in 2nd grade. It is seen that 114 of them are in the 3rd grade and 87 of them are in the 4th grade. It is seen that whereas 59.8% of the participants do active sports, 40.2% do not participate in sports activities, 48.4% are interested in individual sports, 51.6% are interested in team sports.

When the social media variables are regarded, 64.7% of the participants consists of people who check their phones right after waking up, 45% of those consist of people who check their phones before sleeping, and 35.7% of them own at least one, 31.6% of them own two, 32.7% of them own three or more social media accounts. Regarding the variable of duration of social media usage, it is seen that 28% of them use social media less than 1 hour a day, 26.7% use 1-2 hours, 26% use social media between 4-6 hours, 19.4% use social media for 7 hours or more. When the length of social media account usage is examined, 35.3% stated that they have been on social media for 1-2 years, %32 for 3-4 years, and % 32.7 for more than 5 years.

Table 2 shows the results of the t-test analysis, which was conducted to determine the statistical differences between FOMO on social media levels and demographic characteristics of the participants who study at the School of Physical Education and Sports.

Table 2: T-test results of the scores of fomo on social media platforms scale based on the demographic variables

Variables	Groups	N	X	ss	T-test		
					t	sd	p
Fear of Missing Out on Social Media	Male	274	3.57	.98	-971	424	.332
	Female	191	3.66	.92			
Engagement In A Sportive Activity Actively	Yes	187	2.95	.84	-14.633	463	.000*
	No	278	4.05	.75			

The state of Checking The Smartphone Right After Waking Up	Yes	324	3.70	.96	3.182	463	.002*
	No	141	3.40	.91			
The State of Spending Time with the Smartphone Before Sleeping	Yes	259	3.75	.93	3.748	463	.000*
	No	206	3.42	.96			
Engagement In Sports Group	Individual	225	3.57	.97	-.807	463	.420
	Team	240	3.64	.94			

* significant difference at $p < 0.05$ level

When the levels of FOMO on social media, which are given in Table 2, have been analyzed by sex, there is no significant difference between male and female participants. ($t[971] = -.332$; $p > 0.05$). It is seen that FOMO levels of male students are ($X = 3.57$) and the ones of female students are ($X = 3.66$). It is seen that there is a significant difference between the participants who engage in active sports activities and those who do not engage in any sports activities. ($t[-14,633] = -.000$; $p < 0.05$). The FOMO on social media levels ($X = 4.05$) of those who do not participate in sportive activities are seen to be more than the FOMO levels of the participants who engage in sportive activities. ($X = 2.95$). It is seen that there is a significant difference between those who check their smartphones right after they wake up in the morning and those who do not check their phones when they wake up. ($t[3,182] = -.002$; $p < 0.05$). FOMO levels of the participants who checked their phones right after they wake up were found to be ($X = 3.70$) and the FOMO levels of the participants who do not check their phones when they wake up are ($X = 3.40$). Considering the other variables, a significant difference was found between FOMO levels of those who spend time with their smart phones right before sleeping, and those who do not spend time with their phones before sleeping ($t[3,748] = -.0000$; $p < 0.05$) asleep.

It is seen that those who spend time with their smartphones before sleeping are ($X = 3.75$), and those who do not spend time with their phone before sleeping are ($X = 3.42$). Based on the Interested Sports Group Branch. There is no significant difference between the FOMO levels of individual and team sports. ($t[-.807] = .420$; $p > 0.05$).

The results of the one-way variance analysis (ANOVA) which is conducted to determine whether there is a relationship between the FOMO on social media based on the departments are given in Table 3.

Table 3: Anova results of scores of fomo on social media platforms out scale based on the departments of participants

Departments	N	X	Ss	Variance Source	KT	sd	KO	F	p	Significance
Physical Education -1	113	3,698	1,040	Between Groups	19,726	3	6,575	7,429	.000*	1-4; 2-4; 3-4
Sport Management -2	124	3,793	.857	Within Groups	408,030	461	.885			
Coaching Education -3	116	3,681	.853	Total	427,755	464				
Recreation -4	112	3,255	1.008							
Total	465	3,612	.960							

* significant difference at $p < 0.05$ level

When Table 3 is examined, it is seen that there is a significant difference among the rates of FOMO on social media ($F=7.29$; $p<.0.05$).

According to the results of the Games-Howell test, which was conducted to indicate that the FOMO on Social Media of the Participants differs based on their departments; it is observed that students who study in departments such as the physical education, ($X=3,698$), sports management ($X=3,793$) and coaching departments ($X=3,681$) have a higher rate of FOMO as compared to the students who study in recreation department. ($X=3,225$).

The results of the one-way variance (ANOVA) analysis which was conducted to determine whether there is a relationship between the FOMO on social media based on Duration of Daily Social Media Usage are given in Table 4.

Table 4: Anova results of scores of fomo on social media platforms scale based on durations of daily social media usage

Daily Social Media Variance Duration	N	X	Ss	Variance Source	KT	sd	KO	F	p	Significance
Less Than 1 Hour (1)	130	3,613	.984	Between Groups	7.224	3	2.408			
Between 1-3 Hours (2)	124	3,478	.933	Within Groups	420,531	461	.912			
Between 4-6 Hours (3)	121	3,577	986	Total	427,755	464		2,640	.049	4-2, 4-3;
7 Hours and Above (4)	90	3,84	.897							
Total	465	3,612	.960							

* significant difference at $p<0.05$ level

When Table 4 is examined, it is observed that there is a significant difference in FOMO on social media rates based on the duration of daily social media usage of the participants ($F=2.640$; $p<.0.05$).

According to the results of the LSD test, which was conducted to determine that the rates of FOMO on Social media of the participants differs based on their social media usage durations, individuals who spend 7 hours or more on social media ($X=3.84$), have a higher rate of FOMO on social media as compared to those who spend 1-3 hours ($X=3.85$) and 4- Between 6 Hours ($X=3.57$) There is no significant difference between individuals who spend less than 1 hour ($X=3.61$) and 1-3 hours ($X=3.47$).

Table 5 shows the results of the one-way variance (ANOVA) analysis which was conducted to determine whether there is a relationship between rates of FOMO on social media based on the Number of Accounts that participants Own on Social Media.

Table 5: Anova results of scores of fomo on social media platforms scale based on the number of social media accounts that the participants own

Account Number	N	X	Ss	Variance Source	KT	sd	KO	F	p	Significance
1 (1)	166	3,580	1.005	Between Groups	.288	2	.144	.156	.806	-

2 (2)	147	3,623	.981	Within Groups	427,4 67	46 2	.925
3 + (3)	152	3,637	.891	Total	427,7 55	46 4	
Total	465	3,612	.960				

When Table 5 is examined, no significant difference has been seen based on the number of social media accounts of students ($F=.156$; $p<.0,05$).

Table 6: The anova results of the fomo on social media platforms scale based on the grades that participants are in

Grades	N	X	Ss	Variance Source	KT	sd	KO	F	p	Significance
1 st Grade (1)	135	3,699	.945	Between Groups	5,823	3	1,941			
2 nd Grade (2)	129	3,444	1.04	Within Groups	421,932	461	.915			
3 rd Grade (3)	114	3,613	.960	Total	427,755	464		2,121	.097*	-
4 th Grade (4)	87	3,727	.894							
Totals	465	3,612	.960							

* significant difference is at $p<0.05$ level

When Table 6 is examined, no significant difference has been found based on the grades they are in, on their FOMO.

4. Conclusions and Recommendations

Increase in new technologies which include private computers, PCs and smartphones and virtual communication not only have facilitated the life but also have paved the way for various changes in daily habits and behaviors of individuals.

In the present study, there is no significant difference in FOMO averages based on sex. In a similar study that was conducted by (Jood, 2017), and (KIRIK et al., 2015) it has been reported that there is no significant difference in sex variables and the scale, either. It is established that students who have the habit of checking their smartphones right after waking up and students who spend time with their smartphones right before sleeping have a higher rate of FOMO.

The reason of the tendency for smartphones in the youth might be the impact of behaviors such as following the updates on social media, viewing the posts, status updates.

In the present study that was conducted thanks to the voluntary participation of 465 university students who study in the faculty of sports sciences, It has been observed that there are significant differences in terms of some variables in FOMO rates. It has been established that there are statically significant differences in FOMO averages based on the durations of social media usage on a daily basis and departments of participants. Based on that, it can be stated that there is a positive relation between FOMO levels of participants and the durations which are spent in social media.

No significant difference has been established between FOMO averages of the grades that participants are in and the number of social media accounts they own. No significant difference has been established between FOMO

averages and the number of social media accounts they own. It has been established that the students who study in recreation department have a lower average of FOMO. However it is observed that in the literature, there are studies which oppose to the conclusions that were found in this study, as well.(AKILLI & GEZGİN, 2016; Gökler et al., 2016).

Along with these information and communication technologies, the arising of some issues have been inevitable. These issues caused parents and teachers to be concerned about possible negative outcomes and practices of excessive or wrong use by children and teens.(Oberst et al., 2017).

The issues which arise from students' spending long durations on social media platforms and their desire to be liked should be solved with methods that enable systematic control, instead of methods that contribute to deprivation. Therefore, purposes of the internet usage in the favor of students will be supported.

It has been observed that individuals who have high rates of FOMO are also people who have many desires to be liked (Yıldırım,2016). It's thought that in order for the duration that is spent in social media platforms to be decreased, students can be occupied with various social, artistic and sportive activities and therefore FOMO will decrease accordingly. Such setups can be planned in a way that might raise the level of awareness of the students. The fact that the students who study in recreation department have lowest level of FOMO reinforces the importance of this recommendation.

References

- AKILLI, G. K., & GEZGİN, D. M. J. M. A. E. Ü. E. F. D. (2016). Üniversite Öğrencilerinin Nomofobi Düzeyleri ile Farklı Davranış Örüntülerinin Arasındaki İlişkilerin İncelenmesi Examination of the Relationship Between Nomophobia Levels and Different Behavior Patterns of University Students. *1*(40).
- Aktan, E. J. E. İ. D. (2018). Üniversite öğrencilerinin sosyal medya bağımlılık düzeylerinin çeşitli değişkenlere göre incelenmesi. *5*(4), 405-421.
- AYDIN, İ. E. J. S. Ü. S. B. E. D. (2016). Üniversite Öğrencilerinin Sosyal Medya Kullanımları Üzerine Bir Araştırma: Anadolu Üniversitesi Örneği. *(35)*, 373-386.
- Ayhan, B., & Çavuş, S. J. S. İ. (2014). İZLEYİCİ ARAŞTIRMALARINDA DEĞİŞİM: KULLANIMLAR VE DOYUMLARDAN BAĞIMLILIĞA. *8*(2), 32-60.
- Berners-Lee, T., Hendler, J., & Lassila, O. J. S. a. (2001). The semantic web. *284*(5), 34-43.
- Blackwell, D., Leaman, C., Tramposch, R., Osborne, C., Liss, M. J. P., & Differences, I. (2017). Extraversion, neuroticism, attachment style and fear of missing out as predictors of social media use and addiction. *116*, 69-72.
- Büyüköztürk, Ş., Çokluk, Ö., & Köklü, N. J. P. A. A. (2011). Sosyal bilimlerde istatistik (7. Baskı).
- Büyüköztürk, Ş. J. A. P. A. (2011). Sosyal bilimler için veri analizi el kitabı (17. bs.).
- Castells, M. (2005). Enformasyon çağı: Ekonomi, toplum ve kültür-ağ toplumunun yükselişi. *İstanbul: İstanbul Bilgi Üniversitesi Yayınları*.
- Çetinkaya, F. Ö., & Şahbaz, R. P. J. T. T. A. D. (2019). Sosyal medyada gelişmeleri kaçırma korkusunun kişinin tatil satın alma niyetine etkisi. *3*(3), 383-402.
- Ergenç, E. (2013). İŞLETMELER İÇİN SOSYAL MEDYA 'NİN ÖNEMİ.
- George, D., & Mallery, M. (2010). SPSS for Windows step by step: A simple guide and reference (p. Pearson).
- Gökler, M. E., Aydın, R., Ünal, E., & Metintaş, S. J. A. P. D. (2016). Sosyal ortamlarda gelişmeleri kaçırma korkusu ölçeğinin Türkçe sürümünün geçerlilik ve güvenilirliğinin değerlendirilmesi. *17*(1), 52-59.
- İnce, M., & KOÇAK, M. C. J. K. Ü. S. B. E. D. (2017). Üniversite öğrencilerinin sosyal medya kullanım alışkanlıkları: Necmettin Erbakan Üniversitesi örneği. *7*(2), 736-749.
- Jood, T. E. J. U. o. S. A., Master Thesis. (2017). Missing the present for the unknown: the relationship between fear of missing out (FoMO) and life satisfaction.
- KAPAN, K., & ÜNCEL, R. J. S. K. v. T. A. D. GELİŞEN WEB TEKNOLOJİLERİNİN (WEB 1.0-WEB 2.0-WEB 3.0) TÜRKİYE TURİZMİNE ETKİSİ. *3*(3), 276-289.
- KIRIK, A., Arslan, A., Çetinkaya, A., Mehmet, G. J. I. J. o. S. C., & Science. (2015). A quantitative research on the level of social media addiction among young people in Turkey. *3*(3), 108-122.
- Li, C., Bernoff, J., Pflaum, C., & Glass, S. J. F. R. (2007). How consumers use social networks. *21*, 2007.
- Mavnacıoğlu, K. (2017). Social Media Usage Towards Specific Target Groups: An Analysis Of The Social Media Communication Activities Performed in The Participation Banking System. *Communication & Media Researches*, 449.

- Oberst, U., Wegmann, E., Stodt, B., Brand, M., & Chamarro, A. J. J. o. a. (2017). Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out. *55*, 51-60.
- Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. J. C. i. h. b. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *29*(4), 1841-1848.
- Savaş, S., & Topaloğlu, N. J. U. B. G. v. K. K. (2016). Sosyal Medya Verileri Üzerinden Siber İstihbarat Faaliyetleri, *9*, 25-26.
- Tabachnick, B. G., & Fidell, L. S. J. P. (2013). Using multivariate statistics: International edition.
- Tiryaki, E., Özdal, B. J. A. R. o. H., & Sciences, S. (2020). Açık Kaynak İstihbaratında Sosyal Medyanın Rolünün Analizi. *3*(2), 267-296.
- Ulaştrın, T. J. E. A. h. p. c. c.-s.-F.-p.-d.-b.-a. E. (2017). Çağımızın salgını fomo: Pazarlama dünyasındaki başarısının ardındaki gerçekler. *13*, 2019.
- Wiesner, L. (2017). *Fighting FoMO: A study on implications for solving the phenomenon of the Fear of Missing Out* University of Twente].



Examining Problem-Solving and Problem-Posing Skills of Pre-Service Mathematics Teachers: A Qualitative Study

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Abstract

The aim of this study is to examine the problem-solving processes and problem-posing skills of pre-service mathematics teachers, which consists of four stages (understanding the problem, preparing a plan for the solution, applying the plan, evaluating) defined by Polya (1997) with the progressive scoring scale based on the alternative assessment approach. Qualitative research approach has been adopted in the study. Participants of the study consist of 71 pre-service teachers studying at the department of primary education mathematics teaching at the education faculty of a state university in the Southeastern Anatolia region of Turkey. Since the problem solving and problem posing behaviors of the participants were examined separately in the study, the gradual scoring scale developed by Baki (2008) was used. As a result of the analysis, it was determined that the participants showed the highest performance in the category of understanding the problem, and the lowest performance in the category of evaluation and problem posing. It was determined that participants who failed in the problem posing phase either wrote the same problem or could not write a problem. Another result reached in the study is that the participants had difficulties in expressing the operations in mathematical language.

Keywords: Mathematics Education, Problem-Solving, Problem-Posing, Evaluation, Pre-Service Mathematics Teachers

1. Introduction

Mathematics develops thinking, reasoning and problem solving skills that a person is likely to encounter in the real world (Bonotto & Santo, 2015). Problem solving, which is an integral part of mathematics, is not only an aim of learning mathematics, but also an important way of doing mathematics (National Council of Teachers of Mathematics [NCTM], 2000). A problem is an activity for which the solution is not immediately obvious (Jones, 2003). A math problem is a task presented to students in an instructional setting that poses a question that needs to be answered, but students do not have a ready-made procedure or strategy to answer (Lester Jr & Cai, 2016). Problem solving means participating in a task whose solution method is not known beforehand (NCTM, 2000). Problem solving is a more creative activity that involves testing, modifying, and refining the formulation of a possible hypothesis until it is possible to construct a formal proof of a set of activity theory (Tall, 2002). Problem solving is not just a product, but a process or method of combining information in a new (non-routine) way to

solve a problem (Gonzales, 1998). Problem solving is a skill that consists of finding out what needs to be done to get what you want, it is the main purpose of school mathematics and is a common task of students at all educational levels from primary school to university (Najdowski, 2017). It is pointed out that starting from preschool or kindergarten, students should be taught in a way that encourages problem solving as well as understanding the concepts and procedures of mathematics (Lester Jr & Cai, 2016). At the same time, problem solving is the ability to formulate, analyze and solve mathematical problems, as well as evaluate strategies, methods and results (Norqvist, 2016).

1.1. Problem Solving

Problem solving involves knowing when to apply a general mathematical result (such as a theorem or a built-in algorithm) to a particular situation to obtain the desired information (Mukhopadhyay & Greer, 2001). Problem solving is also defined as the process in which an individual tries to find a solution to a non-routine mathematical problem (Brahier, 2016). Problem solving provides students with the opportunity to use and apply their mathematical skills and knowledge (Jones, 2003). As students solve problems, they can use any approach they can think of, any knowledge they have learned or built on the spot, and justify their ideas in a way they feel persuasive (Lester Jr & Cai, 2016). By learning to solve problems in mathematics, students must gain confidence in their thinking, habits of persistence and curiosity, and in unusual situations that will serve well outside of mathematics class (NCTM, 2000).

Different problem solving stages are mentioned by mathematics education researchers. Although these stages serve similar purposes, there are some differences between them in terms of the number of stages. The most accepted is Polya's four-step process; understanding the problem, preparing the plan for the solution, applying the plan and evaluating the solution (Polya, 1997). In addition, Schoenfeld (1985) grouped this process into six stages; reading the problem, analyzing it, researching the methods, making a plan, implementing the plan and verifying the result. In the problem solving process, these stages may not be applied sequentially, and there may be back and forth between the stages. Because students may have different solutions for a given problem. On the other hand, Gonzales (1998) stated that problem posing comes after Polya's four-stage problem solving process and can be added to the problem solving process as the fifth step. In this context, students create a new problem by making use of the ready/existing solved problem, adding or changing the problem situation.

1.2. Problem Posing

Education systems support the rapidly changing priorities process and teaching-learning strategies are affected by this context. Problem posing as a learning and thinking practice plays an important role in this change (Singer, Ellerton, & Cai, 2015). Problem posing is a fundamental component of teaching and learning mathematics (Leavy & O'Shea, 2011; Stickles, 2011). Problem posing is a reformulation of a problem that arises in the process of generating a new problem or solving a problem (Silver, 1994). Problem posing is a series of transformations of the original problem, and each successive problem shows progress towards a solution and also provides opportunities for action to further expand the scope of the original problem (Cifarelli & Sevim, 2015). The ability of students to solve problems effectively by being aware of possible problems they may encounter in their real lives can be achieved with the problem posing skills they have acquired (Turhan, 2011). Problem posing activities were included in various learning areas of the mathematics curriculum (Ministry of National Education [MoNE], 2013; 2018). The inclusion of problem posing in the mathematics curriculum provides a valuable tool in teaching mathematics. Problem posing in meaningful contexts can provide insight into students' thinking and understanding, appeal to students' different levels of competence, emphasize mathematical structure and fundamental concepts, help teachers become more mathematically competent, and ultimately improve the problem-posing skills of both teachers and students. (English, 2020). Problem posing is not only a learning goal, but also a tool that can provide experiences for students to explore and create mathematical problems (Putra, Herman & Sumarmo, 2017). Such metacognitive processes form the basis of mathematical power and autonomy (Lowrie, 2002). Since this process also focuses on problem solving, it is

recommended to include problem-solving and problem-posing activities in mathematics teaching, and to work with different types of problems that can be solved with different strategies (Ev-Çimen, 2018).

Problem posing is included in the fifth stage of problem solving stages in the mathematics curriculum of Turkey (MoNE, 2013). Despite interest in integrating mathematical problem into teaching practices, the cognitive processes that occur when solvers generate their own problems remain relatively limited about instructional strategies that can effectively encourage productive problem posing, and the effectiveness of involving students in problem posing (Cai, Hwang, Jiang & Silber, 2015). There are many potential processes in problem posing, and this process may vary depending on the type of problem being addressed. If individuals are only going to pose problems that they have solved or can solve, problem posing can be considered as a measure of problem-solving competence (Stickles, 2011).

In this context, the aim of this study is to examine the problem-solving processes and problem-posing skills of pre-service teachers, which consists of four stages (understanding the problem, preparing a plan for the solution, applying the plan, evaluating) defined by Polya (1997) with the progressive scoring scale based on the alternative assessment approach. In line with this purpose, it is hoped that the data obtained will contribute to the development of pre-service teachers' problem-solving and problem-posing skills by detecting the mistakes made by the pre-service teachers in the problem-solving process and in the problems they have established, taking measures to eliminate these mistakes.

2. Method

2.1. Research Model

Qualitative research approach has been adopted in the study. Qualitative research is a preferred research approach in terms of benefiting from the experiences of the people doing research and understanding their feelings and thoughts (Ekiz, 2009). Based on this approach, the case study offers the opportunity to examine one or more situations or events in depth with a limited number of samples (Çepni, 2012). In this study, it was preferred to use this method since students' understanding of the problem in the problem solving process, planning, implementing the plan, evaluation stages and problem posing stage were examined in detail.

2.2. Research Group

Participants of the study consist of 71 pre-service teachers studying at the department of primary education mathematics teaching at the education faculty of a state university in the Southeastern Anatolia region of Turkey. Purposeful sampling method was used in determining the participants. Purposeful sampling allows for in-depth study of situations that are thought to have rich information (Yıldırım & Şimşek, 2021). Participants of the study took courses on problem solving and problem posing skills. Problem solving and problem posing courses were carried out for three weeks. Problem solving and posing activities were uploaded to the system by the first author and implemented within a certain period of time. The author is an expert in problem solving and posing, as he has done high-level events and projects on problem solving and posing. The names of the participants who participated in the study were kept confidential in accordance with the research ethics, and the names of the participants were given codes such as P1, P2, P3, P4... P71.

2.3. Data Collection Tool

In this study, five problems prepared by researchers using MoNE textbooks (Uçak, Emir, Kelek, Kutlu & Kahraman, 2019) were used as data collection tools. In order to ensure the content validity of these problems, two experts in mathematics education and two mathematics teachers were consulted in terms of content, level and language, and two problems were created with the necessary arrangements and reduced to three problems. A

pilot study was conducted with 10 students in order to see the reliability of the study and the usefulness of the data collection tool. At the end of the pilot study, it was decided that one lesson was sufficient and the problems were understandable by the students. Thus, the data collection tool consisted of three verbal problems. Problem activities are as follows:

- 1) A mathematics teacher said to two students who asked her age: “My age is 15 more than the sum of your ages, 18 times the difference. After 8 years, my age will be 22 times the difference of your ages.” Find the ratio of the current age of the teacher to the sum of the current ages of the students.
- 2) The weights of ingredients A, B, C, D to be used in a meal and the percentage ratio of ingredient C by weight are given in the table below.

	A	B	C	D
Percentage Rate (%)			24	
Weight		540	480	360

Find what percentage of the food ingredient A is according to the given students.

- 3) A store organized a “Buy 3 Pay 2” campaign. According to the conditions of the campaign, a person who buys 3 products will pay the price of the 2 most expensive products. Buying 6 different products worth 140, 40, 120, 190, 80 and 30 liras, find out how many percent discount Furkan will buy the products thanks to this campaign?

A total of three problems were applied by the researchers during one class hour. The implementation of the problems was carried out online with the participants through the SIUZEM system. During the application process, detailed explanations were given to the students by the researcher and they were asked to solve the given problems by considering each stage. During the problem posing phase, the students were asked to pose another problem related to the subject of the given problem.

2.4. Analysis of Data

Since the problem solving and problem posing behaviors of the participants were examined separately in the study, the gradual scoring scale developed by Baki (2008) was used. The progressive scoring scale consists of five categories. Under these five categories, there are four criteria, 0, 1, 2 and 3 points, which define the highest and lowest performance of each criterion. The maximum score a participant can get from each criterion is 3 points, and the minimum score is 0. The maximum score a participant can get from a problem is a maximum of 15 points and a minimum of 0 points. The answers given by the participants to the three problems were scored according to the gradual scoring scale and the researchers scored between 3-2-1-0 for each category given in this scoring key. In this scoring, the scores that the students received at each stage were evaluated separately. Since the purpose of the study is to examine the performances and difficulties experienced by the participants during the problem solving and posing stages, the frequency and percentage values of each category and behavior are given. In addition, the data obtained were supported by sample participant responses. The details of the gradual scoring scale are given in Table 1.

Table 1: Progressive scoring scale

Categories	Criteria	Point
Understanding the Problem	Full understanding of the problem	3
	Understanding a part of the problem	2
	Inability to understand the problem	1
	Failure to make any effort to understand the problem	0
Preparing	Choosing a strategy that will lead to the appropriate solution	3

	Choosing only one part of the strategy that will help the solution	2
	Choosing an inappropriate strategy	1
	No strategy chosen	0
Implementing the Plan	Reaching the appropriate and correct solution	3
	Making a solution that is partially correct	2
	Making an appropriate and incorrect solution	1
	Failure to do any solution	0
Evaluation	Solving the problem and the new problem created according to this problem	3
	Logical validation of results	2
	Partial confirmation of results	1
	Not knowing how to verify the result	0
Posing a Problem	The problem posed is logical and solvable.	3
	A new problem is created by changing the values of the problem.	2
	A logic error has been made in the created problem and cannot be solved.	1
	Same problem written or no problem written	0

In order to ensure the reliability of the study, the method of agreement between raters was used. Miles and Huberman (1994) call similar codes as “Agreement” and dissimilar codes as “Disagreement” and suggest the formula $\text{Percent of Agreement} = \text{Consensus} / (\text{Agreement} + \text{Disagreement}) * 100$ for encoder reliability. In the study, the percentage of agreement of the codes obtained by the researchers was found to be 86%. A Miles-Huberman reliability formula value of .70 and above indicates that the scoring is consistent (Yıldırım & Şimşek, 2021). The percentage of agreement obtained in this study also shows that the scoring is consistent.

In the analysis of the obtained data, descriptive analysis technique was used. Descriptive analysis is summarized and interpreted according to predetermined themes (Yıldırım & Şimşek, 2021). In this study, it was deemed appropriate to use this technique, since the criteria in the gradual scoring scale were considered as a category.

3. Results

In this section, the analysis of the data obtained, the findings and comments obtained as a result of the analyzes are given.

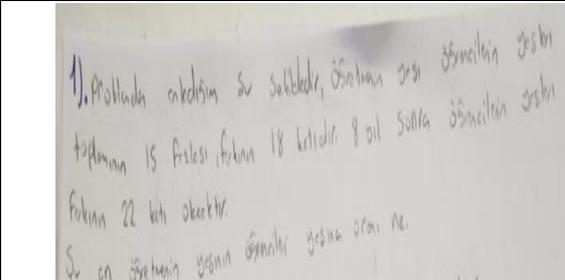
Table 2: Responses of Participants to the First Question

Categories	Criteria	f	%
Understanding the Problem	Full understanding of the problem	54	88
	Understanding a part of the problem	4	7
	Inability to understand the problem	1	2
	Failure to make any effort to understand the problem	2	3
Prepare the Plan	Choosing a strategy that will lead to the appropriate solution	54	88
	Choosing only one part of the strategy that will help the solution	5	8
	Choosing an inappropriate strategy	1	2
	No strategy chosen	1	2
Implementing the Plan	Reaching the appropriate and correct solution	54	88
	Making a solution that is partially correct	5	8

	Making an appropriate and incorrect solution	1	2
	Failure to do any solution	1	2
Evaluation	Solving the problem and the new problem created according to this problem	38	62
	Logical validation of results	6	8
	Partial confirmation of results	5	10
	Not knowing how to verify the result	12	20
Posing a Problem	The problem posed is logical and solvable.	35	57
	A new problem is created by changing the values of the problem.	6	10
	A logic error has been made in the created problem and cannot be solved.	0	0
	Same problem written or no problem written	20	33

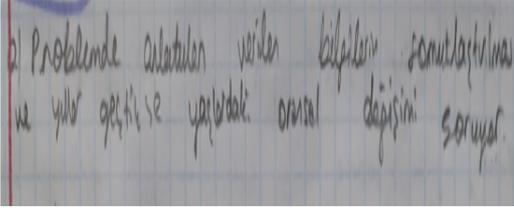
When Table 2 is examined, it is seen that the majority of the participants fully understood the first problem (88%). In addition, it was determined that 7% of the participants understood part of the problem, whereas the rate of participants who did not understand the problem and did not make any effort was 5%. When the plan preparation category related to the first problem was examined, it was determined that the majority of the participants (88%) developed an appropriate strategy, similar to the distribution in the category of understanding the problem. The rest of the participants either could not determine a correct strategy or did not make any effort to determine any strategy. When the plan implementation category of the first problem is examined, similar to the previous categories, the majority of the participants (88%) reached the appropriate and correct result, while the remaining participants could not reach an appropriate and correct result. When the evaluation category of the first problem was examined, it was determined that more than half of the participants (62%) were able to evaluate, but especially 30% had problems in making evaluations. Finally, in the problem-posing category, which has an important place in problem-solving skills, 57% of the participants set up logical and solvable problems. It was determined that 33% of the participants were unsuccessful in the problem posing process. First of all, the sample participant solution of the first problem, which received full points in the category of understanding the problem, is given in Table 3.

Table 3: P4 participant's response to the first problem in the category of understanding the problem

	<p>What I understand from the problem is as follows: The age of the teacher is 15 times the sum of the ages of the students and 18 times the difference. After 8 years, they will be 22 times the age difference. What is the ratio of the age of the teacher to the age of the students at the moment?</p>
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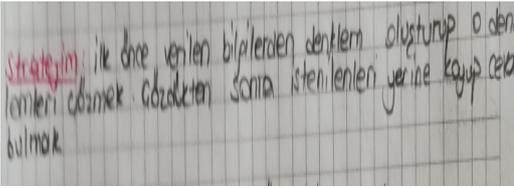
When Table 3 is examined, it is seen that P4 participant stated what is given and requested in the problem with his own sentence. Writing what is given and what is requested in the problem separately indicates that the problem is understood. The sample participant statement that was unsuccessful in the category of understanding the problem is shown in Table 4.

Table 4: P11 participant's response to the first problem in the category of understanding the problem

	<p>Concretizing the information given in the problem and examining the proportional change in ages over the years.</p>
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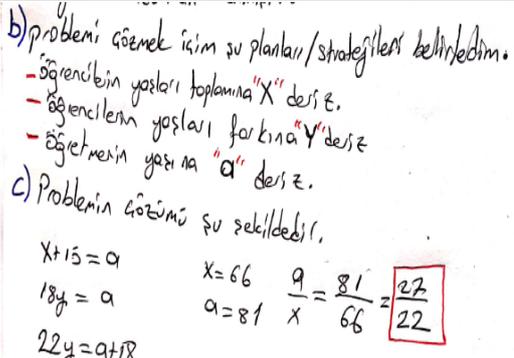
When Table 4 is examined, it is seen that the P11 participant did not understand the problem in the category of understanding the problem. The purpose of the problem is clear, and the participant expressed an opinion other than this purpose. There is no purpose to concretize the information. For the plan preparation category, some of the participants developed an incomplete or incorrect strategy. An example participant statement for this situation is given in Table 5.

Table 5: P7 participant's response to the first problem in the plan preparation category

	<p>First, creating equations from the given information and solving those equations, after solving them, replace the desired ones and find the answer.</p>
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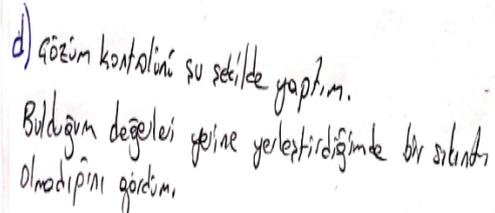
When Table 5 is examined, the plan developed by the P7 participant is included. When the plan was examined, it was stated as creating equations and solving these equations, but no information was given about any equation or how to solve the equations. In this case, the plan created does not have a concrete counterpart and can be considered as a failed plan. In the category of implementing the plan of the first problem, it was determined that some participants did not use the plans they stated or made mistakes in the implementation. An example participant statement for this situation is presented in Table 6.

Table 6: P1 participant's response to the first problem in the plan implementation category

	<p>To solve the problem, I set the following plans:</p> <p>We call the sum of the ages of the students X We call the age difference of the students Y We call the teacher's age a</p> <p>The solution to the problem is as follows:</p>
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When Table 6 is examined, it is seen that P1 participant created a plan but applied this plan incorrectly. The mistakes he made while implementing the plan and his incomplete and incorrect transmission of the questions in the question caused him to fail in this category. An important detail here is the category of understanding the problem. If the understanding of the problem is incomplete or erroneous, then a systematic error occurs in the categories of plan development and implementation of this plan. It was determined that the same participant was unsuccessful in the evaluation category as well. The participant statement in question is presented in Table 7.

Table 7: P1 participant's answer to the first problem in the evaluation category

	<p>I did the solution check as follows. When I replaced the values I found, I saw that there was no problem.</p>
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The reasons why the P1 participant failed in the plan creation and plan implementation categories were given. When Table 7 is examined, it is seen that the P1 participant was unsuccessful in the evaluation category as well. No checks were made and he claimed that his solution was correct. But when his solution is examined, the values he finds are wrong. As a result of checking the erroneous values, the error must be noticed. In this case, it can be said that the participant did not control any transaction. Finally, the responses of the participants belonging to the category of similar problem posing to the first problem were examined. It has been determined that some participants have difficulties in posing problems. It was determined that some participants made logical errors during the problem posing phase. An example participant statement for this situation is given in Table 8. In Table 9, the statement of the sample participant who successfully created a problem is given.

Table 8: P58 participant's response to the first problem in the problem posing category

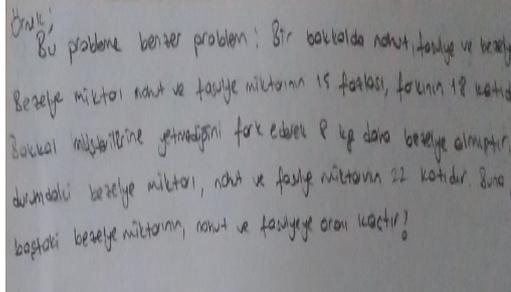
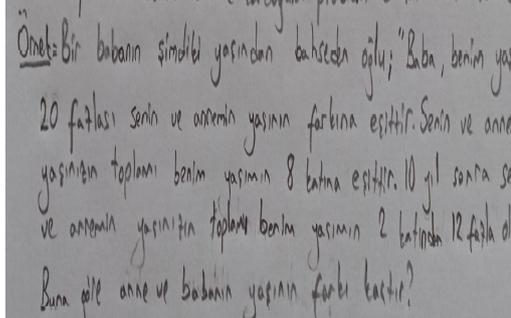
	<p>Problem similar to this problem: A grocery store has chickpeas, beans, and peas. The amount of peas is 15 times more than the amount of chickpeas and beans and 18 times the difference. The grocery store realized that it was not enough for its customers and bought 8 kg of peas. The amount of peas in the final state is 22 times the amount of chickpeas and beans. What is the ratio of the initial amount of peas to chickpeas and beans?</p>
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Table 9: P55 participant's response to the first problem in the problem posing category

	<p>A father's son speaking of his present age; Dad, 20 more than my age is equal to the difference between your age and my mom's age. The sum of your and my mother's ages is equal to 8 times my age. In 10 years, the sum of your ages and my mother's ages will be 1 more than twice my age. What is the age difference between the parents?</p>
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When Table 8 is examined, the problem posed by the P58 participant is not the same as the subject in the first problem. In the first problem, an age problem was given and it was emphasized that the age difference would not change after years, and an equation was asked to be established. However, these achievements were not included in the problem posed by the participant, and the participant failed in this category. Table 9 includes the problem of the P55 participant. The problem posed is quite original and parallel to the subject and outcome of the first problem.

Table 10: Responses of Participants to the Second Question

Categories	Criteria	f	%
Understanding the Problem	Full understanding of the problem	54	88
	Understanding a part of the problem	4	7
	Inability to understand the problem	1	2
	Failure to make any effort to understand the problem	2	3
Prepare the Plan	Choosing a strategy that will lead to the appropriate solution	55	90
	Choosing only one part of the strategy that will help the solution	4	6
	Choosing an inappropriate strategy	1	2
	No strategy chosen	1	2
Implementing the Plan	Reaching the appropriate and correct solution	53	87
	Making a solution that is partially correct	4	6
	Making an appropriate and incorrect solution	3	5
	Failure to do any solution	1	2
Evaluation	Solving the problem and the new problem created according to this problem	43	71
	Logical validation of results	5	8
	Partial confirmation of results	2	3
	Not knowing how to verify the result	11	18
Posing a Problem	The problem posed is logical and solvable.	35	57
	A new problem is created by changing the values of the problem.	7	12
	A logic error has been made in the created problem and cannot be solved.	0	0
	Same problem written or no problem written	19	31

When Table 10 is examined, it is seen that the majority of the participants fully understood the second problem (88%). In addition, it was determined that 7% of the participants understood some of the problems, whereas the rate of participants who did not understand the problem and did not make any effort was 5%. When the plan preparation category related to the second problem was examined, it was determined that almost all of the participants (90%) developed a suitable strategy. The rest of the participants either could not determine a correct strategy or did not make any effort to determine any strategy. When the plan implementation category of the second problem is examined, similar to the previous categories, the majority of the participants (87%) reached the appropriate and correct result, while the remaining participants could not reach an appropriate and correct result. When the evaluation category of the second problem was examined, it was found that more than half of the participants (71%) were able to evaluate, but especially 21% had problems in making evaluations. Finally, in the problem posing category, which has an important place in problem solving skills, 57% of the participants posed logical and solvable problems. It was determined that 31% of the participants were unsuccessful in the problem posing process. First of all, the sample participant statement in the category of understanding the problem of the second problem is given in Table 11.

Table 11: P6 participant's response to the second problem in the category of understanding the problem

<p>1) Problemden anladığım şu şekildedir:</p> <p>- Bir yemek yapmada kullanılan A, B, C, D malzemeleri vardır. ve bize bu malzemelerin oranlarını vermiştir. Oranlara göre de yüzdeli oranları vermiştir. Bizden ise A malzemesinin yemeğin yüzde kaçını oluşturduğunu istemektedir.</p>	<p>What I understand from the problem is as follows: There are A, B, C, D materials used in the making of a meal and the weights of these materials are given to us. Percentages are given according to the weights. On the other hand, we are asked what percentage of the meal A material constitutes.</p>
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When Table 11 is examined, P6 participants did not write down what was given and requested in the problem separately, but presented a brief summary of the problem. As such, the understanding of the problem remains incomplete. A successful sample participant statement for the plan preparation category is presented in Table 12.

Table 12: P28 participant's response to the second problem in the plan preparation category

<p>Bu soruda C'nin hem yüzdesini hem de ağırlığını bildiğimiz için bundan yola çıkarak diğer malzemelerin yüzde ve ağırlıklarını oran-orantı kurarak bulacağız.</p>	<p>Since we know both the percentage and the weight of C in this question, we will find the percentage and weight of the other materials using ratio-proportionality, starting from here.</p>
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When Table 12 is examined, it can be said that P28 participant prepared a plan in accordance with the problem. In the category of implementing the plan of the second problem, it was determined that some participants did not use the plans they stated or made mistakes in the implementation. An example participant statement for this situation is presented in Table 13.

Table 13: P11 participant's response to the second problem in the plan implementation category

<p>b) C malzemesinde verilen oranı yordayarak toplam ağırlığı bulacağım ve oradan yüzdelere geçiş yapacağım.</p> <p>c)</p> <table border="1"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>Yüzde :</td> <td>31</td> <td>27</td> <td>24</td> <td>18</td> </tr> <tr> <td>Ağırlık :</td> <td>620</td> <td>540</td> <td>480</td> <td>360</td> </tr> </tbody> </table>		A	B	C	D	Yüzde :	31	27	24	18	Ağırlık :	620	540	480	360	<p>By catching the ratio given in material C, I will find the total weight and switch from there to the percentages.</p>
	A	B	C	D												
Yüzde :	31	27	24	18												
Ağırlık :	620	540	480	360												

When Table 13 is examined, it is seen that P11 participant prepared a plan but did not take any action or comment during the implementation phase. The plan prepared by the P11 participant is also missing. This shortcoming has also manifested itself in the implementation phase. An example statement from the successful participants in the evaluation category of the second problem is given in Table 14.

Table 14: P33 participant's response to the second problem in the evaluation category

<p>A=620 gram $A+B+C+D=620+540+480+360=2000\text{gr}$</p> <p>C'nin %'si o halde $\frac{2000}{100} \cdot (C'nin yüzdesi) = 480$</p> <p>C'nin yüzdesi=%24 bulunduğundan çözüm doğrudur.</p>	<p>A=620 Gram $A+B+C+D=620+540+480+360=2000\text{ gr}$ The solution is correct since %C = 24%.</p>
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When Table 14 is examined, it is seen that the P33 participant made a successful evaluation. He wrote the result he found in place of the desired ones in the problem, found the percentage value and compared it with the value in the table. One of the most important points of being successful in the evaluation category is to understand the problem, prepare a plan to solve the problem and implement this plan correctly. It was determined that the P33 participant was successful in these categories, and it was determined that he was successful in the evaluation category as well. Finally, participant responses to the problem posing category of the second problem were examined. As in the first problem, it was determined that some participants had difficulties in posing problems in the second problem. In Table 15, the statement of the sample participant who was successful in the problem posing category is given.

Table 15: P47 participant's response to the first problem in the problem posing category

	<p>Similar problem: There are a, b, c candies in a candy box. There are 20 candies in total in the box. Of 20 sugars, 50% is a and 30% is b. How many of the c sugars make up and how many c sugars are there?</p>
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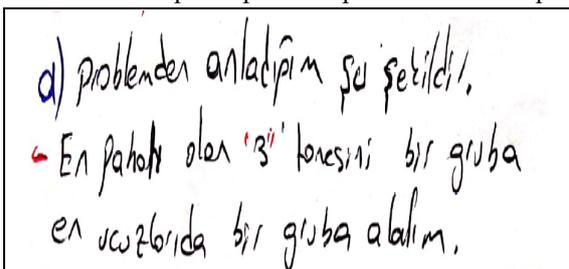
When Table 15 is examined, the problem posed by the P47 participant has similar gains with the desired gains in the second problem. Since the posed problem is a logical and solvable problem, it can be said that the participant is successful in this category.

Table 16: Responses of Participants to the Third Question

Categories	Criteria	f	%
Understanding the Problem	Full understanding of the problem	47	77
	Understanding a part of the problem	5	8
	Inability to understand the problem	1	2
	Failure to make any effort to understand the problem	8	13
Prepare Plan	Choosing a strategy that will lead to the appropriate solution	45	74
	Choosing only one part of the strategy that will help the solution	5	8
	Choosing an inappropriate strategy	3	5
	No strategy chosen	8	13
Implementing the Plan	Reaching the appropriate and correct solution	40	66
	Making a solution that is partially correct	7	11
	Making an appropriate and incorrect solution	6	10
	Failure to do any solution	8	13
a Evaluation	Solving the problem and the new problem created according to this problem	35	57
	Logical validation of results	4	7
	Partial confirmation of results	6	10
Posing Problem	Not knowing how to verify the result	16	26
	The problem posed is logical and solvable.	27	44
	A new problem is created by changing the values of the problem.	4	7
	A logic error has been made in the created problem and cannot be solved.	1	1
	Same problem written or no problem written	29	48

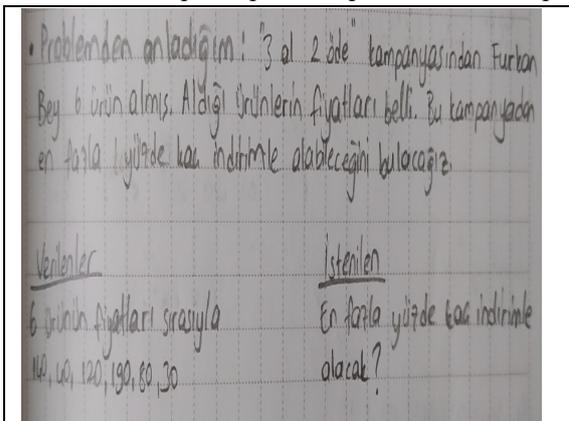
When Table 16 is examined, it is seen that the majority of the participants fully understood the third problem (77%). In addition, it was determined that 8% of the participants understood part of the problem, while the rate of participants who did not understand the problem and did not make any effort was 5%. When the plan preparation category related to the third problem was examined, it was determined that more than half of the participants (74%) developed an appropriate strategy. The rest of the participants either could not determine a correct strategy or did not make any effort to determine any strategy. When the plan implementation category of the third problem was examined, more than half of the participants (66%) reached the appropriate and correct result, while the remaining participants could not reach an appropriate and correct result. When the evaluation category of the third problem was examined, it was found that more than half of the participants (57%) could evaluate, similar to the previous categories, but 36% of the participants had problems in making evaluations. Finally, in the problem posing category, only 44% of the participants were able to pose logical and solvable problems. Almost half of the participants (49%) were found to be unsuccessful in the problem posing process. First of all, the sample participant statement in the problem understanding category of the third problem is given in Table 17.

Table 17: P1 participant's response to the third problem in the category of understanding the problem

	<p>What I understand from the problem is as follows: Let's take the 3 most expensive ones to a group and the cheapest ones to another group.</p>
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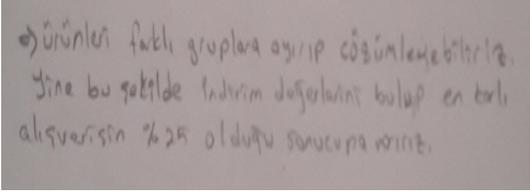
When Table 17 is examined, it is seen that P1 participant does not understand the problem. If what was given and what was requested were clearly written, such a statement would not have been stated. It can be said that the third problem of the P1 participant was unsuccessful in the category of understanding the problem. A successful participant statement for the problem understanding category of the third problem is given in Table 18.

Table 18: P19 participant's response to the third problem in the category of understanding the problem

	<p>What I understand from the problem: Furkan bought 6 products from the buy 3 pay 2 campaign. The prices of the products he buys are certain. We will find out how many percent discount he can get from this campaign.</p> <p>Given Prices of 6 products respectively 140, 40, 120, 190, 80, 30</p> <p>Desired How many percent discount will he get?</p>
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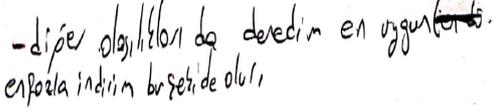
When Table 18 is examined, it is seen that participant P19 understood the third problem correctly. The participant summarized the problem by writing clearly what was given and requested in the problem and successfully passed the plan preparation step. The biggest difficulties encountered in the third problem are in the evaluation and problem posing categories. Participant statements that will set an example for the difficulties experienced in these categories are included.

Table 19: P53 participant's response to the third problem in the evaluation category

	<p>We can divide the products into different groups and analyze them. Again in this way, we find the discount values and conclude that the most profitable purchase is 25%.</p>
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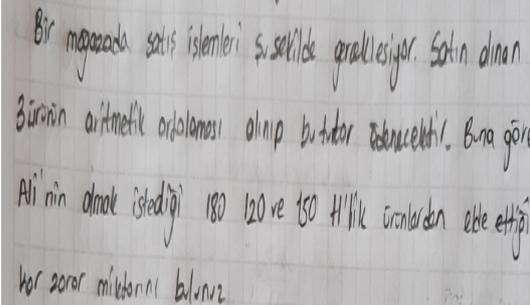
When Table 19 was examined, it was determined that the P53 participant did not make any evaluation. There is no case of reaching any conclusion as stated in the statement. Therefore, the P53 participant was deemed unsuccessful in this category.

Table 20: P1 participant's response to the third problem in the evaluation category

	<p>I tried other possibilities as well, this is the most suitable discount.</p>
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When Table 20 is examined, it is claimed that participant P1 reached the most appropriate result by trying all possibilities. There was no evaluation process and it was only verbally expressed. According to the evaluation criteria, it can be said that the participant failed in this category. Finally, the sample participant response with a logic error in the problem posing category of the third problem is presented in Table 21.

Table 21: P42 participant's response to the first problem in the problem posing category

	<p>Sales transactions in a store take place as follows. The arithmetic average of the 3 purchased products will be taken and this amount will be paid. Accordingly, find the amount of profit and loss that Ali derives from the 180, 120 and 150 TL products he wants to buy.</p>
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When Table 21 is examined, it is seen that the P42 participant posed the wrong problem. The reasons for the problem being erroneous are that it is a logic error, there is no solution and no percentage calculation is asked. A successful participant statement for the problem posing category of the third problem is presented in Table 22.

Table 22: P23 participant's response to the first problem in the problem posing category

	<p>There is a buy 2 pay 1 campaign in a store. The cheaper one will not be paid. Aslı buys 40, 80, 60, 10 TL products. Thanks to this campaign, how many percent discount does he get?</p>
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When Table 22 is examined, the problem posed by the P23 participant is a logical and solvable problem. Therefore, it can be said that the participant was successful in this category.

4. Discussion

In this study, the answers and explanations of the pre-service teachers to the applied problems were examined and the problem-solving and problem-posing skills of the pre-service teachers were examined. In this context, the aim of the study is to examine the problem-solving processes and problem-posing skills of pre-service teachers, which consists of four stages (understanding the problem, preparing a plan for the solution, applying the plan, evaluating) defined by Polya (1997) with the progressive scoring scale based on the alternative assessment approach. As a result of the analysis, it was determined that the participants showed the highest performance in the category of understanding the problem, and the lowest performance in the category of evaluation and problem posing. Similarly, Deringöl (2006) and Gökkurt, Örnek, Hayat & Soylu (2015) revealed that the students got the highest average score from the problem-solving stage of Polya's problem-solving stages, and the lowest average score from the solution evaluation stage.

When the answers of the participants in the category of understanding the problem were examined in general, it was determined that the problems were generally understood by the participants. When the answers of the participants who had problems in the category of understanding the problem were examined, it was seen that there was difficulty in understanding the problem in cases where what was given and what was requested in the problems were not clearly stated. An important detail here is the category of understanding the problem. If the understanding of the problem is incomplete or erroneous, then a systematic error occurs in the categories of plan development and implementation of this plan. When the answers given in the plan preparation category were examined, it was seen that the participants generally prepared a plan successfully.

When the answers of the participants who have problems in the plan preparation category are examined, it is seen that this question arises from the problem in the category of understanding the problem. Similarly, Karataş and Güven (2004) stated that students made mistakes in the problem solving process due to insufficient understanding of the problem. According to Mayer (1992), the difficulties encountered in the problem solving process stem from the inadequate definition of the problem (understanding the problem and preparing a plan) rather than the mistakes in the solution process. In this context, the results obtained from the study are similar to the results of the mentioned study.

When the answers given by the participants in the plan implementation category are examined, it is seen that the results in this category are in line with the results obtained in the plan preparation category. Participants who were successful in the categories of understanding the problem and preparing a plan were also successful in the category of implementing the plan. However, it was determined that the participants who had problems and made mistakes in the categories of understanding the problem or preparing a plan were also deficient in implementing the plan. Another problem experienced in plan preparation and plan implementation categories is calculation and processing errors. According to the findings, it can be said that the performance of the participants in the evaluation and problem posing process is lower than the other categories. It was determined that participants who failed in the problem posing phase either wrote the same problem or could not write a problem. One of the most important points of being successful in the evaluation category is to understand the problem, prepare a plan to solve the problem and implement this plan correctly. One of the reasons why the success in the evaluation category is lower than the other categories is that the participants do not need to evaluate. No evaluation was made based on the results they found. Karataş and Güven (2004) stated in their study that students who made mistakes in the solution phase of the problem realized their mistakes because they used appropriate strategies and skills in the evaluation phase. In this context, teachers should give students the opportunity to think about the solutions they have made so that students can use the evaluation step effectively in the problem solving process (Gökkurt, Örnek, Hayat & Soylu, 2015).

When the answers given by the participants were examined, it was seen that the problem posing skills of the

participants were not at the desired level. Most of the participants either wrote the problem exactly by changing the numerical values in the given problem or posed illogical problems with no solution. In this context, in order to improve students' problem posing skills, problem posing practices should be made in the lessons, and students should be given feedback on eliminating these mistakes by emphasizing the mistakes made by the students during the problem posing process. Çetinkaya and Soybaş (2018), Dinç (2018), Türnüklü et al. (2017) and Tabak (2019) concluded that students' problem posing skills for operation priority are weak. Ev-Çimen and Yıldız (2018) concluded that students' problem posing skills were at a better level than expected. In this study, it was observed that students had more difficulties in the problem-posing process than in problem-solving. It has been observed that they are significantly more successful in problem solving than in problem posing. In addition, participants showed high performance in other categories than problem posing and evaluation categories. In the study conducted by Bunar (2011), unlike this study, it was concluded that the participants were more successful in the problem-posing process than in the problem-solving process. Gökkurt, Örnek, Hayat and Soylu (2015) concluded in their studies that students were not successful in both problem solving and problem posing.

Another result reached in the study is that the participants had difficulties in expressing the operations in mathematical language. This problem, especially in the process of problem posing, is clearly seen. In the studies conducted by Akarsu-Yakar & Yılmaz (2017) and Yenilmez & Bağdat (2014), it was concluded that the participants had an inability to use the mathematical language, and because of these reasons, they had problems in demonstrating the operations with the mathematical language. In this context, it is similar to the results of the study in question. In this study, it was concluded that the students had language and expression errors while expressing the operation in mathematical language and posing problems for the operation. In the study of Ev-Çimen and Yıldız (2018), similar to this study, it was stated that the problems posed by the students were incorrect in terms of language and expression. Arıkan and Ünal (2013) concluded in their study that most of the students could not pose a problem due to language use.

In this study, problem activities prepared by the researchers were analyzed with a rubric. Different results can be achieved by solving problems with different rubrics. Findings regarding the difficulties or deficiencies faced by pre-service teachers in problem solving and problem posing were analyzed within the framework of Polya's problem solving stages. The same results may not be achieved with another rubric that includes different problem solving stages in the literature. The same is true for the analysis of findings related to problem posing skills. On the other hand, due to the covid 19 pandemic, pre-service teachers received online training on problem solving and setting up, and the advantages and disadvantages of online education and face-to-face education can be revealed by applying the same data collection tools in a process where there is face-to-face education.

References

- Akarsu-Yakar, E., & Yılmaz, S. (2017). Mathematical language skills of 7th grade students in the process of transforming the real life situation into a mathematical expression in algebra, *Inonu University Journal of the Faculty of Education*, 18(1), 292-310.
- Arıkan, E., & Ünal, H. (2013). The analysis of mathematical problem posing skill of elementary second grade students, *Amasya Education Journal*, 2(2), 305-325.
- Baki, A. (2008). *Kuramdan uygulamaya matematik eğitimi* [Mathematics education from theory to practice]. Ankara: Harf Publishing.
- Baki, A. (2018). *Matematiği öğretme bilgisi* [Knowledge of teaching mathematics]. Ankara: Pegem Academy Publishing.
- Bonotto, C., & Santo, L. D. (2015). On the relationship between problem posing, problem solving, and creativity in the primary school. In F.M. Singer, N. F. Ellerton, & J. Cai (Ed.), *Mathematical problem posing: From research to effective practice* (pp. 104-121). New York, NY: Springer.
- Brahier, D.J. (2016). *Teaching secondary and middle school mathematics*. New York, NY: Taylor & Francis
- Bunar, N. (2011). *The sixth graders? problem posing and solving abilities in sets, fractions and four operations* (Unpublished master's thesis). Afyon Kocatepe University, Afyon.
- Cai, J., Hwang, S., Jiang, C., & Silber, S. (2015). Problem-posing research in mathematics education: some answered and unanswered questions. In Singer, F.M., Ellerton, N.F., & Cai, J. (Edt). *Mathematical problem posing: From research to effective practice*, (pp. 3-34). New York: Springer.

- Cifarelli, V. V., & Sevim, V. (2015). Problem posing as reformulation and sense-making within problem solving. In F. M. Singer, N. F. Ellerton, & J. Cai (Ed.), *Mathematical problem posing from research to effective practice* (pp. 177-194). New York, NY: Springer.
- Çepni, S. (2012). *Araştırma ve proje çalışmalarına giriş* [Introduction to research and project work]. (6th Edition). Trabzon: Celepler Publishing.
- Çetinkaya, A., & Soybaş, D. (2018). An investigation of problem posing skills of elementary school 8th grade students. *Journal of Theoretical Educational Science*, 11(1), 169-200.
- Deringöl, Y. (2006) *New approaches in the teaching of solving mathematics problems in primary education* (Unpublished master's thesis). İstanbul University, İstanbul.
- Dinç, B. (2018). *An investigation of seventh grade students' problem posing abilities for real-life situations* (Unpublished master's thesis). Eskişehir Osmangazi University, Eskişehir.
- Ekiz, D. (2009). *Araştırma yöntemleri* [Research methods]. (2nd Edition). Ankara: Anı Publishing.
- English, L. D. (2020). Teaching and learning through mathematical problem posing: Commentary. *International Journal of Educational Research*, 102 (2020), 1-5. Doi: <https://doi.org/10.1016/j.ijer.2019.06.014>
- Ev-Çimen, E., & Yıldız, Ş. (2018). An investigation of sixth grade students' abilities of posing problems appropriate to the column graph, *Mehmet Akif Ersoy University Journal of Education Faculty*, 48, 325-354.
- Ev Çimen, E. (2018). Ability to produce strategy. In T. Kabael, (Ed.) *Mathematical literacy and PISA* (pp. 189-242). Ankara: Anı Publishing.
- Gonzales, N. A. (1998). A blueprint for problem posing. *School Science and Mathematics*, 94 (2), 78- 85.
- Gökkurt, B. Örnek T., Hayat, F., & Soylu, Y. (2015). Assessing students' problem-solving and problem-posing skills, *Bartın University Journal of Faculty of Education*, 4 (2), 751-774.
- Jones, L. (2003). *The problem with problem solving*. In Ian Thompson (Ed.) *Enhancing primary mathematics teaching* (pp. 86-97). Maidenhead Philadelphia: Open University Press.
- Karataş, İ., & Güven, B. (2004). Determination of 8th students' problem solving skills: A case study. *Milli Eğitim Dergisi* [Journal of National Education], 163.
- Leavy, A. M., & O'Shea, J. (2011). Problem posing and pre-service primary teachers: An initial study. In T. Dooley, D. Corcoran & M. Ryan, (Eds.), *Proceedings of the Fourth Conference on Research in Mathematics Education (MEI4) Theme: Mathematics Teaching Matters*, 227-238, September, 22-23. Dublin, Ireland.
- Lester Jr, F. K., & Cai, j. (2016). Can mathematical problem solving be taught? preliminary answers from 30 years of research. In P. Felmer, E. Pehkonen, & J. Kilpatrick (Ed.), *Posing and solving mathematical problems advances and new perspectives* (pp. 118-135). Switzerland AG: Springer.
- Lowrie, T. (2002). Designing a framework for problem posing: Young children generating open-ended tasks. *Contemporary Issues in Early Childhood*, 3 (3), 354-64.
- Mayer, R. E. (1982) The psychology of mathematical problem solving. In F.K. Lester & Garofalo (Eds.), *Mathematical problem solving: Issues in research* (pp. 1-13). Philadelphia: Franklin Institute Press.
- Ministry of National Education [MoNE]. (2013). *Middle school mathematics (5th, 6th, 7th and 8th grades) curriculum*, T.C. Ministry of National Education, Ankara.
- Ministry of National Education [MoNE]. (2018). *Mathematics curriculum (Primary and secondary school grades 1, 2, 3, 4, 5, 6, 7 and 8)*. T.C. Ministry of National Education, Ankara.
- Miles, M. B., & Huberman, A. M. (1994). *An expanded sourcebook: qualitative data analysis (2nd Editon)*. SAGE.
- Mukhopadhyay, S., & Greer, B. (2001). Modelling with purpose: Mathematics as a critical tool. In B. Atweh, H. Forgasz, & B. Nebres (Ed.). *Sociocultural research on mathematics education: An international perspective* (p: 295-313). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Najdowski, A. C. (2017). *Flexible and focused teaching executive function skills to individuals with autism and attention disorders*. Academic Press. Doi: 10.1016/B978-0-12-809833-2.00006-6. <https://www.sciencedirect.com/science/article/pii/B9780128098332000108>
- National Council of Teacher Mathematics [NCTM.] (2000). *Principles and standards for school mathematics*. Reston, VA: National Council of Teacher Mathematics.
- Norqvist, M. (2016). *On mathematical reasoning - being told or finding out*. Print & Media, Umeå University Umeå, Sverige. Retrieved form <https://umu.diva-portal.org/smash/get/diva2:954413/FULLTEXT01.pdf>
- Polya, G. (1997). *How to solve? A new dimension in mathematics*. (Translated by F. Halatçı). İstanbul: Sistem Publishing.
- Putra, H.D., Herman, T., & Sumarmo, U. (2017). Development of student worksheets to improve the ability of mathematical problem posing. *International Journal on Emerging Mathematics Education*, 1(1), 1-10. Doi: 10.12928/ijeme.v1i1.5507
- Schoenfeld, A. H. (1985). *Mathematical problem solving*. New York: Academic Press.
- Silver, E. A. (1994). On mathematical problem posing. *For the Learning of Mathematics*, 14(1), 19–28.
- Singer, F.M., Ellerton, N.F., & Cai, J. (2015). *Mathematical problem posing: From research to effective practice*. New York: Springer.

- Stickles, P. R. (2011). An analysis of secondary and middle school teachers' mathematical problem posing. *Investigations in Mathematics Learning*, 3(2), 1–34. Doi: 10.1080/24727466.2011.11790301
- Tabak, S. (2019). 6th, 7th and 8th grade students' misconceptions about the order of operations. *International Journal of Educational Methodology*, 5(3), 363-373. <https://doi.org/10.12973/ijem.5.3.363>
- Tall, D. (2002). *Advanced mathematical thinking*. New York: Kluwer Academic Publishers
- Turhan, B. (2011). *Examination of effects of mathematics teaching with problem posing approach on sixth grade students' problem solving success, problem posing abilities and views towards mathematics* (Unpublished master's thesis). Anadolu University, Eskişehir.
- Türnüklü, E., Aydoğdu, M. Z., & Ergin, A. S. (2017). Investigation of studies an 8th grade students' problem posing about triangles, *Journal of Bayburt Education Faculty*, 12(24), 467-486.
- Uçak, A., Emir, E., Kelek, F., Kutlu, G., & Kahraman, S. (2019). *Science High School 9th Grade Mathematics Textbook*. Ankara: MoNE Publishing
- Yenilmez, K., & Bağdat, O. (2014). *Learning difficulties of seventh grade students about operations with integers. I. Eurasian Educational Research Congress Abstracts Booklet*, İstanbul.
- Yıldırım, A., & Şimşek, H. (2021). *Sosyal bilimlerde nitel araştırma yöntemleri [Qualitative research methods in the social sciences]* (12th Edition). Ankara: Seçkin Publishing.
- Zehir, K. (2013). *Investigation of pre-service elementary mathematics teachers' problem posing skills for fraction operations* (Unpublished doctoral dissertation). Atatürk University, Erzurum.



Let's do the Math... About Creativity and Mathematical Reasoning: A Correlational Study in Primary School Children

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Abstract

Mathematics, being a very ancient discipline, is usually seen as a formal subject that must be learned for school purposes, which is very far from creativity and fun. Also, mathematical skills are often considered a talent, so students are easily divided into gifted and not gifted, with a focus on speed and accuracy rather than encouraging the process of juggling between divergent and convergent thinking. In the present paper, we aimed at investigating the relationship between mathematical reasoning and different aspects of creative thinking, such as divergent and convergent creativity, aesthetic appreciation, and humor. To do so, 146 second and third graders in a primary school in Milan have been recruited and tested with mathematical and creative tasks. Correlational analyses showed significant positive relations between flexibility and originality dimensions of creativity and mathematical performance. Results are discussed by providing a theoretical framework about the relation between mathematics and creative skills.

Keywords: Creativity, Mathematics, Divergent Thinking, Convergent Thinking, Humor

1. Introduction

1.1 Notes on creativity

What is creativity? This is far from a simple question. Creativity turns out to be a multifaceted concept that cannot be defined univocally. Some claim it is a skill, those who claim it is a talent, those who claim it is a gift reserved for the few, those who claim it is an aspect of the artist, and those who think that is a sort of necessity. For example, Donald Winnicott, when studying the origin of creativity in children, claimed that: "The creative impulse is something that can be considered as a thing in itself, something that, of course, is necessary if the artist is to produce a work of art, but also as something that is present when anyone - baby, child, adolescent, adult, old - looks at anything healthily or does anything deliberately" (Winnicott, 1971).

Nonetheless, creativity can also be understood as an aspect of rational thought: not just a gift of a few geniuses, but a *forma mentis* possessed by all individuals in different ways. The first studies on creativity date back to the second half of the nineteenth century and take into account the biological-heritage aspect of talent. In the scientific

debate, a shade of madness and irrationality was associated with a genius for a long time: the "*furor poeticus*." At the beginning of the twentieth century, other factors were included in the studies to move away from the idea of an abnormal cognition and assimilate creativity to an aspect of intelligence (Cinque, 2010). Indeed, creativity can support a person in understanding the surrounding environment and their own experience, thus playing a pivotal role in facing daily and extraordinary situations.

However, despite these two nuances of creativity, one being "artistic" and more related to the need for a personal expression, and the second being "cognitive" and associated with ideas production and problem-solving, it is possible to find common ground. Indeed, creativity is often used as synonymous with imagination, intuition, and curiosity, which are fundamental for both aspects of creativity. More specifically, "Creativity is the ability to transform the world through the intertwined action of sensoriality and logic, reason and imagination. [...] It is the ability to face and solve the variety of problems that mark everyday life, to discover the links between different experiences, to identify the connections between disjointed and opposing realities" (Minerva & Vinella, 2012).

1.2 Creativity and mathematics

It is important to introduce another significant distinction, that is between divergent and convergent thinking. The first is characterized by open-mindedness and the use of fantasy in an unlimited way. In contrast, the second refers to the critical capacity that translates the fantastic elements into a concrete form. Here, we are interested in including a third element in the equation, that is mathematics. Since the concept of creativity encompasses many meaningful nuances and fields of investigation and intervention, not many researchers explored in-depth the relationship between math and creativity. Being a very ancient and traditional discipline, math is frequently considered a static subject, linked to formalized teaching methods and then far from creativity and fun. These clichés tend to influence the vision of both students and teachers: the formers perceive mathematics mainly as a subject that they must learn but useless in everyday life; teachers on their side often find it difficult moving away from traditional teaching to avoid the risk to lose clarity and specificity (De Vecchi Galbiati, Folgieri, & Lucchiari, 2017). This way, the mathematical, conceptual system may not be seen as a universal solid language able to guide the students' reasoning toward logic and problem solving, potentially valuable for daily problems as well as in future studies or for a job, but only as a set of rules and formalization to store for schooling purposes. In addition, mathematical skills are themselves often considered a talent, so students are easily divided, mostly implicitly, in gifted and not gifted, thus failing to support the math self-efficacy of the less talented since they are considered headed to poor academic performance in the field. Furthermore, math talent is usually measured by the speed and accuracy of the calculation, without considering how the student chose to get to the solution and thus the divergent and convergent aspects of thinking that are potentially related to creativity. All these factors often lead to dissipating the student's curiosity about math and the related engagement.

However, different scholars and researchers supported the existence of a relationship between math and creativity. For example, Haylock (1987) speaks about "mathematical creativity," defining it as seeing new relationships and making associations between apparently unrelated ideas. Considering the other side of the coin, creativity can help a lot in the construction of mental images (Giannoli, 2012), which facilitate the acquisition of mathematical concepts. Creativity training, being focused on the process and not on the outcome, can also increase the math self-efficacy of less gifted students, enabling them to find their way of approaching the mathematical world (Regier & Savic, 2020). Finally, Creativity is also helpful for the work of the mathematician, who is called to think, invent, and often rewrite mathematical theories, starting from the reality (the facts) that surrounds him (D'Amore & Sbaragli, 2014). Hence, why shouldn't creativity be useful for students and teachers?

1.3. Study rationale

In the present study, we aim at investigating the relationship between mathematics and different variables related to creativity. Indeed, suppose it is true that math requires the application of routines deriving from commonly known basic rules. In that case, it is also true that both mathematicians and students need to adapt already known rules to a given problem or to find new ways to approach an insolvable one. Thus, convergent and divergent

thinking are equally important, and the investigation of the cognitive underpinning of these two processes requires further research.

To better investigate such a relationship, we performed correlational research in a primary school in Milan, Italy, involving second and third-grade students. The idea came from the observation that in their everyday experience, teachers report many difficulties for students to understand problems' instructions and to solve unusual problems. This often leads to impulsively tackling the assigned tasks without paying the necessary attention to analyzing the strategies potentially practical to approach the problem. This attitude seems to be linked to the activation of a routinely way of thinking that follows a typical script:

- 1) Attention focused on data, which are often only marginal but that are easy to detect.
- 2) Identification of a solution strategy also before having completed a full understanding of the problem.
- 3) Implementation of a solution procedure and evaluation of the results.
- 4) Finalizing the solution or impasse (D'Amore, 2007).

Thus, it seems that many students, when asked to face an ambiguous or complex problem, tend to follow the previous steps automatically, with poor or no awareness about what they are doing, so to reach a solution. The use of poorly reflective thinking affects the performance and the learning process, making it difficult for students to adjust previously learned strategies to new problems or develop new strategies. Furthermore, it is more difficult to learn by errors when a learner is unaware of the logical or the cognitive path that led to mistakes.

Many educational strategies can be applied to improve learners' performance in these contexts. For example, teachers may direct students' attention on a meta-level to help them set the problem in a way to be profitably approached. Students should be taught how to select the relevant information, identify previous successful strategies, understand whether or not the available strategies are applicable in the present case, formulate ideas about new possible ways of solving, and so on (Chapman, 2008; Lucchiari, 2018). However, other strategies to encourage a dynamic and balanced interaction between reflective and automatic thinking may also be used. For instance, promoting fluid and flexible thinking through creative activities may be effective. Indeed, previous studies (Alfonso-Benlliure, Meléndez, & García-Ballesteros, 2013; Antonietti & Pizzingrilli, 2009; Sala, Vanutelli, & Lucchiari, 2019) have shown that training young students through creative thinking by verbal, visual, and motor strategies may help to develop open-minded students, ready to approach constructively new as well as ambiguous mathematical problems. These results suggest that creativity training may be effective in improving cognitive flexibility. This is defined as the ability to adopt mental strategies suitable for approaching a problem and maybe readily changing to adapt to changing task demands. It allows students to adjust appropriately to the needs posed by a teacher, for example, by analyzing a problem from multiple perspectives and testing alternative solutions to a new or ill-defined problem (Diamond, 2012; McGowan et al., 2018). In math, the cognitive flexibility may play a key role by allowing students to search and find connections between problems, topics, and concepts and fostering their abilities to see a problem from multiple perspectives and analyze data in a non-standardized fashion.

A second important topic relates to the potential presence of gender differences in creativity scores and math achievements. Women report lower achievements generally, thinking about the accomplishment gained in life about to creative jobs, artistic production, or scientific fields. However, this phenomenon has been referred to as access and, subsequently, to the opportunities that men and women have been allowed to during history. Accordingly, a different view about the motivations, the financial support, and the expectations have been assigned to the two groups (Baer & Kaufman, 2008; Runco, Cramond, & Pagnani, 2010). However, despite this background, the research conducted to investigate the presence of differences in cognitive creativity and divergent thinking reported controversial results. Still, it highlighted that there is no meaningful difference in creative potential (Antonietti & Cerioli, 1991) and, when present, it is generally in favor of girls and women: "It is unlikely that a meta-analysis would show a significant overall gender difference on these tests, but it should be noted that if there were to be an overall "winner" in the numbers of studies in which one gender outperformed the other, it would be women and girls over men and boys" (Baer & Kaufman, 2008). Considering the importance of the topic, we decided to include the exploration of this issue among the purposes of the present research.

About mathematical skills, a study was conducted in Italy (Tomasetto, 2013) which showed how gender stereotypes influence this tendency to consider children more inclined to mathematics than girls and the consequent choice of girls to move towards the humanities. These data suggest that the topic needs further studies.

Summing up, the aims of this study were a) to verify the relationship between mathematics, creativity skills, aesthetic appreciation, and humor; b) to explore the presence of significant differences according to gender to both mathematical skills and creativity. To do so, 155 children of a primary school in Milan have been tested for different aspects of cognitive creativity and mathematical competencies. We hypothesized that, according to the discussed literature, girls could be more creative in creative tasks. Also, we expected that students with higher cognitive flexibility, as measured by tests on divergent thinking and other creative dimensions, would also show higher mathematical abilities.

2. Materials and methods

2.1 Participants

The sample consisted of 6 classes of the same primary school, including 155 students, 76 boys, and 79 girls. 80 of them were second-grade students, while 75 were third-grade students. The Italian primary school system starts at 6 years of age (1st grade) and lasts for five years. The average number of students in the classes was 25.83 (S.D = 1.33).

After administering the tasks, 9 students were excluded for subsequent analyses because of incomplete data. Thus, the final sample included 146 students, 68 boys, and 78 girls. 72 second graders and 74 were third graders. The school council approved the study and communicated it to the children's parents, who signed the informed consent. The study was evaluated and approved by the local ethical board.

2.2 Assessment

Both mathematical and creative tests were presented as games that required imagination and engagement. They were composed of two parts: the first one involved logical-mathematical exercises and lasted about 25 minutes, while the second consisted of divergent-thinking exercises lasting 15 minutes. The total duration of the test was about 40 minutes. The level of difficulties of the proposed tasks was adjusted to the grade of students.

2.2.1 Mathematical assessment

The logical-mathematical test consisted of 5 exercises for the second and 6 for the third graders. The exercises were taken from the INVALSI tests, which are written tests carried out by Italian students with the purpose to assess the levels of learning of some basic skills in Italian, Mathematics, and English at certain critical moments in the school curriculum. Based on the results of the INVALSI tests, indications are provided to the classes and the schools about the average skill level achieved in a given subject. Every exercise was presented in a paper-and-pencil format. Children were first explained the exercise; then there was a set time to do it. The start of a new exercise was not free: instead, it was scheduled on a general timesheet not to give any advantage to anyone (see Table 1 for details).

Table 1: The Math exercises proposed to 2nd and 3rd graders.

Pre-test	Second-graders	Third-graders
	EX. 1: Link digits to the correct faces of a dice.	EX. 1: Circle the even numbers in red and the odd numbers in green and write an example of odd numbers.
	EX. 2: Write the previous and the following numbers in the correct boxes.	EX. 2: Complete incomplete words and find which semantic category they belong to.
	EX. 3: Identify which additions are right or wrong.	EX. 3: Insert given numbers within a story in a logical order.

	EX. 4: Within pairs of numbers written in different sizes (congruent/ incongruent) circle the higher.	EX. 4: Identify which multiplications are right or wrong.
	EX. 5: Identify geometric shapes: how many triangles/rectangles... are there in the complex figure? Which is the total?	EX. 5: Real-life problem-solving: Which character cannot buy a newspaper with the owned money and why?
		EX. 6: Complete the calculation: Starting from the number in the first square, follow the arrows (backward/forward) and get to the correct number.

2.2.2 Creative assessment

The creativity assessment was divided into three tests. For second graders, the tests included:

- Incomplete figures: this task was taken from the Abbreviated Torrance Tests (ATTA, Goff, 2002), in which two incomplete drawings are presented. The instruction is to complete them by using imagination. The test is usually targeted at adult samples. We selected it since it allows a more accurate assessment of creative skills thanks to a broader number of creative indices (see 2.4.1).
- Parallel lines: this task was taken from the Torrance Test of Creative Thinking (TTCT, Torrance, 1998). We selected six pairs of lines from which the child is asked to create any type of object.
- VAST Test: we selected five pairs of black and white figures from the Visual Aesthetic Sensitivity Test (VAST: Götz, 1985). The child has to choose the figure that, according to him/her, and following the standards of aesthetic value, is the most balanced among the pairs. We chose this task since it detects an aspect of creativity more related to the artistic aesthetic.

Concerning third graders, the task included:

- Incomplete figures: same as for second graders but, in this case, children were also required to write a title down for each figure.
- VAST Test: same as for second graders but, in this case, children were also required to write a title down for each selected figure.
- Cartoon: this task was designed by the authors to assess children's sense of humor, considered one of the components of creativity (Gundry, Kickul, & Prather, 1994). Indeed, they were required to complete the dialogues of a scene.

2.3 Scoring

The dependent variables were derived as follows:

2.4.1 Second graders' performance

The mathematical performance was assessed by calculating the sum of the correct answers, and then the percentage of accuracy (Math). For what concerns creativity, 4 different scorings have been calculated for Incomplete Figures (from now on: IF) by using the standard scoring system (Manual of the Adult Torrance Test; Goff, 2002). They included fluidity, originality, elaboration, and what we called IF-Plus, which included the sum of nine indices that may or may not be present in the given answer. They included opening, unusual perspective, sense of motion/sound, image richness, articulation in the story's description, a combination of two or more figures, internal view, representation of feelings or emotions, and the presence of fantastic elements. Moreover, an overall index (from here on IF_tot) was calculated as the sum of all sub-scores of the IF test.

To evaluate the Parallel lines test, four criteria have been assessed according to the standard procedure as described by the manual (Sprini & Tomasello, 1989). They included: fluidity, flexibility, originality, and elaboration. In addition, an overall index (from here on Lines-tot) was calculated as the sum of the previous indices. Also, for the

VAST test, we calculated the number of correct answers. Finally, a total creativity index (CI) was computed as the sum of IF_tot, Lines_tot, and VAST.

2.4.2 Third graders' performance

In the third classes' tests, the same procedure was applied to math performance (Math), Incomplete Figures, and VAST. In this last case, an extra score was evaluated, that is, the originality of the title given to the figure. The score ranged from 0 to 3 and relied upon the frequency of each given answer based on the list of all responses by the students. Finally, an overall index (hereinafter Vast_Tot) was calculated as the sum of the two criteria identified (correctness and title originality). Concerning the cartoon, two criteria were identified: the context, i.e., whether the answer was given was correctly placed in the context represented by the image, and originality. The scores ranged from 0 to 2 and were assigned based on the frequency of the given answers. The most common solutions received 0 points, less common answers received 1 point, while the funniest and unique answers received 2 points. An overall index was then calculated (from here on Cartoon_Tot) as the sum of the two previous criteria. Finally, the creativity index (CI) was calculated as the sum of IF_tot, VAST_tot, and Cartoon_tot

3. Results

Two sets of analyses were performed on the dataset. A) The first was meant to explore relationships between mathematical performance and the different subcomponents of creative thinking. B) The second one aimed to explore the presence of differences between girls and boys for creative and mathematical skills.

A) Pearson's correlations have been run on the dataset, including Math, Lines (fluidity, originality, flexibility, elaboration, Tot), Cartoon (context, title originality, tot), Vast (hits, title originality, tot), FI (fluidity, originality, elaboration, plus, tot).

The analyses performed showed some significant positive correlations between the mathematical performance (Math) and the lines test taken by second graders about flexibility scores ($r=0.25$; $p=0.032$), originality ($r=0.33$; $p=0.005$), as well as total score ($r=0.25$; $p=0.031$). (see fig 1a, b, c).

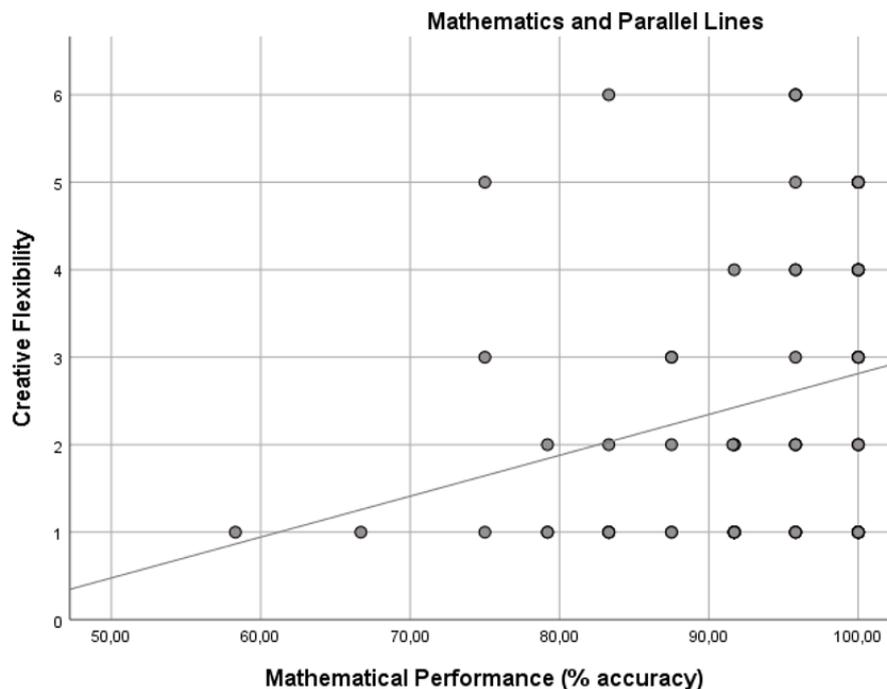


Figure 1a: Significant positive correlation between Mathematical Performance and Creative Flexibility at the Parallel Lines Test.

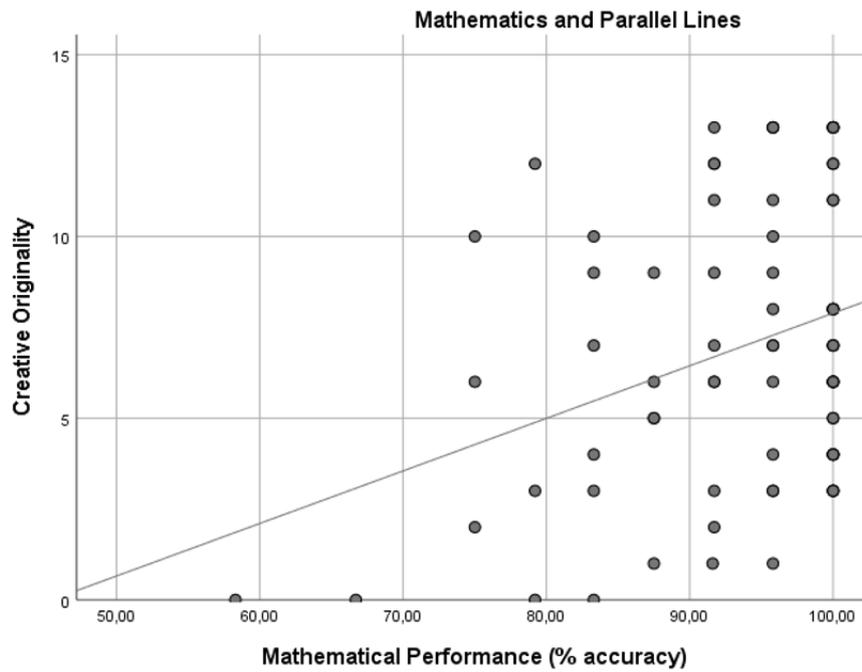


Figure 1b: Significant positive correlation between Mathematical Performance and Creative Originality at the Parallel Lines Test.

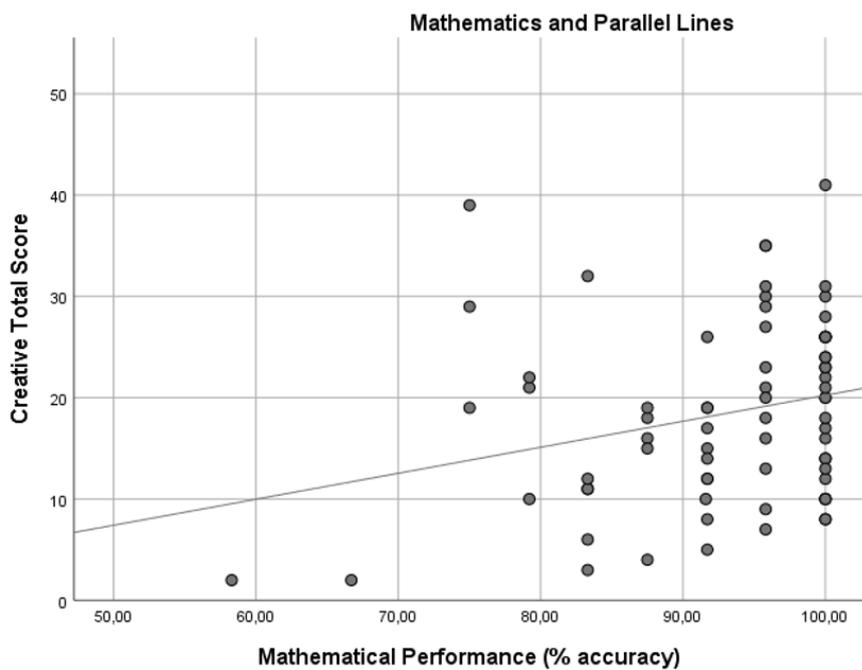


Figure 1c: Significant positive correlation between Mathematical Performance and the Creative Total Score.

B) To assess the presence of differences between boys and girls, five t-tests were performed, four for the creative variables (Lines-Tot, Cartoon-Tot, Vast-Tot, CI) and one for the mathematical performance, using gender as an independent factor. The analyses did not reveal any significant results.

4. Discussion and conclusions

The correlations found between mathematical performance and creativity are particularly interesting especially analyzing the related sub-components. In fact, not creativity in general seems to be associated with mathematical skills, but some of its specific dimensions, particularly cognitive flexibility, and originality. At the same time, fluency and elaboration showed poor correlations. This finding is significant since the ability to solve mathematical problems is more naturally related to the ability to navigate the problem space through a systematic attempt to find connections between concepts and categories, which implies a cognition free from categorical constraints. Conversely, less efficient math students generally show a sort of cognitive rigidity that maintains their attention on a given solution procedure, thus impeding approaching a mathematical problem fully and openly (Gersten, Jordan, & Flojo, 2005; Musna & Juandi, 2020). Many low-skilled math students tend to rely on solutions and algorithms that have already been acquired, tested, and consolidated, showing difficulty tackling new or ambiguous problems that instead require flexibility and inventiveness. Even originality follows this reasoning because a good student should be able to produce and test novel solving strategies, even if never seen, going out of her comfort zone.

Moreover, the definition of mathematical creativity takes into account these two aspects, emphasizing the importance of flexibility and originality instead of generativity (Pehkonen, 1997; Sriraman, 2004), which leads the student to trial and error processes that are often not very effective and frustrating. Finally, elaboration is scarcely considered in mathematical creativity since this dimension can be more relevant for an expert mathematician who needs to focus also on details and the elegance of the procedure and demonstrations (Yaftian, 2015). However, students generally do not require such an elaboration, having little relevance for elementary school students. Probably, for higher grade students, the role of elaboration and even fluency may be more relevant than we observed, even though also in higher education contexts, most problems seem to derive from a lack of flexibility (Stad, Van Heijningen, Wiedl, & Resing, 2018).

Concerning our hypothesis about gender differences, we could not confirm it since our data did not reveal significant differences between boys and girls in creativity and math scorings. Our results support those hypotheses and evidence that link the gender differences reported by some studies more on social contexts as well as the studies setting than on actual gender-related differences (Tomasetto, 2013).

In conclusion, our data confirm the existence of a significant relationship between creativity, considered here as a general property of the students' mind, and the performance at a specific school field such as mathematics. Since the core characteristic of creative thinking is cognitive flexibility, it seems plausible to hypothesize that the found relationships between such different domains may be explained by the role played by flexibility in many school domains. Furthermore, our results suggest that creativity training, though not specifically focused on a specific field, might improve students' performance in various disciplines (Lucchiari, Sala, & Vanutelli, 2019). In particular, we suggest that many elementary students who show difficulties in math may benefit from creativity training (Bicer, 2021).

Such training should be only partially focused on the so-called mathematical creativity. A more general creativity pathway should support the development of a fluid and flexible cognition potentially helpful in boosting the development and the consolidation of mathematical skills, more than a focused intervention. However, in higher-level students, specific training could be provided to support specific skills and the production of elaborated algorithms and elegant solving strategies (Schoevers, Kroesbergen, & Kattou, 2020).

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References

- Alfonso-Benlliure, V., Meléndez, J. C., & García-Ballesteros, M. (2013). Evaluation of a creativity intervention program for preschoolers. *Thinking Skills and Creativity*, 10, 112–120. <https://doi.org/10.1016/j.tsc.2013.07.005>
- Antonietti, A., & Cerioli, L. (1991). La creatività infantile. Le prestazioni in prove di pensiero creativo in funzione dell'età, del sesso e del somministratore. *Contributi Del Dipartimento Di Psicologia Dell'Università Cattolica Del Sacro Cuore*, 5, 33–51.
- Antonietti, A., & Pizzingrilli, P. (2009). Come sviluppare la creatività nei bambini: le indicazioni di un programma di ricerca. *Synergies Europe*, 4, 151–166.
- Baer, J., & Kaufman, J. C. (2008). Gender differences in creativity. *Journal of Creative Behavior*, 42(2), 75–105. <https://doi.org/10.1002/j.2162-6057.2008.tb01289.x>
- Bicer, A. (2021). A Systematic Literature Review: Discipline-Specific and General Instructional Practices Fostering the Mathematical Creativity of Students. *International Journal of Education in Mathematics, Science and Technology*, 9(2), 252–281. <https://doi.org/https://doi.org/10.46328/ijemst.1254>
- Chapman, O. (2008). Narratives in mathematics teacher education. In *International Handbook of Mathematics Teacher Education: Volume 2* (pp. 13–38). Brill Sense.
- Cinque, M. (2010). Creativity as a personal innovation: Theories and educational perspectives. *Giornale Italiano Della Ricerca Educativa*, 3, 95–113.
- D'Amore, B. (2007). La didattica della matematica, oggi. 2007). *La Matematica e La Sua Didattica. Atti Del I Convegno Nazionale, Giulianova (Te)*, 4–5.
- D'Amore, B., & Sbaragli, S. (2014). Parliamo tanto e spesso di didattica della matematica. In B. D'amore & S. Sbaragli (Eds.), *Incontri con la matematica*. Bologna: Pitagora.
- De Vecchi Galbiati, P., Folgieri, R., Lucchiari, C. (2017). Math empowerment: a multidisciplinary example to engage primary school students in learning mathematics. *Journal of pedagogic development*, 7(3), 44–58.
- Diamond, A. (2012). Activities and programs that improve children's executive functions. *Current Directions in Psychological Science*, 21(5), 335–341. <https://doi.org/10.1177/0963721412453722>
- Gersten, R., Jordan, N. C., & Flojo, J. R. (2005). Early identification and interventions for students with mathematics difficulties. *Journal of Learning Disabilities*, 38(4), 293–304. <https://doi.org/https://doi.org/10.1177/00222194050380040301>
- Giannoli, F. (2012). Logica e creatività: la matematica “bifronte” (e divertente). *Tema, Bricks*, 2, 34–41.
- Goff, K. (2002). *Abbreviated Torrance test for adults: Manual*. Scholastic Testing Service Bensenville, IL.
- Götz, K. (1985). Visual Aesthetic Sensitivity Test (VAST). *Düsseldorf: Concept Verlag*.
- Gundry, L. K., Kickul, J. R., & Prather, C. W. (1994). Building the creative organization. *Organizational Dynamics*, 22(4), 22–37. [https://doi.org/https://doi.org/10.1016/0090-2616\(94\)90076-0](https://doi.org/https://doi.org/10.1016/0090-2616(94)90076-0)
- Haylock, D. W. (1987). Mathematical creativity in schoolchildren. *The Journal of Creative Behavior*, 21(1), 48–59. <https://doi.org/https://doi.org/10.1002/j.2162-6057.1987.tb00452.x>
- Lucchiari, C. (2018). *Psychology at school. A practical-theoretical path. [Psicologia a scuola: un percorso pratico-teorico]*. Padova: Webster Editor.
- Lucchiari, C., Sala, P. M., & Vanutelli, M. E. (2019). The effects of a cognitive pathway to promote class creative thinking. An experimental study on Italian primary school students. *Thinking Skills and Creativity*, 31. <https://doi.org/10.1016/j.tsc.2018.12.002>
- McGowan, A. L., Bretzin, A. C., Savage, J. L., Petit, K. M., Parks, A. C., Covassin, T., & Pontifex, M. B. (2018). Preliminary evidence for differential trajectories of recovery for cognitive flexibility following sports-related concussion. *Neuropsychology*, 32(5), 564. <https://doi.org/https://doi.org/10.1037/neu0000475>
- Minerva, F. P., & Vinella, M. (2012). *La creatività a scuola*. Gius. Laterza & Figli Spa.
- Musna, R. R., & Juandi, D. (2020). An analysis of junior high school students' creative thinking skills in solving flat-side geometry problems. In *Journal of Physics: Conference Series* (Vol. 1521, p. 32058). IOP Publishing. <https://doi.org/10.1088/1742-6596/1521/3/032058>
- Pehkonen, E. (1997). The state-of-art in mathematical creativity. *ZDM*, 29(3), 63–67. <https://doi.org/https://doi.org/10.1007/s11858-997-0001-z>
- Regier, P., & Savic, M. (2020). How teaching to foster mathematical creativity may impact student self-efficacy for proving. *The Journal of Mathematical Behavior*, 57, 100720.
- Runco, M. A., Cramond, B., & Pagnani, A. R. (2010). Handbook of Gender Research in Psychology. *Handbook of Gender Research in Psychology*, 343–357. <https://doi.org/10.1007/978-1-4419-1465-1>

- Sala, P. M., Vanutelli, M. E., & Lucchiari, C. (2019). Educating creative minds. The effects of a cognitive training for ideas production in primary school children. *Ricerche Di Psicologia*, 42(1). <https://doi.org/10.3280/RIP2019-003005>
- Schoevers, E. M., Kroesbergen, E. H., & Kattou, M. (2020). Mathematical creativity: A combination of domain-general creative and domain-specific mathematical skills. *The Journal of Creative Behavior*, 54(2), 242–252. <https://doi.org/https://doi.org/10.1002/jocb.361>
- Sprini, G., & Tomasello, S. (1989). *Torrance Tests of Creative Thinking (Test di pensiero Creativo)*. Firenze, Italy: Giunti O. S. Organizzazioni Speciali.
- Sriraman, B. (2004). The characteristics of mathematical creativity. *The Mathematics Educator*, 14(1).
- Stad, F. E., Van Heijningen, C. J. M., Wiedl, K. H., & Resing, W. C. M. (2018). Predicting school achievement: differential effects of dynamic testing measures and cognitive flexibility for math performance. *Learning and Individual Differences*, 67, 117–125. <https://doi.org/https://doi.org/10.1016/j.lindif.2018.07.006>
- Tomasetto, C. (2013). Math for boys, Italian for girls: Gender stereotypes and attitudes toward school subjects among parents and children. [Matematica per i maschi, italiano per le femmine: Stereotipi di genere e atteggiamenti verso le materie scolastiche tra genitori e figli. *IN-MIND ITALIA*, 5, 19–24.
- Torrance, E. P. (1998). *The Torrance tests of creative thinking norms-technical manual figural (streamlined) forms A & B*. Bensenville, IL: Scholastic Testing Service, Inc.
- Winnicott, D. W. (1971). *Therapeutic consultations in child psychiatry*. London: Hogarth Press and the Institute of Psycho-Analysis.
- Yaftian, N. (2015). The outlook of the Mathematicians' Creative Processes. *Procedia-Social and Behavioral Sciences*, 191, 2519–2525. <https://doi.org/https://doi.org/10.1016/j.sbspro.2015.04.617>



Let's do the Math... About Creativity and Mathematical Reasoning: A Correlational Study in Primary School Children

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Abstract

Mathematics, being a very ancient discipline, is usually seen as a formal subject that must be learned for school purposes, which is very far from creativity and fun. Also, mathematical skills are often considered a talent, so students are easily divided into gifted and not gifted, with a focus on speed and accuracy rather than encouraging the process of juggling between divergent and convergent thinking. In the present paper, we aimed at investigating the relationship between mathematical reasoning and different aspects of creative thinking, such as divergent and convergent creativity, aesthetic appreciation, and humor. To do so, 146 second and third graders in a primary school in Milan have been recruited and tested with mathematical and creative tasks. Correlational analyses showed significant positive relations between flexibility and originality dimensions of creativity and mathematical performance. Results are discussed by providing a theoretical framework about the relation between mathematics and creative skills.

Keywords: Creativity, Mathematics, Divergent Thinking, Convergent Thinking, Humor

1. Introduction

1.1 Notes on creativity

What is creativity? This is far from a simple question. Creativity turns out to be a multifaceted concept that cannot be defined univocally. Some claim it is a skill, those who claim it is a talent, those who claim it is a gift reserved for the few, those who claim it is an aspect of the artist, and those who think that is a sort of necessity. For example, Donald Winnicott, when studying the origin of creativity in children, claimed that: "The creative impulse is something that can be considered as a thing in itself, something that, of course, is necessary if the artist is to produce a work of art, but also as something that is present when anyone - baby, child, adolescent, adult, old - looks at anything healthily or does anything deliberately" (Winnicott, 1971).

Nonetheless, creativity can also be understood as an aspect of rational thought: not just a gift of a few geniuses, but a *forma mentis* possessed by all individuals in different ways. The first studies on creativity date back to the second half of the nineteenth century and take into account the biological-heritage aspect of talent. In the scientific

debate, a shade of madness and irrationality was associated with a genius for a long time: the "*furor poeticus*." At the beginning of the twentieth century, other factors were included in the studies to move away from the idea of an abnormal cognition and assimilate creativity to an aspect of intelligence (Cinque, 2010). Indeed, creativity can support a person in understanding the surrounding environment and their own experience, thus playing a pivotal role in facing daily and extraordinary situations.

However, despite these two nuances of creativity, one being "artistic" and more related to the need for a personal expression, and the second being "cognitive" and associated with ideas production and problem-solving, it is possible to find common ground. Indeed, creativity is often used as synonymous with imagination, intuition, and curiosity, which are fundamental for both aspects of creativity. More specifically, "Creativity is the ability to transform the world through the intertwined action of sensoriality and logic, reason and imagination. [...] It is the ability to face and solve the variety of problems that mark everyday life, to discover the links between different experiences, to identify the connections between disjointed and opposing realities" (Minerva & Vinella, 2012).

1.2 Creativity and mathematics

It is important to introduce another significant distinction, that is between divergent and convergent thinking. The first is characterized by open-mindedness and the use of fantasy in an unlimited way. In contrast, the second refers to the critical capacity that translates the fantastic elements into a concrete form. Here, we are interested in including a third element in the equation, that is mathematics. Since the concept of creativity encompasses many meaningful nuances and fields of investigation and intervention, not many researchers explored in-depth the relationship between math and creativity. Being a very ancient and traditional discipline, math is frequently considered a static subject, linked to formalized teaching methods and then far from creativity and fun. These clichés tend to influence the vision of both students and teachers: the formers perceive mathematics mainly as a subject that they must learn but useless in everyday life; teachers on their side often find it difficult moving away from traditional teaching to avoid the risk to lose clarity and specificity (De Vecchi Galbiati, Folgieri, & Lucchiari, 2017). This way, the mathematical, conceptual system may not be seen as a universal solid language able to guide the students' reasoning toward logic and problem solving, potentially valuable for daily problems as well as in future studies or for a job, but only as a set of rules and formalization to store for schooling purposes. In addition, mathematical skills are themselves often considered a talent, so students are easily divided, mostly implicitly, in gifted and not gifted, thus failing to support the math self-efficacy of the less talented since they are considered headed to poor academic performance in the field. Furthermore, math talent is usually measured by the speed and accuracy of the calculation, without considering how the student chose to get to the solution and thus the divergent and convergent aspects of thinking that are potentially related to creativity. All these factors often lead to dissipating the student's curiosity about math and the related engagement.

However, different scholars and researchers supported the existence of a relationship between math and creativity. For example, Haylock (1987) speaks about "mathematical creativity," defining it as seeing new relationships and making associations between apparently unrelated ideas. Considering the other side of the coin, creativity can help a lot in the construction of mental images (Giannoli, 2012), which facilitate the acquisition of mathematical concepts. Creativity training, being focused on the process and not on the outcome, can also increase the math self-efficacy of less gifted students, enabling them to find their way of approaching the mathematical world (Regier & Savic, 2020). Finally, Creativity is also helpful for the work of the mathematician, who is called to think, invent, and often rewrite mathematical theories, starting from the reality (the facts) that surrounds him (D'Amore & Sbaragli, 2014). Hence, why shouldn't creativity be useful for students and teachers?

1.3. Study rationale

In the present study, we aim at investigating the relationship between mathematics and different variables related to creativity. Indeed, suppose it is true that math requires the application of routines deriving from commonly known basic rules. In that case, it is also true that both mathematicians and students need to adapt already known rules to a given problem or to find new ways to approach an insolvable one. Thus, convergent and divergent

thinking are equally important, and the investigation of the cognitive underpinning of these two processes requires further research.

To better investigate such a relationship, we performed correlational research in a primary school in Milan, Italy, involving second and third-grade students. The idea came from the observation that in their everyday experience, teachers report many difficulties for students to understand problems' instructions and to solve unusual problems. This often leads to impulsively tackling the assigned tasks without paying the necessary attention to analyzing the strategies potentially practical to approach the problem. This attitude seems to be linked to the activation of a routinely way of thinking that follows a typical script:

- 1) Attention focused on data, which are often only marginal but that are easy to detect.
- 2) Identification of a solution strategy also before having completed a full understanding of the problem.
- 3) Implementation of a solution procedure and evaluation of the results.
- 4) Finalizing the solution or impasse (D'Amore, 2007).

Thus, it seems that many students, when asked to face an ambiguous or complex problem, tend to follow the previous steps automatically, with poor or no awareness about what they are doing, so to reach a solution. The use of poorly reflective thinking affects the performance and the learning process, making it difficult for students to adjust previously learned strategies to new problems or develop new strategies. Furthermore, it is more difficult to learn by errors when a learner is unaware of the logical or the cognitive path that led to mistakes.

Many educational strategies can be applied to improve learners' performance in these contexts. For example, teachers may direct students' attention on a meta-level to help them set the problem in a way to be profitably approached. Students should be taught how to select the relevant information, identify previous successful strategies, understand whether or not the available strategies are applicable in the present case, formulate ideas about new possible ways of solving, and so on (Chapman, 2008; Lucchiari, 2018). However, other strategies to encourage a dynamic and balanced interaction between reflective and automatic thinking may also be used. For instance, promoting fluid and flexible thinking through creative activities may be effective. Indeed, previous studies (Alfonso-Benlliure, Meléndez, & García-Ballesteros, 2013; Antonietti & Pizzingrilli, 2009; Sala, Vanutelli, & Lucchiari, 2019) have shown that training young students through creative thinking by verbal, visual, and motor strategies may help to develop open-minded students, ready to approach constructively new as well as ambiguous mathematical problems. These results suggest that creativity training may be effective in improving cognitive flexibility. This is defined as the ability to adopt mental strategies suitable for approaching a problem and maybe readily changing to adapt to changing task demands. It allows students to adjust appropriately to the needs posed by a teacher, for example, by analyzing a problem from multiple perspectives and testing alternative solutions to a new or ill-defined problem (Diamond, 2012; McGowan et al., 2018). In math, the cognitive flexibility may play a key role by allowing students to search and find connections between problems, topics, and concepts and fostering their abilities to see a problem from multiple perspectives and analyze data in a non-standardized fashion.

A second important topic relates to the potential presence of gender differences in creativity scores and math achievements. Women report lower achievements generally, thinking about the accomplishment gained in life about to creative jobs, artistic production, or scientific fields. However, this phenomenon has been referred to as access and, subsequently, to the opportunities that men and women have been allowed to during history. Accordingly, a different view about the motivations, the financial support, and the expectations have been assigned to the two groups (Baer & Kaufman, 2008; Runco, Cramond, & Pagnani, 2010). However, despite this background, the research conducted to investigate the presence of differences in cognitive creativity and divergent thinking reported controversial results. Still, it highlighted that there is no meaningful difference in creative potential (Antonietti & Cerioli, 1991) and, when present, it is generally in favor of girls and women: "It is unlikely that a metaanalysis would show a significant overall gender difference on these tests, but it should be noted that if there were to be an overall "winner" in the numbers of studies in which one gender outperformed the other, it would be women and girls over men and boys" (Baer & Kaufman, 2008). Considering the importance of the topic, we decided to include the exploration of this issue among the purposes of the present research.

About mathematical skills, a study was conducted in Italy (Tomasetto, 2013) which showed how gender stereotypes influence this tendency to consider children more inclined to mathematics than girls and the consequent choice of girls to move towards the humanities. These data suggest that the topic needs further studies.

Summing up, the aims of this study were a) to verify the relationship between mathematics, creativity skills, aesthetic appreciation, and humor; b) to explore the presence of significant differences according to gender to both mathematical skills and creativity. To do so, 155 children of a primary school in Milan have been tested for different aspects of cognitive creativity and mathematical competencies. We hypothesized that, according to the discussed literature, girls could be more creative in creative tasks. Also, we expected that students with higher cognitive flexibility, as measured by tests on divergent thinking and other creative dimensions, would also show higher mathematical abilities.

2. Materials and methods

2.1 Participants

The sample consisted of 6 classes of the same primary school, including 155 students, 76 boys, and 79 girls. 80 of them were second-grade students, while 75 were third-grade students. The Italian primary school system starts at 6 years of age (1st grade) and lasts for five years. The average number of students in the classes was 25.83 (S.D = 1.33).

After administering the tasks, 9 students were excluded for subsequent analyses because of incomplete data. Thus, the final sample included 146 students, 68 boys, and 78 girls. 72 second graders and 74 were third graders. The school council approved the study and communicated it to the children's parents, who signed the informed consent. The study was evaluated and approved by the local ethical board.

2.2 Assessment

Both mathematical and creative tests were presented as games that required imagination and engagement. They were composed of two parts: the first one involved logical-mathematical exercises and lasted about 25 minutes, while the second consisted of divergent-thinking exercises lasting 15 minutes. The total duration of the test was about 40 minutes. The level of difficulties of the proposed tasks was adjusted to the grade of students.

2.2.1 Mathematical assessment

The logical-mathematical test consisted of 5 exercises for the second and 6 for the third graders. The exercises were taken from the INVALSI tests, which are written tests carried out by Italian students with the purpose to assess the levels of learning of some basic skills in Italian, Mathematics, and English at certain critical moments in the school curriculum. Based on the results of the INVALSI tests, indications are provided to the classes and the schools about the average skill level achieved in a given subject. Every exercise was presented in a paper-and-pencil format. Children were first explained the exercise; then there was a set time to do it. The start of a new exercise was not free: instead, it was scheduled on a general timesheet not to give any advantage to anyone (see Table 1 for details).

Table 1: The Math exercises proposed to 2nd and 3rd graders.

Pre-test	Second-graders	Third-graders
	EX. 1: Link digits to the correct faces of a dice.	EX. 1: Circle the even numbers in red and the odd numbers in green and write an example of odd numbers.
	EX. 2: Write the previous and the following numbers in the correct boxes.	EX. 2: Complete incomplete words and find which semantic category they belong to.
	EX. 3: Identify which additions are right or wrong.	EX. 3: Insert given numbers within a story in a logical order.

	EX. 4: Within pairs of numbers written in different sizes (congruent/ incongruent) circle the higher.	EX. 4: Identify which multiplications are right or wrong.
	EX. 5: Identify geometric shapes: how many triangles/rectangles... are there in the complex figure? Which is the total?	EX. 5: Real-life problem-solving: Which character cannot buy a newspaper with the owned money and why?
		EX. 6: Complete the calculation: Starting from the number in the first square, follow the arrows (backward/forward) and get to the correct number.

2.2.2 Creative assessment

The creativity assessment was divided into three tests. For second graders, the tests included:

- Incomplete figures: this task was taken from the Abbreviated Torrance Tests (ATTA, Goff, 2002), in which two incomplete drawings are presented. The instruction is to complete them by using imagination. The test is usually targeted at adult samples. We selected it since it allows a more accurate assessment of creative skills thanks to a broader number of creative indices (see 2.4.1).
- Parallel lines: this task was taken from the Torrance Test of Creative Thinking (TTCT, Torrance, 1998). We selected six pairs of lines from which the child is asked to create any type of object.
- VAST Test: we selected five pairs of black and white figures from the Visual Aesthetic Sensitivity Test (VAST: Götz, 1985). The child has to choose the figure that, according to him/her, and following the standards of aesthetic value, is the most balanced among the pairs. We chose this task since it detects an aspect of creativity more related to the artistic aesthetic.

Concerning third graders, the task included:

- Incomplete figures: same as for second graders but, in this case, children were also required to write a title down for each figure.
- VAST Test: same as for second graders but, in this case, children were also required to write a title down for each selected figure.
- Cartoon: this task was designed by the authors to assess children's sense of humor, considered one of the components of creativity (Gundry, Kickul, & Prather, 1994). Indeed, they were required to complete the dialogues of a scene.

2.3 Scoring

The dependent variables were derived as follows:

2.4.1 Second graders' performance

The mathematical performance was assessed by calculating the sum of the correct answers, and then the percentage of accuracy (Math). For what concerns creativity, 4 different scorings have been calculated for Incomplete Figures (from now on: IF) by using the standard scoring system (Manual of the Adult Torrance Test; Goff, 2002). They included fluidity, originality, elaboration, and what we called IF-Plus, which included the sum of nine indices that may or may not be present in the given answer. They included opening, unusual perspective, sense of motion/sound, image richness, articulation in the story's description, a combination of two or more figures, internal view, representation of feelings or emotions, and the presence of fantastic elements. Moreover, an overall index (from here on IF_tot) was calculated as the sum of all sub-scores of the IF test.

To evaluate the Parallel lines test, four criteria have been assessed according to the standard procedure as described by the manual (Sprini & Tomasello, 1989). They included: fluidity, flexibility, originality, and elaboration. In addition, an overall index (from here on Lines-tot) was calculated as the sum of the previous indices. Also, for the

VAST test, we calculated the number of correct answers. Finally, a total creativity index (CI) was computed as the sum of IF_tot, Lines_tot, and VAST.

2.4.2 Third graders' performance

In the third classes' tests, the same procedure was applied to math performance (Math), Incomplete Figures, and VAST. In this last case, an extra score was evaluated, that is, the originality of the title given to the figure. The score ranged from 0 to 3 and relied upon the frequency of each given answer based on the list of all responses by the students. Finally, an overall index (hereinafter Vast_Tot) was calculated as the sum of the two criteria identified (correctness and title originality). Concerning the cartoon, two criteria were identified: the context, i.e., whether the answer was given was correctly placed in the context represented by the image, and originality. The scores ranged from 0 to 2 and were assigned based on the frequency of the given answers. The most common solutions received 0 points, less common answers received 1 point, while the funniest and unique answers received 2 points. An overall index was then calculated (from here on Cartoon_Tot) as the sum of the two previous criteria. Finally, the creativity index (CI) was calculated as the sum of IF_tot, VAST_tot, and Cartoon_tot

3. Results

Two sets of analyses were performed on the dataset. A) The first was meant to explore relationships between mathematical performance and the different subcomponents of creative thinking. B) The second one aimed to explore the presence of differences between girls and boys for creative and mathematical skills.

A) Pearson's correlations have been run on the dataset, including Math, Lines (fluidity, originality, flexibility, elaboration, Tot), Cartoon (context, title originality, tot), Vast (hits, title originality, tot), FI (fluidity, originality, elaboration, plus, tot).

The analyses performed showed some significant positive correlations between the mathematical performance (Math) and the lines test taken by second graders about flexibility scores ($r=0.25$; $p=0.032$), originality ($r=0.33$; $p=0.005$), as well as total score ($r=0.25$; $p=0.031$). (see fig 1a, b, c).

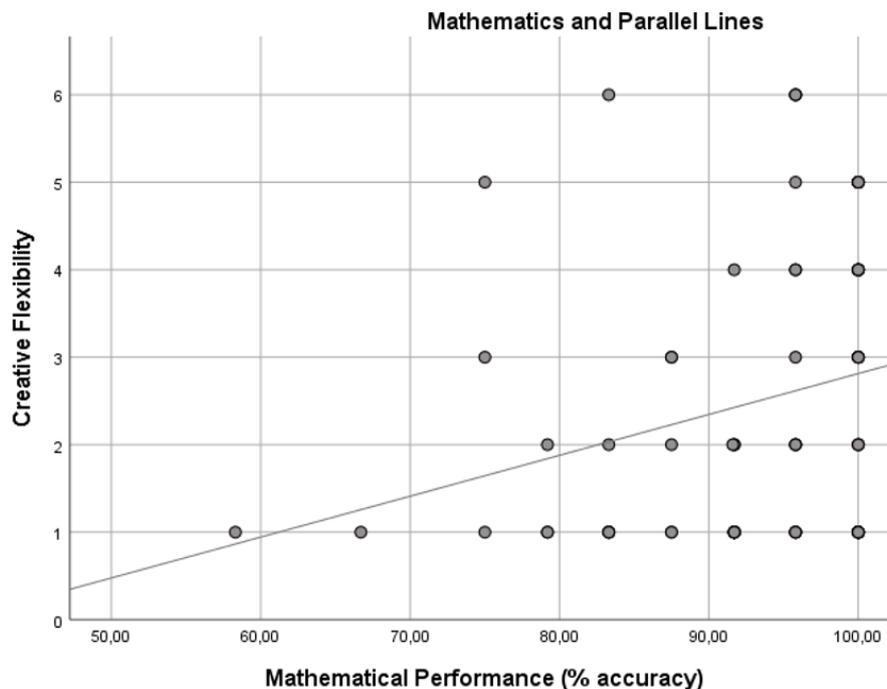


Figure 1a: Significant positive correlation between Mathematical Performance and Creative Flexibility at the Parallel Lines Test.

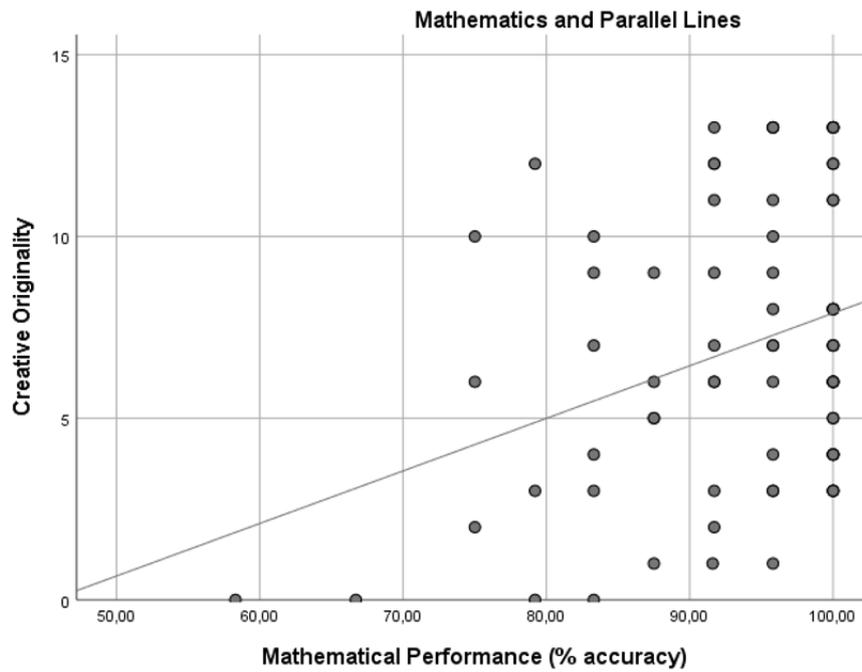


Figure 1b: Significant positive correlation between Mathematical Performance and Creative Originality at the Parallel Lines Test.

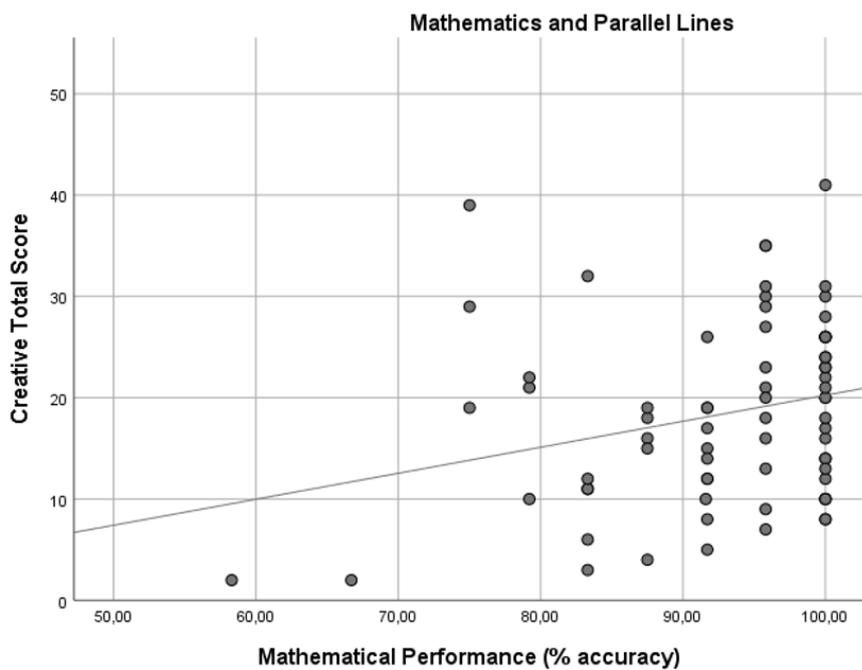


Figure 1c: Significant positive correlation between Mathematical Performance and the Creative Total Score.

B) To assess the presence of differences between boys and girls, five t-tests were performed, four for the creative variables (Lines-Tot, Cartoon-Tot, Vast-Tot, CI) and one for the mathematical performance, using gender as an independent factor. The analyses did not reveal any significant results.

4. Discussion and conclusions

The correlations found between mathematical performance and creativity are particularly interesting especially analyzing the related sub-components. In fact, not creativity in general seems to be associated with mathematical skills, but some of its specific dimensions, particularly cognitive flexibility, and originality. At the same time, fluency and elaboration showed poor correlations. This finding is significant since the ability to solve mathematical problems is more naturally related to the ability to navigate the problem space through a systematic attempt to find connections between concepts and categories, which implies a cognition free from categorical constraints. Conversely, less efficient math students generally show a sort of cognitive rigidity that maintains their attention on a given solution procedure, thus impeding approaching a mathematical problem fully and openly (Gersten, Jordan, & Flojo, 2005; Musna & Juandi, 2020). Many low-skilled math students tend to rely on solutions and algorithms that have already been acquired, tested, and consolidated, showing difficulty tackling new or ambiguous problems that instead require flexibility and inventiveness. Even originality follows this reasoning because a good student should be able to produce and test novel solving strategies, even if never seen, going out of her comfort zone.

Moreover, the definition of mathematical creativity takes into account these two aspects, emphasizing the importance of flexibility and originality instead of generativity (Pehkonen, 1997; Sriraman, 2004), which leads the student to trial and error processes that are often not very effective and frustrating. Finally, elaboration is scarcely considered in mathematical creativity since this dimension can be more relevant for an expert mathematician who needs to focus also on details and the elegance of the procedure and demonstrations (Yaftian, 2015). However, students generally do not require such an elaboration, having little relevance for elementary school students. Probably, for higher grade students, the role of elaboration and even fluency may be more relevant than we observed, even though also in higher education contexts, most problems seem to derive from a lack of flexibility (Stad, Van Heijningen, Wiedl, & Resing, 2018).

Concerning our hypothesis about gender differences, we could not confirm it since our data did not reveal significant differences between boys and girls in creativity and math scorings. Our results support those hypotheses and evidence that link the gender differences reported by some studies more on social contexts as well as the studies setting than on actual gender-related differences (Tomasetto, 2013).

In conclusion, our data confirm the existence of a significant relationship between creativity, considered here as a general property of the students' mind, and the performance at a specific school field such as mathematics. Since the core characteristic of creative thinking is cognitive flexibility, it seems plausible to hypothesize that the found relationships between such different domains may be explained by the role played by flexibility in many school domains. Furthermore, our results suggest that creativity training, though not specifically focused on a specific field, might improve students' performance in various disciplines (Lucchiari, Sala, & Vanutelli, 2019). In particular, we suggest that many elementary students who show difficulties in math may benefit from creativity training (Bicer, 2021).

Such training should be only partially focused on the so-called mathematical creativity. A more general creativity pathway should support the development of a fluid and flexible cognition potentially helpful in boosting the development and the consolidation of mathematical skills, more than a focused intervention. However, in higher-level students, specific training could be provided to support specific skills and the production of elaborated algorithms and elegant solving strategies (Schoevers, Kroesbergen, & Kattou, 2020).

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References

- Alfonso-Benlliure, V., Meléndez, J. C., & García-Ballesteros, M. (2013). Evaluation of a creativity intervention program for preschoolers. *Thinking Skills and Creativity*, 10, 112–120. <https://doi.org/10.1016/j.tsc.2013.07.005>
- Antonietti, A., & Cerioli, L. (1991). La creatività infantile. Le prestazioni in prove di pensiero creativo in funzione dell'età, del sesso e del somministratore. *Contributi Del Dipartimento Di Psicologia Dell'Università Cattolica Del Sacro Cuore*, 5, 33–51.
- Antonietti, A., & Pizzingrilli, P. (2009). Come sviluppare la creatività nei bambini: le indicazioni di un programma di ricerca. *Synergies Europe*, 4, 151–166.
- Baer, J., & Kaufman, J. C. (2008). Gender differences in creativity. *Journal of Creative Behavior*, 42(2), 75–105. <https://doi.org/10.1002/j.2162-6057.2008.tb01289.x>
- Bicer, A. (2021). A Systematic Literature Review: Discipline-Specific and General Instructional Practices Fostering the Mathematical Creativity of Students. *International Journal of Education in Mathematics, Science and Technology*, 9(2), 252–281. <https://doi.org/https://doi.org/10.46328/ijemst.1254>
- Chapman, O. (2008). Narratives in mathematics teacher education. In *International Handbook of Mathematics Teacher Education: Volume 2* (pp. 13–38). Brill Sense.
- Cinque, M. (2010). Creativity as a personal innovation: Theories and educational perspectives. *Giornale Italiano Della Ricerca Educativa*, 3, 95–113.
- D'Amore, B. (2007). La didattica della matematica, oggi. 2007). *La Matematica e La Sua Didattica. Atti Del I Convegno Nazionale, Giulianova (Te)*, 4–5.
- D'Amore, B., & Sbaragli, S. (2014). Parliamo tanto e spesso di didattica della matematica. In B. D'amore & S. Sbaragli (Eds.), *Incontri con la matematica*. Bologna: Pitagora.
- De Vecchi Galbiati, P., Folgieri, R., Lucchiari, C. (2017). Math empowerment: a multidisciplinary example to engage primary school students in learning mathematics. *Journal of pedagogic development*, 7(3), 44–58.
- Diamond, A. (2012). Activities and programs that improve children's executive functions. *Current Directions in Psychological Science*, 21(5), 335–341. <https://doi.org/10.1177/0963721412453722>
- Gersten, R., Jordan, N. C., & Flojo, J. R. (2005). Early identification and interventions for students with mathematics difficulties. *Journal of Learning Disabilities*, 38(4), 293–304. <https://doi.org/https://doi.org/10.1177/00222194050380040301>
- Giannoli, F. (2012). Logica e creatività: la matematica “bifronte” (e divertente). *Tema, Bricks*, 2, 34–41.
- Goff, K. (2002). *Abbreviated Torrance test for adults: Manual*. Scholastic Testing Service Bensenville, IL.
- Götz, K. (1985). Visual Aesthetic Sensitivity Test (VAST). *Düsseldorf: Concept Verlag*.
- Gundry, L. K., Kickul, J. R., & Prather, C. W. (1994). Building the creative organization. *Organizational Dynamics*, 22(4), 22–37. [https://doi.org/https://doi.org/10.1016/0090-2616\(94\)90076-0](https://doi.org/https://doi.org/10.1016/0090-2616(94)90076-0)
- Haylock, D. W. (1987). Mathematical creativity in schoolchildren. *The Journal of Creative Behavior*, 21(1), 48–59. <https://doi.org/https://doi.org/10.1002/j.2162-6057.1987.tb00452.x>
- Lucchiari, C. (2018). *Psychology at school. A practical-theoretical path. [Psicologia a scuola: un percorso pratico-teorico]*. Padova: Webster Editor.
- Lucchiari, C., Sala, P. M., & Vanutelli, M. E. (2019). The effects of a cognitive pathway to promote class creative thinking. An experimental study on Italian primary school students. *Thinking Skills and Creativity*, 31. <https://doi.org/10.1016/j.tsc.2018.12.002>
- McGowan, A. L., Bretzin, A. C., Savage, J. L., Petit, K. M., Parks, A. C., Covassin, T., & Pontifex, M. B. (2018). Preliminary evidence for differential trajectories of recovery for cognitive flexibility following sports-related concussion. *Neuropsychology*, 32(5), 564. <https://doi.org/https://doi.org/10.1037/neu0000475>
- Minerva, F. P., & Vinella, M. (2012). *La creatività a scuola*. Gius. Laterza & Figli Spa.
- Musna, R. R., & Juandi, D. (2020). An analysis of junior high school students' creative thinking skills in solving flat-side geometry problems. In *Journal of Physics: Conference Series* (Vol. 1521, p. 32058). IOP Publishing. <https://doi.org/10.1088/1742-6596/1521/3/032058>
- Pehkonen, E. (1997). The state-of-art in mathematical creativity. *ZDM*, 29(3), 63–67. <https://doi.org/https://doi.org/10.1007/s11858-997-0001-z>
- Regier, P., & Savic, M. (2020). How teaching to foster mathematical creativity may impact student self-efficacy for proving. *The Journal of Mathematical Behavior*, 57, 100720.
- Runco, M. A., Cramond, B., & Pagnani, A. R. (2010). Handbook of Gender Research in Psychology. *Handbook of Gender Research in Psychology*, 343–357. <https://doi.org/10.1007/978-1-4419-1465-1>

- Sala, P. M., Vanutelli, M. E., & Lucchiari, C. (2019). Educating creative minds. The effects of a cognitive training for ideas production in primary school children. *Ricerche Di Psicologia*, 42(1). <https://doi.org/10.3280/RIP2019-003005>
- Schoevers, E. M., Kroesbergen, E. H., & Kattou, M. (2020). Mathematical creativity: A combination of domain-general creative and domain-specific mathematical skills. *The Journal of Creative Behavior*, 54(2), 242–252. <https://doi.org/https://doi.org/10.1002/jocb.361>
- Sprini, G., & Tomasello, S. (1989). *Torrance Tests of Creative Thinking (Test di pensiero Creativo)*. Firenze, Italy: Giunti O. S. Organizzazioni Speciali.
- Sriraman, B. (2004). The characteristics of mathematical creativity. *The Mathematics Educator*, 14(1).
- Stad, F. E., Van Heijningen, C. J. M., Wiedl, K. H., & Resing, W. C. M. (2018). Predicting school achievement: differential effects of dynamic testing measures and cognitive flexibility for math performance. *Learning and Individual Differences*, 67, 117–125. <https://doi.org/https://doi.org/10.1016/j.lindif.2018.07.006>
- Tomasetto, C. (2013). Math for boys, Italian for girls: Gender stereotypes and attitudes toward school subjects among parents and children. [Matematica per i maschi, italiano per le femmine: Stereotipi di genere e atteggiamenti verso le materie scolastiche tra genitori e figli. *IN-MIND ITALIA*, 5, 19–24.
- Torrance, E. P. (1998). *The Torrance tests of creative thinking norms-technical manual figural (streamlined) forms A & B*. Bensenville, IL: Scholastic Testing Service, Inc.
- Winnicott, D. W. (1971). *Therapeutic consultations in child psychiatry*. London: Hogarth Press and the Institute of Psycho-Analysis.
- Yaftian, N. (2015). The outlook of the Mathematicians' Creative Processes. *Procedia-Social and Behavioral Sciences*, 191, 2519–2525. <https://doi.org/https://doi.org/10.1016/j.sbspro.2015.04.617>



Online ELT Practicum: Views of Student Teachers, Cooperating Teachers and Faculty Supervisors

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Abstract

Teaching practicum is a vital and challenging phase of English Language Teaching (ELT) teacher education in which student teachers experience their first teaching practices. In line with the global pandemic status quo, official regulations that led educational activities at state primary schools and universities to be carried out online, have also changed the modes and means in the practices and experiences of in-service and pre-service ELT teachers. Therefore, in respect of three participant groups of the practicum process as student teachers, cooperating teachers and university supervisors, it is essential to examine the impact of this new coercive teaching practice system on them. This study attempts to gain insight into the teaching practicum period that ELT student teachers, cooperative teachers and university supervisors cooperatively carried out fully online through English lessons administered by state primary schools. The results elicited by the participants' views on online practicum revealed that pupil-related issues like their low attendance and participation in online English lessons and technological problems such as internet access or computer-related malfunctions were compelling factors for student teachers and cooperative teachers. Regarding practicum performances, cooperative teachers confirmed student teachers' technological skills and the use of a variety of web 2.0 tools in their practices was found as an opportunity for student teachers to develop their teaching skills.

Keywords: ELT Teaching Practicum, Online Teaching Practicum, Online EFL Teaching, Teacher Training

1. Introduction

The global pandemic named Covid-19 started at the end of 2019 and caused a drastic change in the course of events throughout the world. Afterwards, countries all over the world took precautions to prevent the spread of pandemics and went restrictions on almost all dimensions of societies to limit human interaction. Hence, many fields are intensively influenced by the restrictions like health sector, economy, transportation, traveling, trade and indeed education. In 196 countries like Germany, Italy, France, China and Turkey started to provide fully distance education from the second half of (Spring term) 2019-2020 academic year. After March 2020 in Turkey, K-12 lessons began to be given through a TV channel (EBATV) directed by the Ministry of National Education (MoNE) and then schools were registered to lunched into online lessons where teachers could carry out via internet platforms (i.e. zoom) besides limited face to face lessons in the beginning next term (Fall 2020-2021). According

to Turkish MoNE national formal education statistics, more than 18 million students at K12 level (8.8% at private schools) received education by the 2019-2020 academic year (MoNE, 2020). Higher education in Turkey where 7.5 students study at 207 universities, also swiftly passed on online education by March 2020 (CoHE, 2020), universities established and/or advanced their distance learning platforms and started to carry out all lessons online still continued till the end of the 2020-2021 Spring term. In terms of teaching practicum, which is an obligatory course to graduate from all teacher education programs in Turkey, MoNE's Teacher Training and Development General Directorate decided to carry out the practicum process online by October 2020 and necessary regulations and contributions between the MoNE and Faculties of Education were established to make the decision operative. The process came into effect by Spring term of 2021 officially and the online practicum lasted 12 weeks by the participation of cooperation of teacher candidates, cooperating teachers and university supervisors. That is, teaching practicum has been carried out online for the first time in its history in the country. Teaching practicum itself has always been a focus of interest in teacher training/education field, in English Language Teaching (ELT) either, as it is a critical component of teacher education which serves the necessary transition of students teachers from theory and knowledge into real life teaching practices.

Including initial teaching practices, teaching practicum program has a critical role in teacher training where student teachers undergo a considerable transformation enables them to form a teacher identity and think about teaching to cope better with classroom realities they may encounter in the future. During the practicum, student teachers can enhance their teaching knowledge and skills and form a cognitive mindset of a language teacher should have by carrying out tasks, practicing under the supervision of mentoring teachers (Fang, 1996; Grudnoff, 2011; YUSn & Lee, 2014). On practicum, Farrel (2008) underlines that "One of the biggest influences of the teacher education course in terms of perceived excitement and development among learner teachers is the field based experiences they encounter because they are conducted in real classrooms." Arslan & İlin (2018) point out that practicum has a significant effect on teacher candidates that create awareness teaching-related issues in real contexts. During the practicum, student teachers may question themselves as teachers, they are more engaged with understanding their own classroom, learning from their mentor teacher, and, eventually, mastering the art of language teaching (Brinton & Holten, 1989).

In ELT teacher education, teaching practice is the ultimate key component of the process through which student teachers' content and pedagogic knowledge and teaching skills are actualized and tested, early language teacher identities are to be formed and initial steps are taken towards a lifetime teaching career. The practicum process is already quite challenging as a part of teacher training programs, however, it becomes more compelling especially in English Language Teaching (ELT) context due to field specific difficulties like student-teachers may face like language anxiety (Tüm & Kunt, 2013; Gan, 2013) and instructional challenges (Yazan, 2016) such as using English as a medium of instruction and related issues like student levels of proficiency and preparing appropriate material choice. Besides all these matters, sudden transmission from face to face to online practicum is being another challenge for ELT teacher candidates to experience their first teaching in this way as well as cooperating teachers and university supervisors who also have to mentor and evaluate teacher candidates. Limited studies have been conducted so far since remote teaching dominates the on teaching practicum, indeed online ELT practicum in Turkey context is a topic to meet the needed research space.

This study examines the views of student teachers, cooperating teachers and university supervisors about 12 weeks of online teaching practicum held during the 2021 spring term. Major aim of the study is to discover the general frame of this first online experience by the help of the participants, the challenges they have been through and the opportunities that may help for future practices. The research questions to achieve this goal are posed as;

Research question 1. What are student teachers', cooperating teachers' and university supervisors' views on online ELT practicum?

Research question 2. What are the challenges about online ELT practicum according to teacher candidates, cooperating teachers and university supervisors?

2. Literature Review

Research on teaching practicum has been the focus of attention lately as it constitutes a prominent part of teacher training program, has long lasting effects to form and change mindset over teaching and also because its sensitive nature influenced by several factors including student teacher, teacher educator and cooperating teacher oriented issues (Çelik, 2008). Most of the related literature focus on teacher candidates' concerns, reflections, beliefs, perceptions, performances, stress factors, experiences in respect of teaching practicum (Brinton & Holten, 1989; Çelik, 2008; Farrel, 2008; Yan & He, 2010; Yuen & Lee, 2013; Busher, et.al., 2014; Merç, 2015; Mirici & Ölmez, 2017; Celen & Akcan, 2017; Tüfekçi-Can & Baştürk, 2018; Arslan & İlin, 2018). On the contrary, Payant & Murphy (2012) examined the practicum form the perspective of cooperating teachers, their responsibilities and challenges. Llorca (2005) looked at nonnative TESOL students from the perspective of practicum supervisors. Dakhiel (2017) attempts to find out EFL practicum characteristics considering supervisors' views.

In Covid-19 context, Koşar (2021) examined the distance practicum period started at the very beginning of Covid-19 closures when student teachers had to quit their face to face practicum placements periods and completed the process only at university part with written assignments provided by university supervisors. The research revealed that the practicum which EFL teacher candidates completed was not efficient and they did not feel prepared for teaching.

In respect of online practicum in ELT, Sepulveda-Escobar & Morrison (2020) investigated online teaching placement by EFL teacher education during Covid19 closures in Chile context. They applied questionnaires and semi-structured interviews to student teachers and found that challenges outweighed the practicum's benefits. They concluded that some essentials of teaching could not develop by online placement and providers should regulate and enrich the design of such process.

Badawi (2021) conducted a research on e-practicum EFL student teachers, their instructional performances and e-teaching self-efficacy and found that e-practicum developed their self-efficacy but their performances were ineffective. The study recommended that e-practicums need to be improved to achieve desired goals.

3. Methodology

The research is based on a mixed method that has qualitative and quantitative parts to see general perspectives on online ELT practicum. The design of the study is attributed to a convergent parallel design, a mixed method (Subedi, 2016; Creswell, 2011) in which the researcher, gathers both quantitative and qualitative data, analyzes both datasets separately, compares the results from the analysis of both datasets, and makes interpretation as to whether the results support or contradict each other. The study's main concern is to get an insight about participants' views on online practicum carried out under challenging conditions which a qualitative manner would be the appropriate perspective, however, to understand the process deeply, it is important to find out shared views and common points agreed by most of the participants to see the main picture of the process. Therefore, open-ended questions to elicit qualitative data while semi-closed questions that enable participants' yes-no answers give a quantitative texture to support a broader sense mix methodology to achieve the goal of the study.

3.1. Participants

Three participants groups were involved in the research by who online practicum was carried out:

Teacher Candidates /Student Teachers (ST): 15 senior students (fourth grade) from English Language Teaching Department of a faculty of education at a state university in Turkey

Cooperating Teachers / School Advisors (CT) : 13 experienced English teachers who work at state schools of MoNE and who are also qualified for practicum advisory. Teachers involved the research were teaching English at primary school levels during the practicum (mainly 6.,7. And 8. grades).

University Supervisors (US): 6 Lecturers of English Language Teaching (ELT) department of a faculty of education at a state university in Turkey.

The research was restricted to a city located in the south region of Turkey where participants related to the ELT department of the university in that city. Sampling is random stratified type in which all three groups of participants share the same attribute to attain the education goal, namely a successful teaching practicum.

Participants' roles in practicum process:

Teacher candidates/student teachers play major role in practicum as they have to complete the practicum process in the last semester in order to graduate. School advisors/cooperating teachers are chosen by the MoNE from experienced English teachers who have the license to be practicum advisors given by an obligatory course. They have to work assigned a group of STs by incorporating STs into their lessons, making them practice (four times teaching practice is obligatory for STs), observing them during practicing and joining the lessons that STs practice and evaluating their performances and also coordinating with university supervisors to evaluate STs' overall performance together. They also coordinate with university advisors and conduct a schedule for student teachers to practice teaching. University supervisors carry out the teaching practicum course of university part who is responsible for each STs assigned them, to provide them a joint schedule of practicing program prepared with CTs, make weekly meetings with TCs about the progress, joint their practices one by one, give them feedback and evaluate them for their performances as the final grade. General practicum grade is given jointly by CTs and USs yet major score is provided by CTs (about 70%) as their responsibility is more as they have to constantly involve two school days and at least 6 hours in a weekly school plan while following up TCs attendance and observing their in- class attitudes and performances. After the compilation of practicum process about two and a half months, up to state schools official academic calendar, CTs and USs do the grading on a joint platform of the MoNE's practicum based grading platform and successful candidates complete their practicum and get the opportunity to graduate.

3.2. Online Practicum Process

At the beginning of 2020-2021 educational calendar's spring term, it was decided by decision makers to go a hybrid education at primary and secondary schools, half face to face/half online due to pandemic restrictions to minimize human interaction. Face to face education was done two weekdays while online lessons continued to be given by school teachers via platforms (EBA TV and zoom as it had been during fall term fully online) that coordinated by the local MoNE administrators. Thus, the MoNE and the Higher Education Council decided on practicum process of all teacher training programs of Faculties of Education in Turkey to be carried online and informed faculties of education and state schools to prepare schedules according to this regulation. During the spring term, CTs' weekly plan was hybrid as two or three days face to face and two days online. Due to the current regulations, TCs had to attend only weekly online lessons to complete their practicum lasted twelve weeks in total (started by last week of February and ended mid-May) during when also CTs and USs periodically observed and evaluated them when they performed teaching.

3.3. Questionnaire

In the study, a survey comprised of five open and semi-closed were utilized to collect data. A closed ended question provides a preset response which may force limits participants to respond in a particular way, while open-ended questions present options for responding. In the present study closed-ended questions are used as the quantitative side of the analysis where yes-no answers are gathered and then given explanation of the answer to justify it is interpreted quantitatively. According to Popping (2015, p.4) "It is possible that an answer can only be understood in combination with the answer to the accompanying closed question." Creswell (2012) identifies semi-closed-ended questions as having all the advantages of open- and closed-ended questions structured as asking a closed-ended question and then asking for additional responses in an open-ended question. For instance, Item 1 (Was online teaching practicum effective and sufficient experience for you? Could you explain your answer why yes/no?) starts as a closed question followed by an open ended question giving opportunity to justify answer of the former question to avoid bias and can be described as semi-open question combines the control of the closed and semi-closed questions with the fruitfulness of the open question. The question tries to find out and specify participants' views on online practicum to undercover its strengths and weaknesses according to main characters

who carried out/perform and so able to evaluate it. Indeed, the question partially seeks answer to research question 1 that interrogates the general views about online practicum by participants.

3.4. Data collection and Analysis

Due to Covid19 restrictions, data collection procedure was done through communication platforms rather than delivering and filling forms physically. The questionnaire which has an initial consent declaration option to gather participants' views on online practicum prepared by Google forms and conveyed via WhatsApp groups with a consent declaration option. The compiled answers were analyzed qualitatively and quantitatively and interpreted to achieve the main goal of the research.

4. Results and Discussion

4.1. Student Teachers' Views

The scope of the study centered upon three participant groups' (English teacher candidates, university and school advisors') views on online teaching practicum that was carried out last semester. First group to discuss their findings is EFL teacher candidates who underwent this period for the first time in the history of university education and the EFL teacher training field which is a fact that makes it extra significant to consider teacher candidates' (TCs) views. As a start, first item was to figure out the effectiveness and sufficiency. When effectiveness and sufficiency of the practicum were questioned, many TCs (8 out of 14) thought negative while 4 of them said yes and 2 of them said both yes and no as shown in Table 1:

Table 1: Participant views on item 1

Item 1	Was online teaching practicum effective and sufficient experience for you? Could you explain your answer why yes/no			
	Participants*	Yes	No	Both (yes and no)
ST1		•		
ST2			•	
ST3		•		
ST4			•	
ST5		•		
ST6			•	
ST7			•	
ST8				•
ST9			•	
ST10			•	
ST11				•
ST12			•	
ST13		•		
ST14		•		
ST15			•	

*ST: Student Teachers

TCs who answered no to the question have reasons as follows:

ST2: We did not have a full interaction with the pupils.

ST4: We did not see the real classroom setting and I felt deficiency in classroom management.

ST6: We only had voice communication and we tried to do the teaching with the pupils we did not even see their faces.

ST7: We could not come together with pupils physically.

ST9: We do not have face-to-face teaching experience at all.

ST10: The number of pupils was limited and there was no one to one interaction.

ST12: There was no real student-teacher interaction with a sincerity and energy, we do not have the opportunity to use body language.

ST15: I do not think it was because face to face interaction with pupils would be better for the flow and the productivity.

Most of the reasons why they think the practicum was not effective and sufficient addressed to the non-existence of face to face student-teacher interaction. Participants who think the process was fully effective and sufficient simply justify their responses as follows:

ST1: I improved my skills on using web 2.0 tools, material development and classroom management. How to behave in the classroom, how to manage the control, experiencing these online was really great.

ST4: There were pupils attending the online lessons so I could prepare my lesson plans and activities, do my teaching and get feedback.

STT6: Because it was the best option under these conditions, It has been a teaching experience under extraordinary conditions.

ST7: Because when pupils attend the lesson and open up their cameras, there was a classroom environment even it was not like face to face. It was effective and sufficient as the first teaching experience.

ST14: Yes, although we were not in a face to face setting, I saw pupils quickly accustomed to online education.

Participants think the process was satisfying in terms of classroom management, preparation of material/activity and plan, pupils existence. Two participants believe the process was effective but not sufficient:

ST8: It was effective for me as it is my first teaching experience but I cannot say it was sufficient because there were many problems like very few pupils attended the lessons, and many of them did not participate activities, indeed there was zero participation in some lessons, also they frequently had connecting/internet problems.

ST11: It was effective but not sufficient; we had the chance to observe technology integrated classroom experience but I felt the deficiency of not practicing in a face-to-face classroom environment.

In Item two (in Table 2.), the preference of participants on practicum delivery type is questioned whether it should be online or face to face:

Table 2: Participants' views on item 2

Item 2	If you had a chance to choose, would you prefer online or face to face practicum?			
	Participants*	Online	Face to face	Both (partially online- face to face)
ST1		•		
ST2			•	
ST3				•
ST4			•	
ST5			•	
ST6			•	
ST7			•	
ST8		•		
ST9				•
ST10			•	
ST11			•	
ST12			•	
ST13			•	
ST14				•
ST15			•	

*ST: Student Teachers

Most of the participants (9 out of 13) who already underwent the online teaching practicum last semester, prefer to choose regular, formal face to face practicum if they had the opportunity. The face to face practicum supporters' opinions can be summed as in the following:

ST2: I'd prefer face to face so pupils would be more willing and the process would be more beneficial.

ST4: I'd prefer face to face practicum, I would have done activities, played games with children, got immediate feedback and communicated them effectively.

ST5: I prefer face to face. Although I worked at language courses, I've never had teaching experience with young learners. I believe that gaining teaching experience with learners from all age groups is very important for us because English teachers are able to teach at primary-secondary school or higher education levels.

ST6: Of course I'd prefer it face to face. Teaching would be more fruitful for both the teacher and the pupils when there is a social connection in a classroom environment. It should be with pupils to use body language and classroom management skills effectively.

ST7: I would go with face to face because I believe the place of a teachers is the classroom. And also we can only develop our teaching skills properly in the classroom.

ST10: Face to face, because we cannot interact with the pupils nor see what do in front of the camera.

ST11: If I had a chance and the conditions were normal, I would choose to attend face to face practicum.

ST12: Of course face to face because you cannot do everything in teaching online. Options are limited. It is impossible to control what students engage with, opening up white board, share the screen, these are time consuming.

ST13: I'd prefer face to face, because to teach in a real classroom with pupils would be more effective experience and also I would have had the opportunity to develop my classroom management skills.

ST15: I rather face to face cause I think online education is not appropriate for every level of pupils.

Participants believe that a face to face teaching experience would be better in terms of developing teachings skills like establishing teacher-student interaction and rapport, performing activities, student engagement and classroom management. Rest of the participants either favor of fully online or a hybrid system (half online half face to face) would be an adequate experience as in their statements:

ST1: I think It should be online so teachers can upgrade their skills in using Web2 tools, and develop online materials compatible with pupils' needs, for example they can prepare online or different activities for vocabulary teaching. Online practicum helps teachers to become experts in online teaching.

ST3: I could be half online half face to face. It is possible to create and perform more activities online.

ST8: I'd prefer it online because like every field, education renovate itself with a technology integrated understanding. I know the fact that new teachers who have one year internship training also engage with discovering the profession in their first two-three years so face to face system would be insufficient. Therefore I'd prefer online practicum.

ST9: It would be an advantage to take both, so we should be receiving both face to face and online teaching practicum experience during graduate education.

ST14: Both have pros and cons, online does not provide a full classroom setting and cause less interaction with students but it serves enormous technology use probably. We have opportunity to prepare and present a lot of Web2 tools as several that could not be used in a real classroom setting. And this helps students to develop problem solving and creative thinking skills and exposure to visual and audio content in target language.

Table 3: Participants views' on item 3

Item 3	Did you have any problems or difficulties during online practicum? (If yes, what type of...)	
Participants*	Technological problems (internet, connection, voice, camera, etc.)	Pupils' problems (attendance/ participation/ motivation/ classroom management, etc.)
ST1	•	
ST2	•	•

ST3		
ST4	•	•
ST5	•	
ST6	•	•
ST7	•	
ST8	•	
ST9	•	
ST10		•
ST11	•	•
ST12	•	•
ST13	•	
ST14		•
ST15		•

*ST: Student Teachers

Item 3 is an open ended question to find out the troubles STs had during online teaching practicum. Two main problem types yielded from the participant views; technical problems and student-oriented problems. As expected, technical problems include internet connecting problems (not connecting, fall from the net, disappear suddenly, etc.) both for research participants and pupils, troubles with computer related devices or apparatus like camera, microphone are major difficulties nearly all of STs faced during the process. Other problems can be addressed to student behaviors; no attendance, no participating to activities, unwillingness to participate activities, reluctance to answer STs' questions all of which cannot be attributed to technical (hearing/voice) problems.

Being the very first step to active teaching English in the field and one of a kind experience never that implemented before, the impression of online practicum process from the perspective of teacher candidates, with its pros and cons is worthwhile to undercover to enlighten the future teacher training conceptualizations. When they asked what has remained from this experience, positive or negative sides of the process, variety of given claims presented in Table 4:

Table 4: Participants' views on item 4

Item 4 Participants	Positive or negative, what do you remember from your online practicum experience?	
	Negative	Positive
ST1	Trying to guide students to raise hands	It was nice when students liked the video that I shared
ST2	Technical problems	Preparing and performing activities with students made a big contribution
ST3	Technical problems	When students attend to lessons and being able to do online activities as much as possible
ST4	Technical problems Nonattendance of students	Students' respect for me and for the lesson was very nice.
ST5	Few student attendances and limited interaction with them	It was a time and space saving experience
ST6	No interaction and no eye-contact with students and their attitude; they just said they did not want to participate	Having the ability to use technology better
ST7	Limited use of teaching skills that was supposed to be used in face to face education	Experiencing the easiness of teaching at home
ST8	Classroom environment lack potentials due to financial problems and inequality service	Being prepared and beneficial for the possibility of obligatory online teaching in the future
ST9	Nothing negative	Nothing positive
ST10	Difficulties in reaching education and lack of interaction that needed in language teaching	A good experience to guide how to behave under such extra-ordinary conditions (Pandemic and necessity of switching to online teaching)

ST11	Insufficient as it was not a face to face in areal classroom setting	Not in its fullest sense but provided teaching opportunity for us as unexperienced ones
ST12	Technical problems Lack of productivity in lessons Lack of interaction with students (you don't see who does what)	Silence in the classroom so it was easy to choose students
ST13	Technical problems Nonattendance of students	Feeling lucky to have at least this experience under these hard conditions and realizing that choosing to be an English teacher was the right decision.
ST14	Some of pupils' being reckless and isolate themselves from the context.	Pupils' participation their increasing curiosity when out of traditional education were really nice.
ST15	Pupils were so unwilling though we force them to participate	Nothing positive

*ST: Student Teachers

Technical problems are interaction with students at the forefront in STs reminiscence of online teaching practicum. When it comes to positive things they addresses, nearly all of them have positive feelings and thoughts especially on student centered points like their existence, respect, participation, feedback and other comments mostly meet on a common ground on that it was good for their future teaching activities in terms of its benefits, advancing the use of materials, being prepared for similar conditions, using technology better, at least having teaching experience itself. Even tough indicate many challenges mostly originated from technical issues and students, they mostly reflect upon the online practicum positively and appreciate the given opportunity.

The last open-ended question was to have idea about STs' possible suggestions for future implementations based on their online teaching practicum experience. At this point, it was aimed to point out STs offerings to light the way as compulsorily pioneers given in Table 5:

Table 5: Participants' views on item 5

Item 5	Dou have any further comments and suggestions about online teaching practicum?
Participants	Suggestions/Comments
ST1	I liked the process
ST2	I believe online education will be beneficial with a better internet substructure and by ensuring the equality for all students have access to the internet and technological devices
ST3	No suggestions/comments
ST4	Ensuring the student attendance, student number, there should be more English lessons but in an intermitten way.
ST5	It would be better to observe one class at a time broadly as there is no face to face interaction
ST6	Students might be asked to open their cameras
ST7	I think online education is appropriate and beneficial but a hundred percent online process would not be so advantageous.
ST8	Online teaching should continue after Covid19. The World is controlled through technology bases systems right now and we have to catch up with the evolution that the education field underwent. Hence, I did not have any but I observed my friends had troubles with the use of technology so there should be related courses within ELT teacher training program. curriculum.
ST9	Online teaching practicum should be given during Fall semester or at the third grade before face to face so teacher candidates can develop digital skills. Because hybrid models (online+ face to face) do exist now.
ST10	No suggestions/comments
ST11	I want conditions back to normal and face to face education carry on.
ST12	-Teacher candidates should teach topics in different skills (e.g.one teach smth. listening and the other one reading) -It is hard to follow PPP in40 minutes so pair work could be useful.

	-The number of students should be average of 10, it is hard to manage 20 or more.
	-Teacher candidates should focus more on pronunciation
ST13	No suggestions/comments
ST14	Online practicum should take part in face to face practicum.
ST15	Please, let education turn to face to face.

Most of STs make suggestions (10 out of 3) that can be addressed to improve future practices in the field. Better technological services, in-classroom applications, student centered issues (number of students, their participant to activities, their access to internet and devices; offerings intended to teacher candidates' conditions like technology course offer teacher training program, a hybrid model for practicum, skill-based practicing, pair work, etc. As pioneers, their perspectives may direct the possible next practices to overcome difficulties they had, improve the necessary parts and reinforce and the existing positive sides.

4.2. Cooperating Teachers' and University Supervisors' Views

The backbone of the study is formed a binary stakeholders play a leading role in this practicum process; STs and their advisors from university and from state school who are concurringly carry out the process through guide STs, by providing them opportunity to perform teaching, observing and evaluating their practices and finally decide their accomplishment of the practicum. In fact, since the school advisors (CTs) work closely with STs along the whole practicum period (see section 3) more than university supervisors (USs) and their responsibility and potency in evaluating STs' performance more dominant according to MoNE regulations. That is, CTs as mentors have the 70% percent of evaluation while USs' as 30% of the total score of practicum course which is formally coordinated and carried out jointly by regional MoNE and Faculties of Education. In the study, both CTs' and USs' views on online ELT teaching practicum were examined regarding two main points; one is that their experience in mentoring STs in previous face to face practicum periods, the other matter is that online practicum was their first experience that they share with STs in this respect. As a start, item 1 questioning the efficacy and sufficiency of online practicum was asked to advisors that presented in Table 6:

Table 6: Participants views' on item 1

Item 1	Was online teaching practicum effective and sufficient experience for you?	
	Yes	No
Participants*		
CT1	•	
CT2	•	
CT3	•	
CT4	•	
CT5		•
CT6		•
CT7		•
CT8		•
CT9		•
CT10		•
CT11	•	
CT12		•
CT13	•	
US1		•
US2		•
US3		•
US4		•
US5		•
US6		•

*CT: Cooperating Teacher; US: University Supervisor

In terms of Item 1, CTs' views exhibit nearly a parallel frame in which 6 of 13 participants think the online practicum was effective and sufficient while the other 7 participants favor an opposite view. On the other hand, USs' perspectives in this respect confirm that practicum was not acceptable enough. Participants who answered yes have their own reasons to justify their views as can be seen below:

CT1: It was sufficient under current conditions.

CT2: Yes it was because STs have learned 'the fundamental difficulties of teaching and find out solutions'. Being a teacher means educate and evaluate in all conditions.

CT3: I believe this new type of implementation is beneficial as it should be experienced anyway.

CT4: Yes it was sufficient.

CT11: Yes.

CT10: Under current conditions, yes it was enough.

Participants who answered negative then provided variety of explanations to justify their responds as below:

CT5: No because face to face system is more beneficial in all aspects.

CT6: No it wasn't because they didn't have the chance to see the physical classroom.

CT7: No, they (STs) should have felt the real classroom atmosphere and interacted with students.

CT8: No because student attendance was low.

CT9: It was not sufficient as it was solely online education.

CT10: No it was not because everything was theoretical, STs couldn't do practice properly and have the opportunity to interact with students.

CT12: Actually it was not enough for the sake of face to face education.

US1: Generally, it was not sufficient because problems that occurred during the online lessons effected STs negatively such as students' low attendance rate or their reluctance to participate the activities.

US2: No, because implementation would be fully effective in a face to face practicum.

US3: No, because student attendance was very low in online lessons, STs had to follow lessons with very few students.

US4: No it was not because they (STs) could not interact one on one with students, make eye contact with them also they couldn't learn classroom management.

US5: No because they did not a real teaching experience.

US6: No it was not a real teaching experience because language teaching cannot be limited to only using online materials and activities and trying to do them with very few students.

Most of CTs point of view in saying no address some issues like STs' minimum or no interaction with students, nonattendance, reluctance or demotivation of students in online lessons, and the effectiveness of face to face practicum and its felt deficiency by CTs also underlined obviously. Similar concerns are shared by USs about interaction, lack in student attendance and motivation emphasized by them. It is clear that most of advisors did not find the online practicum effective and sufficient due to common problems of online education system which makes online practicum questionable.

Participants were asked to evaluate the performances of STs as trainees by item 2 to see whether they were sufficient and whether the online practicum achieved the goal of enabling STs put theories into practice to some extent. Table 7 shows advisors' views about STs performances

Table 7: Participants' views on item 2

Item 2 Participants	Do you think the performances of teacher candidates were sufficient? Why/how so..			
	Yes	No	Both/ Partia lly Depe nds	Why/How so?
CT1	•			Because, they are within the technology.
CT2	•			They practiced teaching only online.
CT3	•			Yes, I think it was fruitful by their tendency to technology and our guidance.

CT4	•	(Just yes)
CT5	•	(Just yes)
CT6	•	(Just yes)
CT7	•	Yes they were lucky about presentations.
CT8	•	Yes they were quite equipped.
CT9	•	Yes STs were very competent and creative about using technology.
CT10	•	Yes they were very willing and enthusiastic and they really made the effort in all aspects.
CT11	•	Yes they really prepared well and their excitement could be felt even from the screen.
CT12	•	It could have been longer like two semesters
CT13	•	Yes, because they effectively used the materials and testing/evaluation sources.
US1	•	That depends on students, some of them had a good performance and they had willing to teach while others were not good as expected.
US2	•	Yes, because they did their best in handling their duties and responsibilities.
US3	•	Yes, our STs turned the conditions into a productive opportunity and prepared materials, actively attended the online lessons and presented successful performances.
US4	•	(Just no)
US5	•	Partially depends on the nature of the lesson, some STs' performances were sufficient and some of them didn't even attend the lessons.
US6	•	Some of them were successful and willing, some not.

* CT: Cooperating Teacher; US: University Supervisor

When CTs' views are examined, many of them appreciate STs' technology skills which can be a good start for the future of online teaching practicum as the teacher candidates of new generation are quite capable of using technology as an advantage in teaching practices. If it is considered that this was also CTs' first experience in teaching English online for their own students due to Covid-19 conditions that forced schools shut down, they had their own struggles in using technology and it is possible for them to notice STs capabilities and skills in this respect. Yet not surprised and impressed by STs tech skills like CTs as they may already intensively use digital tools in their academic works, but some USs confirmed STs good performances whereas others were not satisfied with some performances. Most of the participants think positive about STs practicum performances which seems online practicum did not negatively affect their willingness and skills, indeed their technological skills might have helped to advance their ability to put field specific content knowledge into practice.

The ELT practicum last (Spring) semester of 2020-2021 academic year was jointly carried out with state schools. Before the semester started, MoNE decided to go a hybrid system in primary school education (partially online and face to face). English teachers of who are CTs of the practicum process at the same time had a schedule involving both online and face to face (in-classroom) setting in their weekly lesson plan. In respect of practicum implementation, online lessons were included to practicum content, that is, STs were going to attend online lessons of their assigned CTs weekly plans. Thus, there was a face to face practicum opportunity, MoNE directed the stakeholders to carry out it fully online. When advisors were asked whether the online practicum should have done face to face shown in Table 8, most of them favored face to face option for the sake of practicum, addressing the pandemic for the carried out format back in the day, though.

Table 8: Participants' views on item 3

Item 3	Do you think the practicum should have been online or face to face last semester?			
	Participants*	Online	Face to Face	Both
CT1			•	
CT2		•		

<u>CT3</u>	•	
<u>CT4</u>	•	
<u>CT5</u>		•
<u>CT6</u>		•
<u>CT7</u>		•
<u>CT8</u>		•
<u>CT9</u>		•
<u>CT10</u>		•
<u>CT11</u>		•
<u>CT12</u>	•	
<u>CT13</u>		•
<u>US1</u>		•
<u>US2</u>		•
<u>US3</u>		•
<u>US4</u>		•
<u>US5</u>		•
<u>US6</u>		•

*CT: Cooperating Teacher; US: University Supervisor

It is understood that all advisors think that online practicum should have done face to face if it was possible providing a common sense on the values of practicum's achievements. When problems that advisors had during the online practicum, a general distribution of difficulties can be seen as presented in Table 9:

Item 4		Did you have any problems or difficulties during online practicum?		
Participants*	No	Yes		
		Technological problems (internet, connection, voice, camera, etc.)	Students oriented problems (attendance/participation/motivation/classroom management, etc.)	Other (ST oriented problems; attendance/participation/motivation/personal or instructional disagreements, institutional problems, problems with other partner advisors, etc.)
<u>CT1</u>	•			
<u>CT2</u>	•			
<u>CT3</u>		•		
<u>CT4</u>	•			
<u>CT5</u>			•	
<u>CT6</u>			•	
<u>CT7</u>			•	
<u>CT8</u>			•	
<u>CT9</u>		•		•
<u>CT10</u>				•
<u>CT11</u>		•		
<u>CT12</u>				•
<u>CT13</u>		•		
<u>US1</u>		•	•	•
<u>US2</u>				•
<u>US3</u>	•			
<u>US4</u>	•			
<u>US5</u>			•	
<u>US6</u>			•	•

*CT: Cooperating Teacher; US: University Supervisor

Among CTs and USs, 5 of them did not face any trouble and everything was fine whereas other participants provided some challenges. Among CTs experienced problems, half of them indicated student oriented problems like low attendance and participation rate and others mentioned technical problems like internet computer use failures. At this point, it is clear that CTs and STs as well as some of USs share common problems during online practicum and their responses confirmed the major aim of this in its fullest sense in trying to find out the challenges of online ELT practicum. samples from the responses are as follows:

CT9: As it was online, communication problems occurred. It was understood that teacher candidates did not have experience in handling such situations.

US1: There were connecting and technical problems. Our candidates had problems to develop and prepare proper materials. Some of candidates could not have the opportunity to do teaching practice due to very low student attendance. More significantly, since most of our candidates did not have a full command of lesson planning, practicing and evaluation, they had troubles putting recognized theoretical knowledge of face to face education into practice.

CT7: Pupils' silence caused difficulties for both sides (students and STs).

CT3: No other problems occurred except for media devices originated issues like connection break or malfunction.

As seen above, some of CTs and USs claimed that they had other type of difficulties in observing and following the lessons, STs' confusions in handling communication problems, their insufficiencies in putting theoretical knowledge into practice and lesson planning and other ST originated problems.

Lastly, as they have now enough experience to do it, advisors were asked whether they have further comments and suggestions on online practicum in ELT for the possible future practices. As advisors are like the directors of the process, their suggestions and comments are quite significant if considered by decision makers. In terms of online ELT practicum carried out under pandemic conditions for the first time, all advisors that consist of experienced English teachers working at state schools and university lecturers directly responsible for the training of English teacher candidates have right to recommend on critical topics and issues, strengths and weaknesses of the online practicum experience. In table 10, summarizes their proposals:

Table 10: Participants views on item 5

Item 5	Dou have any further comments and suggestions about online teaching practicum?
Participants	Suggestions/Comments
CT1	No suggestions/comments
CT2	The required substructure for the registration of candidates' lesson practices should be prepared for future implementations.
CT3	As online teaching become obligatory under special conditions, it is beneficial for candidates to experience it in this field too.
CT4	Teacher candidates can have the opportunity to perform more and variety of activities.
CT5	Pre-prepared materials are quite useful.
CT6	No suggestions/comments
CT7	I'd prefer it face to face.
CT8	Teacher candidates were successful and respectful. Online tools were used and students' attentions were gathered.
CT9	I hope it never happens again.
CT10	I did not have much negativities but if only I'd prefer to be face to face with students and teacher candidates and want them (STs) to see student behaviors in in-classroom setting, so we would have presented them (STs) more realistic atmosphere.
CT11	I definitely suggest face to face practicum expect for obligatory cases.
CT12	Practicum should be longer and teacher candidate should practice at all levels.

CT13	As our school were high in student participation, candidates had the opportunity to interact with students and were productive.
US1	Considering the practicum online, weekly assignments of candidates should be updated, new topics like difference and similarities between online and face to face practicum should be added to theoretic course of the practicum.
US2	Face to face is more fruitful and effective.
US3	Online practicum system did not let candidates to observe students directly and school advisors' teaching monotype and almost same lessons made it hard for them to guide teacher candidates.
US4	No suggestions/comments
US5	Out of pandemic period, some educational fields still can be go online but I think programs like medicine and teacher training should be face to face. I think online practicum is not so beneficial.
US6	Practicum might be a hybrid model covering both face to face and online lessons, it would be more fruitful for teacher candidates having traditional style experience and be active in new era' online teaching.

*CT: Cooperating Teacher; US: University Supervisor

As a shared view by some CTs and USs, the practicum should be face to face; the process was found beneficial by some of them though. The use of online materials richly by teacher candidates is underpinned whereas the necessity of some technical revisions in online teaching platforms and the need of a change in practicum's instructional content to adapt current distant education conditions are also emphasized by the participants. There are differences between STs and advisor participants that STs mostly suggest their requests solutions for the technical and student-originated issues they faced while advisors' perspectives note face to face practicum itself which can be seen in one of the comments as "*I hope it never happens again.*" (CT9) referring to compulsory online education and its difficulties.

5. Conclusion

In order to address research questions of the study seeking views of participants and challenges they indicate on online practicum, some significant points expressed by all participants listed below:

- Most of the participants have doubts about the effectiveness and sufficiency of the online practicum experience yet some views confirmed the adequacy of it under the current conditions.
- Participants' next common sense formed by the idea of the practicum they wish it was online or face to face. Not all of them but a lot of views favored face to face system, a surprisingly common choice between teacher candidates as the least experienced group and cooperating teachers as the most experienced participant group.
- When it comes to difficulties that participants had during online practicum, two types of problems come to forefront; technological problems as internet connection failures and computer related devices' malfunctions; student originated issues like low rates of attendance, their reluctance to participate activities and answer questions.
- As teaching practicum has a permanent influence on teachers' cognition, teacher identity formation and future teaching practices, students teachers were asked to indicate the reminiscence of practicum. Positive points were stressed like having opportunity to use materials and technology for teaching and at least having a chance to experience teaching for the first time officially under difficult conditions that will prepare them for future real life situations. Technological and pupils-related problems were negative sides of the process for them.
- A particular question of evaluating performances of student teachers were responded by all school cooperating teachers who found them successful and mostly appreciate their usage of materials and technology skills. Some university supervisors confirmed their achievements, others mentioned that performances depended on each teacher candidate's own case and criticized some performances specifically

on putting theories into the practice in online lessons, however they accepted the factor of challenging conditions.

- For the future attempts, the participants shared their recommendations as they experienced the very first online ELT practicum. Student teachers hope for solutions of major problems such as better technological services, pupils' attendances and motivation at online lessons. School and university advisors commented on general achievements of the practicum process and underlined the necessity of a face to face practicum for the future initiatives.

The results of the study contribute to future implementations especially when carrying out online lessons becomes a necessity for a teaching practicum process again. A better technological structure and student involvement to distance education process. Online teaching and learning, distance learning or e-learning has become necessary and prominent during Covid-19 pandemic restrictions globally that most of countries had to carry out educational activities through internet such that traditional face to face education was interrupted and remained background for a while. In such conditions, students from all levels had problems in reaching out online education due to lack of opportunities. Our study partially confirmed primary school students' difficulties in online lessons which also influenced practicum process to some extent. For instance, the fact of low student attendance rates on online lessons that also expressed by the participants of the current study might be considered by MoNE and other related decision makers to do necessary regulations and attempts to disseminate and improve distance education. Indeed, technological issues should be handled to advance the quality of online education and students' access to internet and technological devices is needed to be facilitated to provide equal training opportunities during difficult times. The study results also supported and shared some of similar recent research outcomes like the study of Sepulveda-Escobar & Morrison (2020) about teacher candidates limited interaction with students and their need for a more real teaching experience and also technological issues. The general outcomes of the present research are in accordance with Badawi (2021) in respect of online practicum processes are needed to be improved to provide effective teaching practice experiences. The study results also support some facts emphasized by König (2020) et.al. that state schools should catch up with a fundamental ICT transformation. Unlike Celen & Akcan (2017) that underline ELT teacher candidates' technology skills are needed to be improved, however, student teachers' technology knowledge and skills in this research were found adequate by cooperating teachers. Although challenging sides of online practicum, student teachers' efforts to use technology as an advantage by the help of online lessons might be a great opportunity for them to achieve the goal of being 21 century teachers.

This study is limited to participants from state schools and universities and their views on ELT practicum. In further studies, the number of participants can be enhanced and the research can be deepened and amplified with a variety of quantitative and qualitative methods to reach more generalizable results.

References

- Andrew, M. & Razoumova, O. (2017). Being and becoming TESOL educators: embodied learning via practicum. *Australian Journal of Language and Literacy*, 40(3), 174-186.
- Badawadi, M.F.A. (2021). The effect of e-practicum on developing EFL student teachers' instructional performance and e-teaching self-efficacy. *Research in Language Teaching*, 2, 16, 687-727. <https://dx.doi.org/10.21608/ssl.2021.71053.1066>
- Bao, W. (2020). COVID-19 and Online teaching in higher Education: a case study of Peking university. *Human Behavior and Emerging Technologies* 2 (2), 113-115.
- Brinton, D. & Holten, C. (1989). What novice teachers focus on: the practicum in TESL. *TESOL Quarterly*, 23,(2), 343-350. <https://www.jstor.org/stable/3587356>.
- Busher, H., Gündüz, M., Cakmak, M., & Lawson, T. (2014). Student teachers' views of practicums (teacher training placements) in Turkish and English contexts: A comparative study. *Compare*, 45(3), 445-466.
- Çelik, M. (2008). Pre-Service EFL teachers' reported concerns and stress for practicum in Turkey. *Education and Science*, 33(150), 97-109. <http://egitimvebilim.ted.org.tr/index.php/EB/article/viewFile/634/104>.
- Celen, K.M. & Akcan, S. (2017). Evaluation of an ELT practicum programme from the perspectives of supervisors, student teachers and graduates. *Journal of Teacher Education and Educators*, 6(3), 251-274. <http://jtee.org/document/issue14/article2.pdf>.
- Creswell, J.W. (2011). *Educational research*. New Delhi: PHI Learning Private Limited.
- Creswell, J.W. (2011). *Educational research: planning, conducting and evaluating quantitative and qualitative research*. Boston: Pearson.

- Council of Higher Education (CoHE) (2020). Turkish higher education in days of pandemic. <https://covid19.yok.gov.tr/CTyfalar/HaberDuyuru/opinion-turkish-higher-education-in-days-of-pandemic.aspx>.
- Dakhiel, M.A. (2017). Essential characteristics of EFL practicum supervisors from their perspective. *Universal Journal of Educational Research*, 5 (6), 1021-1029. DOI: 10.13189/ujer.2017.050615.
- Farrel, T.S.C. (2008). 'Here's the book, go teach the class': ELT practicum support. *RELC*, 39(2), 226-241. DOI: 10.1177/0033688208092186.
- Flores, M. A., & M. Gago. (2020). Teacher education in times of COVID-19 pandemic in Portugal: national, institutional and pedagogical responses. *Journal of Education for Teaching*, 46 (4), 507-515. <https://doi.org/10.1080/02607476.2020.1799709>.
- Gan, Z. (2013). Learning to Teach English Language in the Practicum: What Challenges do Non-Native ESL Student Teachers Face?. *Australian Journal of Teacher Education*, 38(3). <http://dx.doi.org/10.14221/ajte.2013v38n3.3>.
- Grudnoff, L. (2011). *Rethinking the practicum: limitations and possibilities*. *Asia-Pacific Journal of Teacher Education*, 39(3), 223-234. doi:10.1080/1359866x.2011.5883.
- Koşar, G. (2021). Distance teaching practicum: its impact on pre-service EFL teachers' preparedness for teaching. *IAFOR Journal of Education*, 9 (2), 11-126. <https://files.eric.ed.gov/fulltext/EJ1291724.pdf>.
- König, J.; Jäger-Biela, D.J. & Glutsch, N. (2020) Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education*, 43(4), 608-622, DOI: 10.1080/02619768.2020.1809650.
- Merç, A. (2015). Assessing the performance in EFL teaching practicum: student teachers' views. *International Journal of Higher Education*, 4(2), 44-56. <https://doi.org/10.5430/ijhe.v4n2p44>.
- Ministry of Education (MoNE). (2020). National education statistics formal education 2019/20. http://sgb.meb.gov.tr/meb_iys_dosyalar/2020_09/04144812_meb_istatistikleri_orgun_egitim_2019_2020.pdf.
- Mirici, İ.H. & Ölmez-Çağlar, F. (2017). Reflections on practicum experiences of non-ELT student teachers in Turkey. *ELT Research Journal*, 6(3), 276-292. <http://dergipark.ulakbim.gov.tr/eltrj/>.
- Llurda, E. (2005). Non-Native TESOL Students as seen by Practicum Supervisors. *Non-Native Language Teachers*, 131-154. doi:10.1007/0-387-24565-0_8.
- Payant, C. & Murphy, J. (2012). Cooperating teachers' roles and responsibilities in a MATESOL practicum. *TESL Canada Journal*, 29(2), 1-23.
- Popping, R. (2015). Analyzing open-ended questions by means of text analysis procedures. *Bulletin de Méthodologie Sociologique*, 128, 23-39. Doi: 10.1177/0759106315597389.
- Subedi, D. (2016). explanatory sequential mixed method design as the third research community of knowledge claim. *American Journal of Educational Research*, (4), 7, 570-577.
- Sepulveda-Escobar, P. & Morrison, A. (2020). Online teaching placement during the COVID-19 pandemic in Chile: challenges and opportunities. *European Journal Of Teacher Education*, 43 (4), 587-607 <https://doi.org/10.1080/02619768.2020.1820981>.
- TEDMEM. (2020). COVID-19 sürecinde eğitim: Uzaktan öğrenme, sorunlar ve çözüm önerileri (TEDMEM Analiz Dizisi 7). Ankara: Türk Eğitim Derneği Yayınları.7). Ankara: Türk Eğitim Derneği Yayınları. <https://tedmem.org/yayin/covid-19-surecinde-egitim-uzaktan-ogrenme-sorunlar-cozum-onerileri>.
- Tüfekçi-Can, D. & Baştürk, M. (2018). QUSLITATIVE research: the pre-service EFL teachers' opinions on teaching practicum. *H. U. Journal of Education*, 28(3), 97-110. <https://dergipark.org.tr/tr/download/article-file/495666>.
- Tüm, D.Ö& Kunt, N. (2013). Speaking anxiety among EFL student teachers. *H. U. Journal of Education*, 28(3), 385-399.
- Yalçın Arslan, F & İlin, G .(2018). The effects of teaching practicum on EFL pre-service teachers' concerns . *Journal of Language and Linguistic Studies*, 14(2), 265-282. Retrieved from <https://dergipark.org.tr/tr/pub/jlls/issue/43364/527979>.
- Yan, C & He, C. (2010) Transforming the existing model of teaching practicum: a study of Chinese EFL student teachers' perceptions, *Journal of Education for Teaching*, 36:1, 57-73, DOI: 10.1080/02607470903462065.
- Yazan, B. (2016). Early career EFL teachers' instructional challenges. *Journal of Theory and Practice in Education*, 12(1), 194-220.
- Yuan, L.& Lee, I. (2014). Pre-service teachers' changing beliefs in the teaching practicum: Three cases in an EFL context. *System*, 44, 1-12. <http://dx.doi.org/10.1016/j.system.2014.02.002>.
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Architecture Education During the Covid-19 Pandemic

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Abstract

Online learning, also known as e-learning, is the result of the evolution of distance learning that has developed following technological developments, especially information technology. Before the pandemic, online learning was only one alternative that enriched the learning process. Various courses are implemented by combining offline and online learning processes called blended learning. Through the Learning Management System (LMS), the Department of Architecture Unhas combines offline and online learning in studio-based design courses. Lecturers and students are trained to carry out the stages of the learning process guided by online procedures. The ongoing Covid-19 pandemic has made online learning the only way to keep the learning process going as planned. The sudden shift of studio-based courses from offline to totally online resulted in a change in the learning environment and experience. This study found that the online learning process is largely determined by the availability of learning materials and instruction in the LMS, the distance between learning space and time, the learning experience and the meaning of independent learning perceived by students. The study involved student participants at all semester levels, academic administration staff, lecturers, and student parents.

Keywords: Online Learning, Studio, Architecture, LMS, SIKOLA

1. Introduction

On December 31, 2020, the Wuhan Municipal Health Commission China reported that a novel coronavirus had been identified (World Health Organization, 2020). Until February 19, 2020, the corona virus which was later named SARS-CoV-2 had spread to 30 regions around the world. However, many people joked as if Indonesians were immune to the virus (Garnesia, 2020). On March 2, 2020, President Jokowi announced that two Indonesian citizens were infected due to contact with Japanese citizens who came to Indonesia (Ihsanuddin, 2020). On March 15, 2020, for the purpose of increasing awareness of the transmission of the virus, Jokowi instructed Work From Home (WFH) (Ratriani, 2020; Pratiwi, 2020). Jokowi's instructions were also followed up by educational institutions through the learning from home (LFH) program. The learning process is carried out online using various available applications such as Whats App, Zoom, Google Meet, and the Learning Management System (LMS).

1.1. Online Learning

In principle, online learning is a learning process that is carried out without face-to-face between lecturers and students. Online learning is often assumed as a learning process using internet facilities. Whereas online learning is actually a development of a long-standing distance learning system. In 1728, Caleb Phillips offered through the

Boston Gazette, the concept of learning the new method of short hand through letter correspondence. The same lesson materials and instructions as in Boston will be sent to students every week by post (Sleator, 2010:320).

The distance learning system utilizing the correspondence method was later developed using radio, television, and the internet (JSTOR Daily, 2020). Distance learning is defined as a learning method in which students and lecturers are physically separated. The learning method is carried out by utilizing a combination of technology, including correspondence, audio, video, computers, and the internet (Roffe, 2004). Distance learning programs as an alternative to education are generally aimed at students who have barriers to attending face-to-face learning, for example, do not have time or accessibility to educational facilities.

Initially, distance learning was only informal, such as courses in certain subjects and was not recognized as formal education because there was no two-way communication between lecturers and students (Verduin Jr. & Clark, 1991). In the 1960s, the University of Wisconsin opened Articulated Instructional Media (AIM), a special degree program for adults. The courses were offered through a combination of short sessions, off-campus seminars, and independent study, amplified by telelectures, radio-television, programmed material, mobile laboratories and libraries (Wedemeyer & Najem, 1969). AIM later became part of the University Extension which in 1969 inspired the British Open University and further in Spain and Canada. In the 1980s, open universities used satellite television as a means of communication between lecturers and students.

In 1984, Indonesia established the first higher education institution to officially use the distance learning system, namely the *Universitas Terbuka* (Opened University). The main goal is to provide broad opportunities for Indonesian citizens, regardless of where they live, to obtain higher education without restrictions on age, year of certificate, registration time, and frequency of taking exams (Universitas Terbuka, 2021). Before the internet developed rapidly in Indonesia, the face-to-face higher education system used printing materials for learning modules and radio and television media. In the 1990s, universities in various countries began to experiment with distance learning, web-based education. In 1993, Jones International University became the first university to implement fully online learning, and in 1999 it was the first accredited online educational institution. (Corbeil & Corbeil, 2015:55). In 1999, at the Disneyworld Tech Learn Conference, Elliot Masie introduced the term e-learning (Cross, 2004).

In the 2000s, tablet technology, smartphones and free services supported the development of web-based e-learning. The development of Wireless Fidelity (Wi-Fi) technology allows data communication access to all resources provided by the internet on computer devices - desktops, tablets, laptops, smartphones, video game units, digital audio players, e-book readers, and others - quickly without the need for a physical cable connection. These advances create the potential to expose learners to a greater diversity of experiences from people, as well as opportunities to develop problem-based learning opportunities. This is very much needed education and training of various professions in higher education (Corbeil & Corbeil, 2015:56-57; Stansfield, et al. 2008)

1.2. Independent Learning and Merdeka Belajar - Kampus Merdeka (MBKM)

Independent Learning is an alternative learning method in which students learn based on their own actions and direct, organize, and assess their own learning (Henderson, 1984:52-54; Springer, 2012). The concept of independent learning is related to the concept of student-centered learning (Meyer, et al. 2008). Although independent learning programs are also designed for the needs of students, the concept of independent learning described earlier is different from the Indonesian independent learning concept called *Merdeka Belajar – Kampus Merdeka* (MBKM) or Learning Independence - Independent Campus which became a program of the Indonesian Ministry of Education and Culture in 2020. The independent learning program in Indonesia is designed to prepare students to face social cultural changes, the world of work and rapid technological advances. For this reason, the culture on campus must be innovative, not restrictive, and in accordance with the needs of students (Direktorat Jenderal Pendidikan Tinggi - Kementerian Pendidikan dan Kebudayaan, 2020:2). Students plan their learning programs with assistance from their respective lecturers.

MBKM gives autonomy to educational institutions and lecturers to be free from complicated bureaucratization, and students are free to choose the fields they like. Students are allowed to take one semester or the equivalent of

20 credits of courses of interest outside the study program, faculty or college. Activities can be carried out through 8 (eight) activities, namely (1) student exchanges, (2) internships/work practices, (3) teaching assistance in education units, (4) research/research, (5) humanitarian projects, (6) entrepreneurship activities, (7) independent studies/projects, or (8) building village/a thematic real work (Direktorat Jenderal Pendidikan Tinggi - Kementerian Pendidikan dan Kebudayaan, 2020:4-29).

To support the MBKM program, the Directorate General of Higher Education has developed the SPADA Indonesia online learning system (SPADA Indonesia, 2021). This system is designed as a place to manage selected courses from all Indonesian universities that are included in the MBKM program. The goal is that students who want to take courses outside of their higher education can be served through this system and do not need to enroll in higher education destinations. Most of the universities involved in SPADA Indonesia are universities that do not yet have their own servers and LMS. Higher education that already has opted to offer their courses directly at their respective LMS.

In early 2020, through the Sasrabahu platform, 12 universities with legal status, including Hasanuddin University (Unhas) carried out a collaboration that supports the MBKM program for student exchange between universities. With the system built by the Sasrabahu platform, students are allowed to take courses at other universities with a full credit transfer scheme by the administrator of the home university. Unhas is involved in student exchanges through the Permata Sakti program and university collaborations. This program is here with the aim of adding student insight and experience. Students participating in the program can build networks with other students outside the university (Rahman, 2020a; 2020b). Through the Permata Sakti program, the Department of Architecture was appointed to submit an identity course for Tropical and Archipelago Architecture. MBKM participants from all over Indonesia can take these courses through LMS of SIKOLA.

The MBKM program did not run smoothly due to the protracted Covid-19 pandemic. All learning processes can only be done through the WFH system. As a result, the practical learning process that must be carried out in learning locations such as laboratories, studios, fields, offices or companies, has to be done online. Students do not have the learning experience as they expect, because generally learning methods are given in the form of theory. Some rich study programs can afford to buy and provide practical applications, so that students can do virtual practicums with simulations. Study programs that have limited funds have no choice but to wait for the pandemic period to pass and face-to-face learning return to normal.

Initially, in response to the Covid-19 pandemic, all educational institution leaders were waiting for developments to occur. They hope the pandemic will subside quickly. It turns out that until today there is no certainty when the pandemic will subside and the face-to-face learning process will normally run again. For more than three semesters, students are not allowed to enter campus and can only study from home. For architecture study programs whose learning process is studio-based, learning from home through online learning is also carried out. For three semesters they were not taught and guided by lecturers through physical meetings.

Although the online learning process has also been carried out at the Department of Architecture, Unhas through blended learning, studio-based design courses are only conducted face-to-face. In the studio, students are accompanied and guided by a lecturer team who are present together when they study. This research was conducted to find out whether the problems faced by architectural education institutions which were carried out with a voluntary blended learning process, then turned into a mandatory totally online due to pandemic conditions? How do lecturers and students react to this situation? How do they manage studio-based courses through online learning?

This research is different from studies on online learning which were mostly conducted during the pandemic period, which generally discussed educational institutions that carried out the learning process only with the face-to-face method and then because of the pandemic, they were forced to switch to online methods. What are the consequences of changing the learning process from offline to online during the pandemic?

For example, missing learning opportunities and introductions to digital learning, network quality and internet accessibility and uncertainty by Pokhrel and Chhetri (2021); weaknesses of the online learning system with various digital applications used, by Abidah (2020); and the pandemic on the quality of graduates delaying assessment of learning outcomes to be fair for those attending school during the pandemic to enter the work, by Burgess and Sievertsen (2020).

2. Research Methods

This research was conducted with a qualitative approach. Primary data were collected through observation of phenomena, focused discussion groups (FGD), and in-depth interviews with a number of participants, namely 252 students in semester I-VI, 27 students in semesters VI-VIII, 4 academic administrative staff, 23 lecturers, and 9 students' parents. For ethical reasons, all participants' names are withheld. Secondary data were collected for the academic administration of the study program. Data analysis was carried out using the Spradley method. The research was conducted from June 1, 2020 – October 31, 2021. The research location is the Department of Architecture, Faculty of Engineering, Unhas, Gowa Regency, South Sulawesi.

3. Result

3.1. Learning Management System (LMS)

Before the 2019 pandemic, Unhas followed the direction of the Directorate General of Higher Education so that the learning system was carried out using the blended learning method, which is a combination of offline and online learning methods. Every university is required to implement at least 70% offline learning and 30% online learning. Initially, it was assumed that Unhas would be easier to run this blended learning program considering that since 2006 it has been managed learning programs using the Unhas Learning Management System (LMS) application which at the end of 2019 was called SIKOLA.

The problem is, the Unhas' LMS program as well as when it became SIKOLA was voluntary and only followed by interested lecturers. Through the Quality Assurance and Educational Development Unit, Unhas carries out training programs using LMS in the teaching and learning process. Lecturers are guided through training to prepare online learning materials and processes. Program participants who can complete the training are given a grant of 10 million rupiahs. On March 10, 2020, Unhas' Rector made SIKOLA the official application that must be used for online learning. When the WFH policy was implemented on March 16, 2020, SIKOLA collapsed. Simultaneously, all Unhas lecturers used the teleconference menu. As a result, Unhas' internet capacity and SIKOLA's servers were unable to serve the surge in users from 1,200 to 10,000 users.

In the face-to-face learning process, all learning materials and instructions can be given and carried out with direct interaction in the classroom. Although the learning process can also be done online through digital technology, this is only aimed at enriching learning methods. In contrast to web-based online learning, where there is no direct interaction. All materials, instructions, learning outcomes and evaluations are sent from lecturers to students and vice versa via the LMS platform. All digital communication processes take place only online. The problem that arises when online learning is no longer done voluntarily, but as an obligation during a pandemic.

Lecturers of higher education in Indonesia, including the Department of Architecture, Unhas, generally do not consider learning management important. Quite a lot of people assume that the learning process only includes lectures every week, tests and evaluations. Not many refer to learning quality management standards such as curriculum determination, implementation, evaluation, control, and improvement, or Plan, Doing, Check, and Action (Junaedi, et al., 2020:83; Firdaus, et al., 2021:60). Lecturers do not want to be preoccupied with matters that are considered administrative matters, including learning management. In online learning, all user interactions are carried out through machines. Learning materials and instructions are stored on the LMS server. The stages of learning instruction from the beginning to the end of the learning process for virtual classrooms are regulated by a system created by the lecturer.

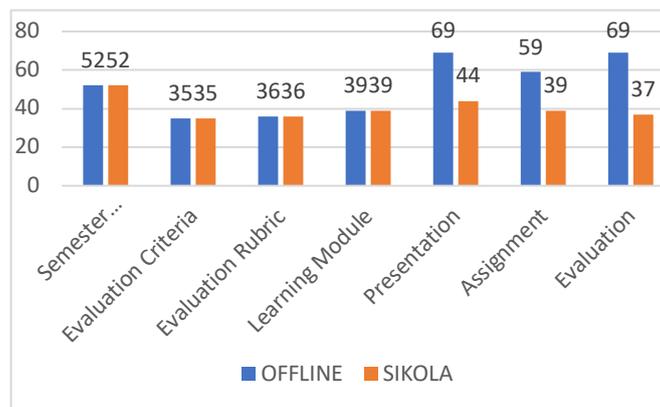


Figure 1: The difference in the number of learning materials and instructions available offline and at SIKOLA

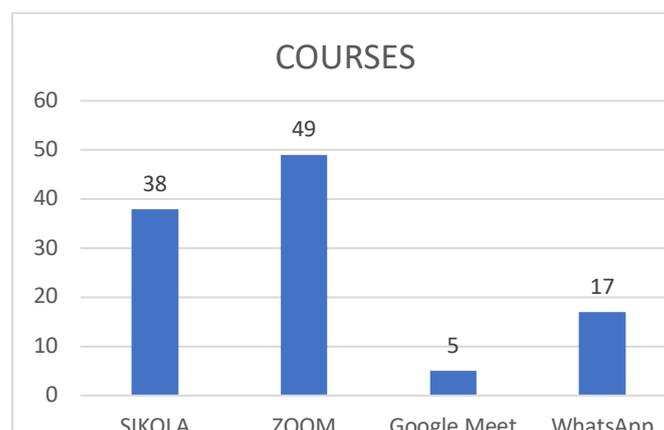


Figure 2: Use of communication media by courses

The stages of learning instructions cannot be made if the lecturer does not have learning materials according to the learning objectives. This situation makes many lecturers complain and are frustrated because they are not able to carry out the LMS model learning process. They choose to run lectures using non-LMS models such as ZOOM, Google Meet or WAG, which do not regulate the learning process in detail. Figure 1 shows the difference in the number of learning materials and instructions owned by the offline and online courses. Figure 2 shows the number of courses and learning communication media used. It can be seen that most of the courses use ZOOM communication media. How many courses use more than one communication medium.

3.2. Design Studio

All studio-based design courses use Problem Based Learning. This learning model involves students actively solving contextual problems, both collaboratively and independently to get relevant learning experiences according to their individual needs (Dolmans, 2005; Yew & Goh, 2016) Before the pandemic, design courses were managed using the blended learning method. The whole process of integrated design courses is carried out in the studios with a capacity of 40-50 people. Students learn to design accompanied by a team consisting of 3-4 lecturers from various interests who support their respective course outcomes. During lectures, group discussions were held in the studio and continued asynchronously at the SIKOLA discussion forum.

At the end of each lecture, student exercises are uploaded to the in-text assignment menu linked to the Google Drive application. Lecturers evaluate and rate these assignments and present the results on the same menu before the next week's lecture period. Thus, lecturers and students can find out the development of learning quality in stages, from the beginning to the end of the course process. Table 1 shows the learning process for design studio courses before the pandemic. Table 2 shows the learning process of design studio courses during a pandemic.

During the pandemic, students from out of town returned to their respective hometowns. Not all student residence locations have adequate internet access, even though the studio learning process can only be done online. The lecturer team tried not to use the synchronous method by video conference such as ZOOM or Google Meet, because of the assumption of difficulty and expensive internet access. Although quite a lot of students prefer the learning method using video conferencing applications, far more complaints about the internet costs are too expensive.

The studio activity begins with the synchronous presence of a lecturer team and students in the chat menu. The team of lecturers conveyed the results of the learning assessment last week and the Sub-Course outcome in the current week. Next, students design their projects at home. During the week group discussions asynchronously at the SIKOLA discussion forum. If the results of the assessment are deemed unsatisfactory, then a virtual face-to-face meeting is conducted using the ZOOM video meeting.

Table 1: Learning Process of Design Studio Courses Before the Covid-19 Pandemic

	LECTURES	OFFLINE					SIKOLA							
		L	P	S	D	A	E	L	P	S	D	A	E	
1	Architectural Composition	√	√		√	√		√						√
2	Technical Presentation & Graphical Communication	√	√		√	√	√							
3	Architecture Design Studio 01	√		√		√		√			√	√	√	
4	Architecture Design Studio 02	√		√		√		√			√	√	√	
5	Architecture Design Studio 03	√		√		√		√			√	√	√	
6	Architecture Design Studio 04	√		√		√		√			√	√	√	
7	Architecture Design Studio 05	√		√		√		√			√	√	√	
8	Interior Design Studio	√		√	√	√	√	√			√	√	√	
9	Advanced Interior Design Studio	√		√	√	√	√	√			√	√	√	
10	Landscape Design Studio	√		√	√	√	√							
11	Furniture Design	√		√	√	√	√							
12	Color Composition	√	√			√	√	√			√			√
13	Final Project Workshop	√		√		√	√	√			√	√	√	
14	Design Conceptual	√		√		√	√				√	√	√	
15	Final Project Studio	√		√		√	√				√	√	√	

L : Lecture, P :Practicum, S :Studio, D: Discussion, A: Assignment, E: Evaluation

Table 2: Learning Process of Design Studio Courses During the Covid-19 Pandemic

	COURSES	OFFLINE					SIKOLA							
		L	P	S	D	A	E	L	P	S	D	A	E	
1	Architectural Composition							√	√			√	√	
2	Technical Presentation & Graphical Communication							√	√					
3	Architecture Design Studio 01							√		√	√	√	√	
4	Architecture Design Studio 02							√		√	√	√	√	
5	Architecture Design Studio 03							√		√	√	√	√	
6	Architecture Design Studio 04							√		√	√	√	√	
7	Architecture Design Studio 05							√		√	√	√	√	
8	Interior Design Studio							√		√	√	√	√	
9	Advanced Interior Design Studio							√		√	√	√	√	
10	Landscape Design Studio							√		√		√		
11	Furniture Design							√		√		√		
12	Color Composition							√	√		√	√	√	
13	Final Project Workshop					√	√	√	√	√	√	√	√	√
14	Design Conceptual					√	√	√	√	√	√	√	√	√

15 Final Project Studio

√ √ √ √ √ √ √ √

L : Lecture, P : Practicum, S :Studio, D : Discussion, A: Assignment, E : Evaluation

Ana, a fourth semester student who lives on one of the islands in Maluku Province, always has difficulty accessing the internet network when the meeting is held in the morning. As a result, he was unable to attend several courses synchronously, which had an impact on the achievement of the results of these courses. Her academic advisor contacted Ana's mother to get information about Ana's learning environment where she lives. The internet network in that location is indeed low capacity. Accessibility is increasingly difficult because during school hours, all students and students use the limited internet access. The burden of internet costs is not an easy thing for Ana's mother, who is a single parent with three children and a niece of school age. When participating in learning with the ZOOM application, each child must be provided with internet costs worth RP. 20,000/lecture. This means that if each child takes five courses/week, Ana's mother must provide a credit fee of RP. 400,000/week or RP. 1,600,000/month. This is not a cheap for Ana's mother who works as a government staff.

The obstacles in joining a design studio with online learning methods are not only experienced by students who live in small towns. Idei from Japan, a second semester student from an international class also experienced the same thing. Idei had no problem with the capacity of the internet network, but with the method of communication. He is familiar with oral communication through the audio-video application and is weak in written communication. Whereas both synchronous and asynchronous methods use written communication. Ahmad has obstacles when communicating non-physically. He begged to be given the opportunity to study offline, but the campus at that time was still in a lockdown state.

To overcome the obstacles faced by some students, the academic advisors coordinate with the lecturers who are in charge of the courses. Ana was given the opportunity to get special guidance using social media communication other than SIKOLA outside of the class schedule. This is has been done for several weeks until it is able to achieve the desired minimum learning outcomes. Idei, Ahmad and several other students who have problems were given special guidance for several days using the ZOOM application. They were also welcome to the archives of synchronous and asynchronous meetings stored in the chat and discussion forum menu at SIKOLA. This method is very helpful for these students to achieve the minimum competence in design courses.

It is a proud thing for the class of 2020 students who have never entered and studied on campus. Around 60% of them live around campus and Makassar. They make study groups with the guidance of senior students through face-to-face meetings. When the Unhas' Rector recommended that educational institutions carry out limited face-to-face lectures, they immediately registered as participants. Dewi, Nurul, and Tuti, 3 (three) students from North Luwu told how from the small town where they lived they went to Gowa and looked for a place to live around campus. Since the beginning of university, they have never studied face-to-face on campus. They entered the architecture student organization and met with seniors through the WhatsApp Group media. From here, they then set up study groups and are mentored by their seniors. Every time they have a problem while studying online, they immediately contact their seniors to clarify the problems they are facing.

What was experienced by Dewi, Nurul, and Tuti shows Linton's view (Linton, 2010:32), that knowledge is a culture that is owned by a certain member of society. This culture is applied and passed down from generation to generation. Dewi, Nurul, and Tuti inherited the learning culture from their seniors as the previous generation of students before them. Their seniors teach what they have experienced during their time as students to new students to follow. Thus, the new students get the convenience of going through the path that has been traversed by their seniors.

3.3. Final Project Studio

Final Project activities include Final Project Workshop (FPW), Design Conceptual (DC), and Final Project Studio (FPS), which are carried out for 3 (three) months each with a total time of 9 (nine) months. Before the pandemic, all of these activities were carried out every working day in the studio and recording activities on SIKOLA. Between these schedules, students collect data at the project location and meet with participants/informants related to their respective project topics. During the pandemic with the lockdown policy, all final project processes must

also be done online. Consultations, progress evaluation stages, and student project final seminars by supervisors and/or examiners are carried out in group discussions at the SIKOLA forum. The Head of the Design Laboratory prepares a thread for each stage, where students meet synchronously or asynchronously with supervisors, examiners, and/or seminar participants.

The final project has one stage that students must pass before the final exam, namely public exhibitions and seminars. This exhibition and public seminar are the core events of the final project. Students exhibit their final project designs openly for three days. The exhibition was closed with a public seminar. Because they are public in nature, these exhibitions and seminars are usually held in the Department of Architecture hall which can be accessed by anyone. For students, the final project exhibition and public seminar are sacred events that test their ability to publish their designs in front of the public. WFH makes them miss this moment. The exhibition event was transferred to a student blog which is also public. Students are required to invite as many observers as possible to visit and comment on their final project design. The SIKOLA website was not chosen as an exhibition medium for security reasons and can only be accessed by a limited number of people. Public seminars are held synchronously through the SIKOLA forum which cannot be attended by non-Unhas participants. Figure 3 shows an exhibition and a seminar conducted before the pandemic in the Department of Architecture Hall. Figure 4 shows an exhibition held during a pandemic on a student blog.



Figure 3: Final project exhibition and public seminar before the pandemic at the Department of Architecture Hall.

Source: Triyatni Martosenjoyo

Indoor Skatepark In Bandung

👤 Bisma Anggara 📅 July 25, 2020 📁 Uncategorized

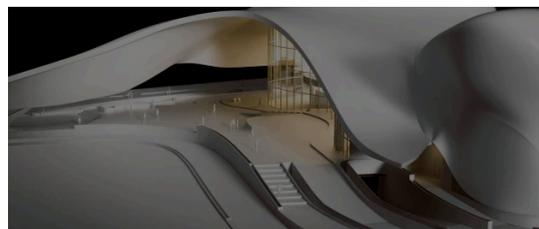


Figure 4: Final project exhibition during a pandemic on student blogs

Source: Rahman (2020)

Losing the opportunity to take part in sacred exhibitions and public seminars, makes students wait for the final exam to be held offline. They want to have the experience of defending their work to be tested through physical encounters. While they were taking their exams, their friends waited in the hall carrying flower arrangements, chocolates, and undergraduate sashes. All experiences that are perceived as beautiful are expected to be nostalgic when they become alumni. During the pandemic, this examination event is carried out under strict health protocols. Examining students and lecturers wear masks, keep their distance and do not make physical contact.

Nostalgia not only helps increase self-esteem and is positively correlated with a sense of meaning in one's life, it also provides a sense of support or connect with someone (Routledge, 2015). Nostalgia is connected with memory. Memory is the brain's ability to encode, store, and retrieve data or information when needed. Storage of information over time for the purpose of influencing future actions (Sherwood, 2015). In the case of the final project exam, nostalgia is related to the memory of the final project exam, including the desire to remember things related to the preparation and exam process, the lecturer who tested, the questions that were assessed, graduation announcements, to congratulations from friends.

3.4. WFH is A Holiday

The shocking WFH started in March 2020, students were asked to return to their respective homes and study using the online learning method. Some lecturers lost track of their students because the location where the students lived did not have adequate internet access. Research related to online learning states that there are difficulties in

managing the boundaries between working and not working (Christine, et al. 2019). Lecturers of the Department of Architecture realize that interaction and communication between lecturers and students are no longer bound by working time limits, especially for asynchronous methods. Both lecturers and students must be on standby to connect with computers so they don't have trouble and miss the latest information (Palloff & Pratt, 2009:71-72). Discussions can drag on because the opportunities for students to give each other feedback are wide open. This is very positive for students to get a diverse learning experience.

Online learning involves several foreign students from several countries on the African continent which have a five hour time difference with Makassar. Naef, for example, still conducts consultations with lecturers until 24.00 Makassar Times, because in his country it is only 19.00 Yemen Times. This has been realized by lecturers who have to adapt to changes in learning culture not only without space limits, but also without time limits. They feel quite excited and happy to get an intensive learning communication experience compared to offline learning. Although working online reduces the boundary between work time and family time, WFH provides positive and life satisfaction and increases Work Life Balance (WLB) for families (Vyas & Butakhieo, 2021). There seems to be a very contrasting difference in the meaning of online learning among those who are willing to work beyond formal working time and those who make formal work time a vacation.

What is surprising is that quite a number of lecturers and students consider that period as a holiday period. They do not prepare the time and space for learning according to the specified schedule. It is common to find lecturers and students who only use smartphones when learning. They can even do it while driving a car or while in the garden in their respective hometowns. As it is known that lectures in the Architecture Study Program require writing equipment and drawings that are placed on a work desk with adequate dimensions. Not just attending lectures using a smartphone. Through activities on social media, it is also seen that quite a lot of lecturers do not focus on one lecture event. Simultaneously, they can attend various online events, such as various webinars.

Batara, a sixth semester student who lives in Toraja never been able to attend meetings and enter assignments as scheduled. He put forward various reasons related to the funeral ceremony of several members of his family in Toraja. This ceremony takes a long time which cannot be adjusted to the study schedule. For Batara, it was impossible for him to refuse to attend various ceremonies because his family thought that he was in his hometown. What happened to Batara was also experienced by some of his friends. Because they think that lectures are only conducted online, it means that they are allowed to attend family events such as weddings, circumcisions, *aqiqah*, and other traditional events. They can also help parents in the garden while studying by activating their smartphones.

Batara's case shows that online learning that is done voluntarily as independent learning seems to be different from online learning because it is situational which is forced to be done due to the pandemic. The freedom of student learning without face-to-face supervision is interpreted as an activity that is not noticed by their lecturers. Users of online systems perceive that they interact with hardware, software, processes, and each other. They can protect themselves from being detected with various protection systems provided by impenetrable applications (Palloff & Pratt, 2009:90-91).

3.5. Coordination

During the Covid-19 pandemic, several studio courses were in demand by students participating in the MBKM Program. Coordination between universities does not regulate in detail the limits and conditions of the course's participants causing chaos in implementing. For example, the Final Project Workshop course, which was aimed at sixth semester students, turned out to be of great interest to first semester students from partner universities. Program participants also arrange class schedules according to the schedule at their home universities, which are usually 3-4 weeks different from the schedule for their study destination universities.

Students participating in the MBKM Program also consider that they are not required to follow the entire learning process and only visit course sites, download available learning materials and instructions. This condition greatly disrupts the learning process of subjects that use group strategies and techniques. In addition, it creates a negative

view for study program leaders who think that their learning materials and instructions are being targeted by predators through MBKM Program participants.

Things are different for Rima, who is also a participant in the MBKM Program. He took courses in Advanced Landscape Design Studio. Since the beginning of the course, Rima has been very active and has followed all the learning materials and instructions accessed through SIKOLA. She did not ask for a dispensation as a guest student. He joined other students participating in courses from Unhas. This condition shows that Wulan is aware of herself as an independent learner to manage the courses she takes outside of her university.

Humans are creatures who have rights, think, speak and act freely as they wish, without any form of threat (Issa, 2019). He knows, responsible, and a real connoisseur of competence and performance. Humans have freedom of will, make choices, and are responsible for their actions. Free will means regulated will. All intentional actions with knowledge, freedom, and responsibility will be beneficial and not detrimental, for the purpose of improving the quality of life (Bhatt, 2018). In the state of acting freely, it is always attached with responsibility. There is no free action without responsibility for the purpose of producing real performance.

Rima uses the MBKM Program as a conscious cross-college learning freedom through an online learning process. He is responsible for all actions that are a consequence of her choice to become an independent learner outside his campus. He manages her own learning needs by following all the learning processes so that he can get and enjoy the results of her performance. It is very different from students who take online learning because of the pandemic conditions that require it and consider it a vacation opportunity. It is also different from students who take part in the MBKM Program who do so simply because of the encouragement of the institution.

4. Discussion

Distance learning which has evolved due to the development of information technology has directly changed the learning culture from informal to formal accredited. With the online system, the student learning environment is wide and large open. Online learning opens up independent opportunities for students to manage their learning space and time flexibly according to their respective conditions. This condition requires students to be able to be responsible for managing their learning independently.

The pandemic situation makes it clear that future education is no longer tied to face-to-face physical encounters. LMS that regulates the stages of learning requires the readiness of learning materials and instructions that can be accessed at any time and not only during class meetings. The use of various communication media demands the skills of lecturers and students to communicate verbally, written, and visually. Unlimited learning space and time make communication between lecturers and students happen continuously outside of formal working.

Online learning requires the support of the latest information technology, which is still expensive and cannot be enjoyed by all people in locations/regions in developing countries such as Indonesia. The pandemic condition is quite surprising for students because of the additional burden that must be borne for internet fees. Availability and equitable access and quality of affordable internet and a prerequisite for successful online learning cannot be delayed.

References

- Abidah, A., H. N. Hidaayatullaah, R. M. Simamora, D. Fehabutar, and L. Mutakinati. 2020. "The Impact of Covid-19 to Indonesian Education and Its Relation to the Philosophy of "Merdeka Belajar". *Studies in Philosophy of Science and Education* 1 (1):38-49.
- Bhatt, S. R. 2018. "Freedom and Responsibility." *Journal of Indian Council of Philosophical Research* (Springer) 35:585-602.
- Burgess, Simon, and Hans Henrik Sievertsen. 2020. *Schools, Skills, and Learning: The impact of COVID-19 on Education*. April 1. Accessed August 31, 2021. <https://voxeu.org/article/impact-covid-19-education>.

- Grant, Christine Anne, Louise M. Wallace, Peter C. Spurgeon, Carlo Tramontano, and Maria Charalampous. 2019. "Construction and Initial Validation of the E-Work Life Scale to Measure Remote e-Working." *Employee Relations* (Emerald Publishing) 41 (1):16-33.
- Corbeil, Joseph Rene, and Maria Elena Corbeil. 2015. "E-learning Past, Present, and Future." In *International Handbook of E-learning, Volume 1 Theoretical Perspectives and Research*, edited by Badrul H. Khan and Mohamed Ally, 51-64. London: Routledge.
- Cross, Jay. 2004. "An Informal History of eLearning." *On the Horizon* (Emerald Group Publishing Limited) 12 (3).
- Direktorat Jenderal Pendidikan Tinggi - Kementerian Pendidikan dan Kebudayaan. 2020. *Mengenal Merdeka Belajar - Kampus Merdeka*. Jakarta: Direktorat Jenderal Pendidikan Tinggi Kementerian Pendidikan dan Kebudayaan.
- Dolmans, Diana H. J. M., Willem De Grave, Ineke H. A. P. Wolfhagen, and Cees Van der Vleuten. 2005. "Problem-Based Learning: Future Challenges for Educational Practice And Research." *Med Educ.* 39 (7):732-741.
- Firdaus, Erwin, Ramen A. Purba, Iskandar Kato, Sukarman Purba, Novita Aswan, Karwanto, and Dina Chamidah. 2021. *Manajemen Mutu Pendidikan*. Yayasan Kita Menulis.
- Garnesia, Irma. 2020. *Tirto.Id*. February 19. Accessed September 30, 2021. <https://tirto.id/ketika-indonesia-tidak-kebal-covid-19-ez18>.
- Henderson, Euan S. 1984. "Introduction: Theoretical Perspectives on Adult Education." In *Independent Learning in Higher Education*, edited by Euan S. Henderson and Michael B. Nathenson. New Jersey: Educational Technology Publications.
- Issa, Theodora. 2019. "With Freedom Comes Great Responsibility." *Australian Journal of Professional and Applied Ethics* 19 (2):10-12.
- JSTOR Daily. 2020. *JSTOR daily*. April 13. Accessed September 30, 2021. <https://daily.jstor.org/three-centuries-of-distance-learning/>.
- Junaedi, Aris, Dewi Wulandari, Syamsul Arifin, Hendrawan Soetanto, Sri Sunning Kusumawardani, Sri Peni Wastutiningsih, Made Suparta Utama, et al. 2020. *Panduan Penyusunan Kurikulum Pendidikan Tinggi di Era Industri 4.0 untuk Mendukung Merdeka Belajar-Kampus Merdeka*. Direktorat Pendidikan Tinggi, Kementerian Pendidikan Tinggi dan Kebudayaan.
- Linton, Ralph. 2010. *Cultural Background Personality*. Abingdon: Routledge.
- Mckendry, Stephanie, and Vic Boyd. 2012. "Defining the "Independent Learner" in UK Higher Education: Staff and Students' Understanding of the Concept." *International Journal of Teaching and Learning in Higher Education* 24 (2): 209-220.
- Meyer, Bill, Naomi Haywood, Darshan Sachdev, and Sally Faraday. 2008. *What is independent learning and what are the benefits for students?* London.
- Mota, Ronaldo, and David Scott. 2014. *Education for Innovation and Independent Learning*. Amsterdam: Elsevier.
- Palloff, Rena M., and Keith Pratt. 2009. *Building Online Learning Communities*. San Francisco: John Wiley & Sons, Inc.
- Pokhrel, Sumitra, and Roshan Chhetri. 2021. "A Literature Review on Impact of COVID-19 Pandemic on Teaching and Learning." *Higher Education for the Future* 133-141.
- Pratiwi, Priska Sari. 2020. *Jokowi Himbau Masyarakat Bekerja dan Beribadah di Rumah*. March. Accessed September 30, 2021. <https://www.cnnindonesia.com/nasional/20200315141316-32-483586/jokowi-imbau-masyarakat-bekerja-dan-beribadah-di-rumah>.
- Rahman, Bisma Anggara. 2020. *Bisma Anggara Rahman*. July 25. Accessed September 30, 2021. <https://bismaanggara.wordpress.com/2020/07/25/tugas-akhir-studio-perancangan-arsitektur-ft-uh/>.
- Rahman, Ishaq. 2020a. *Universitas Hasanuddin*. February 430. Accessed October 2021. <https://unhas.ac.id/v2/article/title/kolaborasi-ptn-bh-untuk-merdeka-belajar-melalui-program-sasrabahu/>.
- Rahman, Ishaq. 2020b. *Universitas Hasanuddin*. February 19. Accessed October 30, 2021. <https://unhas.ac.id/v2/article/title/unhas-hadiri-peresmian-platform-program-merdeka-belajar-sasrabahu-untuk-12-ptn-bh/>.
- Ratriani, Virdita Rizki. 2020. *Jokowi Instruksikan Bekerja dari Rumah, Ini Arti Work From Home*. March 16. Accessed September 30, 2021. <https://www.kompas.com/tren/read/2020/03/16/195035165/jokowi-instruksikan-bekerja-dari-rumah-ini-arti-work-from-home?page=all>.
- Routledge, Clay. 2015. *Nostalgia: A Psychological Resource*. New York: Routledge.
- Sherwood, Lauralee. 2015. *Human Physiology: From Cells to Systems*. Boston, Massachusetts: Cengage Learning.
- Sleator, Roy D. 2010. "The Evolution of eLearning Background, Blends and Blackboard..." *Science Progress* 93 (3):319-334.
- SPADA Indonesia. 2021. *SPADA Indonesia*. September 22. Accessed October 30, 2021. <https://spada.kemdikbud.go.id/>.

- Springer. 2012. *Encyclopedia of the Sciences of Learning*. Edited by Norbert M. Seel. Accessed September 30, 2021. https://link.springer.com/referenceworkentry/10.1007%2F978-1-4419-1428-6_895.
- Stansfield, Mark, Thomas Connolly, Antonio Cartelli, and Athanassios Jimoyiannis. 2008. "The Development of Models for Identifying and Promoting Best Practice in E-Learning and Virtual Campuses." Edited by Dan Remenyi. *The Proceedings of the 7th European Conference on e-Learning, 5-7 November 2008, Agia Napa, Cyprus*. UK: Academic Conferences Ltd. 520-529.
- Universitas Terbuka. 2021. *Tentang UT*. Accessed September 30, 2021. <https://www.ut.ac.id/tentang-ut>.
- Verduin Jr., John R., and Thomas A. Clark. 1991. "Distance Education: The Foundations of Effective Practice." *Journal of Higher Education* (The Ohio State University Press) 279: 468-472.
- Vyas, Lina, and Nantapong Butakhieo. 2021. "The Impact of Working from Home During COVID-19 on Work and Life Domains: An Exploratory Study on Hong Kong." *Policy Design and Practice* (Taylor & Francis) 4 (1):59-76.
- Wedemeyer, Charles A., and Robert E. Najem. 1969. "AIM: From Concept to Reality. The Articulated Instructional Media Program at Wisconsin. Notes and Essays on Education for Adults, No.61." (Wedemeyer, et al.), University of Wisconsin.
- World Health Organization. 2020. *Archived: WHO Timeline - COVID-19*. April 27. Accessed September 30, 2021. <https://www.who.int/news/item/27-04-2020-who-timeline---covid-19>.
- Yew, Elaine H.J., and Karen Goh. 2016. "Problem-Based Learning: An Overview of Its Process and Impact on Learning." *Health Professions Education* 2 (2):75-79.



The Influence of Pop Up Notification on Visual Attention and Learning

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Abstract

The tutorial videos contain an explanation of a learning material taught to students. The use of tutorial videos is common during the COVID-19 pandemic. This situation makes the teachers change the learning model into a video conferences or tutorial videos. However, the use of tutorial videos is often accompanied by opening other applications in parallel causing pop-up notifications to appear. The pop-up notification makes students not focus on the material explained in the tutorial videos. This raises the question of whether it will affect the learning process in understanding the learning material. Therefore, this study aimed to explore the influence of pop-up notifications on tutorial videos. Eye movements of all participants (N = 50) were recorded when viewing tutorial videos on various operating systems with or without the pop-up notification. Based on the results, after being shown a tutorial videos with a pop-up notification, participants paid attention to the pop-up notification. However, there were no significant differences in learning outcomes of students after viewing tutorial videos with or without pop-up notification.

Keywords: Tutorial Video, Pop Up Notification, Eye Tracking

1. Introduction

The Industrial Revolution 4.0 has changed many aspects of human life, whether working, socializing, playing, or learning. Advances in information and communication technology make the use of technology enter various aspects of life, including in the field of education. The 21st-century learning process has the responsibility to develop 4C learning skills, namely Collaboration, Communication, Creativity, and Critical Thinking (Pertiwi & Rizal, 2020). The 21st-century learning challenge is to integrate knowledge-based learning processes with ICT skills (Information and Communication Technology) and scientific skills. Therefore, teachers are required to have

skills in creating effective and creative learning processes through technology-based interactive learning media (Hafizah, 2020).

Technology-based interactive learning media combines several elements such as text, sound, graphics, images, and videos into a single unit to attract interest in understanding learning materials (Bustanil S et al., 2019). One of the technology-based interactive learning media is tutorial videos. Video-based learning has great benefits in influencing the future of the learning process to provide a place for students (Giannakos et al., 2014). The use of video supports student-centered learning so that it can be performed anywhere, in the classroom or at home, and at any time.

The Covid-19 pandemic has made tutorial videos a solution in the learning process by requiring new, active, and constructive learning media. The use of tutorial videos has several weaknesses such as duration and pop-up notifications. Duration is very influential on understanding the learning material. According to (Guo et al., 2014), the ideal duration for tutorial videos is 6 – 9 minutes because, in that time span, the involvement of students towards tutorial videos was very high (around 75%). Short tutorial videos with good quality learning material require careful planning to design the concept in a concise and planned manner. Furthermore, the weakness of tutorial videos is the pop-up notification. This happens if students simultaneously open the application so that a pop-up notification appears when watching the tutorial videos making the attention breaks.

However, studies related to the effectiveness of tutorial videos are mostly based on conventional methods by relying on answers from participants such as interviews or filling out questionnaires. In fact, even if the questions have been structured in such a way, the potential for bias could occur due to the potential for faking good (Fairuz Izdihar et al., 2019) or a condition in which participants gave inaccurate answers during interviews or filled out questionnaires due to various reasons, such as efforts to maintain self-image. Therefore, to minimize the potential for bias and increase objectivity, it is necessary to consider the use of technology such as human eye trackers. Through infrared rays emitted into the eye and reflected back to the instrument (Okuyama et al., 1990), the human eye tracker can be an alternative to assess eye response when viewing tutorial videos.

Real-time visual attention analysis such as eye movement, viewing duration, frequency of eyes looking back at the same area, and so on can also be performed (Reingold, 2014). The use of an eye tracker as an evaluation tool is able to accommodate human behavior to improve the interface appearance of various products and to increase understanding of human behavior (Diego-Mas et al., 2019). The eye tracker utilizes infrared sensors and cameras to track eye movement when viewing a display (Hessels & Hooge, 2019). This technology can detect focus and attention by tracking eye movement (Carter & Luke, 2020). Visual attention is automatic, besides being controlled by the human brain without realizing it, it can also be influenced by mental status (Van Eymeren, 2016). Therefore, it is very important to know the visual attention of students to a tutorial video and to detect interest and boredom towards tutorial videos.

2. Method

The participants of this study were Informatics Engineering students (N=50). Participants were divided into two groups, namely pop up notification (N=25) and non-pop-up notification (N=25) with several inclusion criteria namely not having a visual impairment, not wearing glasses, not wearing contact lenses, not color blind, not having strabismus, not having slanted eyes, and not wearing eyelashes.

In this study, participants were given a pre-test regarding the operating system based on the working process. Then, the data were collected using the Tobii Pro X2-30 HET (Human Eye Tracker). Participants were sitting on chairs in a relaxed condition with a distance of 60 – 70 cm from the monitor screen to their eyes. During recording, participants were asked to minimize head movement (Figure 1), while the room lighting was set not too bright or dim (Edison et al., 2021). Before recording, the HET instrument calibration was carried out to ensure the precision of the eye position against the object seen on the monitor screen. This study used a go/no-go experiment design (Fookan & Spering, 2019). During data collection, participants were shown a black screen for five seconds followed by a 10-minute learning video and closed again with a black screen for five seconds (Figure 2)..



Figure 1: Participants sit relaxed facing the monitor screen with a distance of 60-70 cm

Table 1: Screen Condition

Screen Condition with Pop-Up Notification	
Blank Space	2
Tutorial Video	1

Screen Condition With Pop-Up Notification	
Blank Space	2
Tutorial Video	1

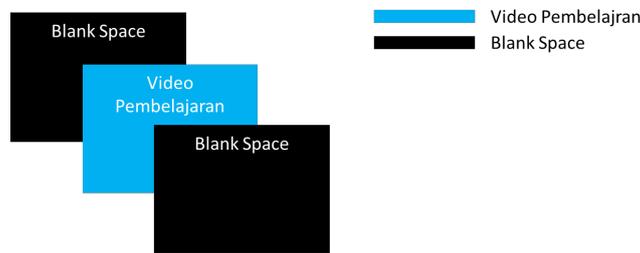
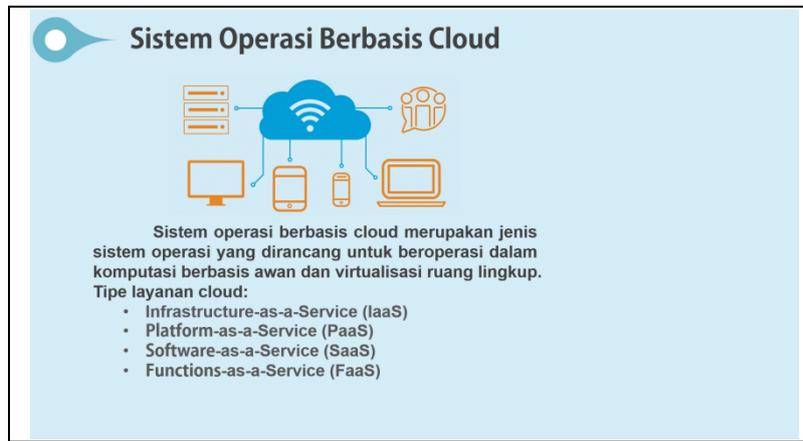


Figure 3: Go/no-go simulation

Table 2: Tutorial Video with and without Pop-Up Notification

Tutorial Video
Pop-Up Notification
No Pop-Up Notification



The stimulus used was in the form of tutorial videos on operating system courses with pop-up notifications and non-pop-up notifications for 10 minutes. In the stimulus, the Region of Interest was used to mark the object. The tutorial video with pop-up notification was divided into 2 ROIs namely the Learning area and Pop up area. While in the tutorial video without pop-up notification, ROI was only found in the learning area (Table 3). Furthermore, a post-test regarding the operating system and its working procedure was given.

Based on the pretest and post-test, each participant was given 10 points if the answer was correct on each question, and 0 points if the answer was wrong on each question. Data underwent T-test analysis using IBM SPSS 28. HET results were analyzed using Tobii Pro Studio to obtain a gaze plot and time to first fixation (3.4.8).

Table 3: ROI of Tutorial Video with and without Pop-Up Notification

ROI of Tutorial Video	
Pop-Up Notification	
	<p>→ Learning Area</p> <p>→ Pop Up Notification</p>
No Pop-Up Notification	
	<p>→ Learning Area</p>

3. Results

There were 50 participants following the overall recording procedure. The procedure starts with explanation, calibration, and simulation. The time required by each participant to complete the entire process was approximately 45 minutes. 50 participants were divided into two groups; Pop-Up Notifications and Non-Pop-Up Notifications.

Table 4: Shapiro-Wilk Normality Test

Pop-Up Notification Group	Non Pop-Up Notification Group
Pretest	Pretest
Statistics= 0.929, p=0.081	Statistics= 0.912, p=0.034
Sample follows Gaussian (fail reject H0)	Sample does not follow Gaussian (reject H0)
Post-test	Post-test
Statistics= 0.955, p=0.321	Statistics= 0.928, p=0.078
Sample follows Gaussian (fail reject H0)	Sample follows Gaussian (fail reject H0)

Table 3 shows the results of the Shapiro-Wilk Normality Test on pre and post-test of pop-up notification and non-pop-up notification groups. If the significance value (p) in the Shapiro-Wilk test ≥ 0.05 , the data were normally distributed. Based on these tests, the results obtained from each group, pretest of pop-up notification group had $p=0.081$ showing no significant influence of pop-up notification on learning outcome with normal distribution. Pretest of non-pop-up notification group had $p=0.034$ showing the significant influence of pop-up notification on learning outcome and the data were not normally distributed. Post-test of pop-up notification group had $p=0.321$ and non-pop-up notification had $p=0.078$ showing no significant influence of pop-up notification on learning outcome with normally distributed data.

Table 5: T-test analysis

No	Data 1	Data 2	Result	Abs(t_stat) <= cv	p > alpha
1	Pretest of Pop-Up Notification Group	Pretest of Non Pop-Up Notification Group	t = -0.200	True	True
			p = 0.843		
			df = 24		
			cv = 1.711		
2	Post-test of Pop-Up Notification Group	Post-test of Non Pop-Up Notification Group	t = 0.529	True	True
			p = 0.602		
			df = 24		
			cv = 1.711		

T-test analysis showed that the pretest result of pop-up notification and non pop-up notification groups was 0.843, while the post-test was 0.602 meaning no significant influence on learning outcome (Table 4).

Table 6: Gaze Plot and Time To First Fixation

Pop-Up Notification		No Pop-Up Notification	
Gaze Plot		Gaze Plot	
Pop Up Notification		No Pop Up Notification	
Time To First Fixation		Time To First Fixation	

Furthermore, based on HET analysis, the time to first fixation matrix showed the time it took respondents (or the average of all respondents) to see the regio of inters. Of the 9 pop-up notifications, 8 notifications were seen directly by participants when they appeared. The gaze plot on the pop-up notification can see the order of the eye movement, when the pop-up notification appears, the gazes go directly to the pop-up, then switch to the learning area. This is evidenced by the time to first fixation matrix showing that participants see the pop-up notification before the learning area. Then in the non-pop-up notification group, gaze plot and time to first fixation matrix showed that participants were more focused on learning areas than outside the learning area (Table 5). This proves

that when the pop-up notification appears, participants go directly to the pop-up notification, although only for a moment but when compared with the results obtained from the post-test, participants who saw tutorial videos with pop-up notifications had an influence, but when compared to the pretest with the non-pop-up notification group, both did not show significant results. This shows that pop-up notifications had no significant influence on learning outcomes.

4. Discussion

This study was carried out on Informatics Engineering students who have never taken an operating system course. All participants followed the overall study procedure from pretest, tutorial videos, and post-test.

The students were shown tutorial videos with pop-up notifications. Based on the t-test on pre and post-test, the pop-up notification had no significant influence on learning outcome. Then, the first thing participants saw was a pop-up notification. However, the duration and frequency of seeing pop-ups are low. As with Gaze-Plot, from 9 pop-up notifications displayed, 8 pop-up notifications were seen immediately when they appeared and only 1 pop-up notification was not seen immediately. Furthermore, in the gaze plot analysis, one - three times the initial eye movement of the participants looked at the pop-up notification. While the rest was focused on the area in the pop-up notification. Specifically, the data showed that the time duration when the notification was shown simultaneously with the tutorial videos, eye-stopping when viewing the pop-up area was faster than viewing the learning area. This phenomenon is in line when comparing the visual attention of students when shown tutorial videos showing instructors without showing instructors where participants tend to stare more at the face than the material. This makes the participants not focus on the material presented (van Wermeskerken et al., 2018).

The eye tracker is used as an instrument to analyze online learning during the covid-19 pandemic. On average, students are given material through video tutorials. The eye tracker can find out what things can be annoying if given a video about learning materials. Unlike the case with questionnaires or interviews where someone has the opportunity to think about the answers given, in other words, someone can determine actions consciously, while visual attention is automatic or done unconsciously. This phenomenon occurs when viewing an object, making visual attention analysis using human eye tracker applicable in various fields such as advertising, where the visual attention of consumers when viewing an advertisement becomes the input for the development of new types of advertisements. (Punde et al., 2017). In addition, the human eye tracker can also be used to find out what smokers see when images of cigarette packs are displayed, where smokers tend to focus on cigarette brands, while non-smokers focus more on health graphic warning images. (Edison et al., 2021).

Visual attention such as eye movement, viewing duration of an object, the number of blinks of the eye is automatic without being aware of it by the brain or psychologically. With this human eye tracker technology, psychological phenomena in a person when shown an image also have the potential to.

When shown tutorial videos through the monitor, participants focus more on the pop-up notification than on the learning area but only for a moment. Therefore, this study shows that running the application simultaneously while watching the tutorial videos then displays a pop-up notification generated by the application showing no significant influence. In the future, it is possible to compare the location of the pop-up position on the bottom right with appearing in the middle of the monitor layer. Short tutorial videos with good quality learning material require careful planning to design the concept in a concise and planned manner.

5. Conclusion

After being shown a tutorial videos with a pop-up notification, participants paid attention to the pop-up notification, but only for a moment and then back to the learning area. This is confirmed by pretest and post-test results using t-test analysis. There were no significant differences in learning outcomes of students after viewing tutorial videos with or without pop-up notification participants. It is still recommended to turn off notifications when doing online learning so that students can focus on learning in accordance with the basic competencies achieved.

References

- Batubara, H. H., & Ariani, D. N. (2016). Pemanfaatan Video sebagai Media Pembelajaran Matematika SD/MI. *Muallimuna : Jurnal Madrasah Ibtidaiyah*, 2(1). <https://doi.org/10.31602/muallimuna.v2i1.741>
- Bustanil S, M., Asrowi, & Adiinto, D. T. (2019). Pengembangan Media Pembelajaran Interaktif Berbasis Video Tutorial Di Sekolah Menengah Kejuruan. *JTP - Jurnal Teknologi Pendidikan*, 21(2). <https://doi.org/10.21009/jtp.v21i2.11568>
- Carter, B. T., & Luke, S. G. (2020). Best practices in eye tracking research. *International Journal of Psychophysiology*, 155. <https://doi.org/10.1016/j.ijpsycho.2020.05.010>
- Diego-Mas, J. A., Garzon-Leal, D., Poveda-Bautista, R., & Alcaide-Marzal, J. (2019). User-interfaces layout optimization using eye-tracking, mouse movements and genetic algorithms. *Applied Ergonomics*, 78. <https://doi.org/10.1016/j.apergo.2019.03.004>
- Edison, R. E., Anisa, Y. H., & Fauzy, F. R. (2021). Analisis Atensi Visual Perokok dan Non Perokok berbasis Human Eye Tracker terhadap Gambar Peringatan Kesehatan pada Bungkus Rokok. *Jurnal Kesehatan Masyarakat Andalas*, 15(2). <https://doi.org/10.24893/jkma.v15i2.656>
- Fairuz Izdihar, D., Ravi Fauzi, F., Ayu Aguspa Dita, D., Putri Aransih, M., Prawiroharjo, P., Risman, E., & Edmi Edison, R. (2019). *Faking Good Among Porn-Addicted Adolescents*. <https://doi.org/10.32698/25251>
- Fookan, J., & Spering, M. (2019). Decoding go/no-go decisions from eye movements. *Journal of Vision*, 19(2). <https://doi.org/10.1167/19.2.5>
- Giannakos, M. N., Chorianopoulos, K., Ronchetti, M., Szegedi, P., & Teasley, S. D. (2014). Video-Based learning and open online courses. *International Journal of Emerging Technologies in Learning*, 9(1). <https://doi.org/10.3991/ijet.v9i1.3354>
- Guo, P. J., Kim, J., & Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. *L@S 2014 - Proceedings of the 1st ACM Conference on Learning at Scale*. <https://doi.org/10.1145/2556325.2566239>
- Hafizah, S. (2020). PENGGUNAAN DAN PENGEMBANGAN VIDEO DALAM PEMBELAJARAN FISIKA. *Jurnal Pendidikan Fisika*, 8(2). <https://doi.org/10.24127/jpf.v8i2.2656>
- Hessels, R. S., & Hooge, I. T. C. (2019). Eye tracking in developmental cognitive neuroscience – The good, the bad and the ugly. *Developmental Cognitive Neuroscience*, 40. <https://doi.org/10.1016/j.dcn.2019.100710>
- Okuyama, F., Tokoro, T., & Fujieda, M. (1990). Eye-tracking infra-red optometer. *Ophthalmic and Physiological Optics*, 10(3). <https://doi.org/10.1111/j.1475-1313.1990.tb00866.x>
- Pertiwi, A. A., & Rizal, F. (2020). Pengaruh Model Pembelajaran Problem Based Instruction Berbasis Collaboration, Communication, Creativity and Critical Thinking Terhadap Hasil Belajar Rangkaian Elektronika. *INVOTEK: Jurnal Inovasi Vokasional Dan Teknologi*, 20(1). <https://doi.org/10.24036/invotek.v20i1.665>
- Punde, P. A., Jadhav, M. E., & Manza, R. R. (2017). A study of Eye Tracking Technology and its applications. *Proceedings - 1st International Conference on Intelligent Systems and Information Management, ICISIM 2017, 2017-Janua*. <https://doi.org/10.1109/ICISIM.2017.8122153>
- Reingold, E. M. (2014). Eye tracking research and technology: Towards objective measurement of data quality. *Visual Cognition*, 22(3). <https://doi.org/10.1080/13506285.2013.876481>
- Risnawati, Amir, Z., & Sari, N. (2018). The development of learning media based on visual, auditory, and kinesthetic (VAK) approach to facilitate students' mathematical understanding ability. *Journal of Physics: Conference Series*, 1028(1). <https://doi.org/10.1088/1742-6596/1028/1/012129>
- Van Eymeren, M. M. (2016). Memahami Persepsi Visual: Sumbangan Psikologi Kognitif Dalam Seni Dan Desain. *ULTIMART Jurnal Komunikasi Visual*, 7(2). <https://doi.org/10.31937/ultimart.v7i2.387>
- Wang, J., Antonenko, P., Celepkolu, M., Jimenez, Y., Fieldman, E., & Fieldman, A. (2019). Exploring Relationships Between Eye Tracking and Traditional Usability Testing Data. *International Journal of Human-Computer Interaction*, 35(6). <https://doi.org/10.1080/10447318.2018.1464776>
- Zemblys, R., Niehorster, D. C., & Holmqvist, K. (2019). gazeNet: End-to-end eye-movement event detection with deep neural networks. *Behavior Research Methods*, 51(2). <https://doi.org/10.3758/s13428-018-1133-5>



Investigation of the Relationship Between the Two-Dimensional Self-Esteem Perceptions and Leadership Orientations of the Faculty of Sports Sciences Students

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Abstract

This research was carried out to investigate of the relationship between the two-dimensional self-esteem perceptions and leadership orientations of the students of the faculty of sports sciences. In this context, the relational survey model, which is consistent with the main purpose of the study, was used in this quantitative study. A total of 323 students, 125 females and 198 males at the Faculty of Sports Sciences of Bartın University constitute the sample of the research. Convenience sampling method, one of the non-probabilistic sampling approaches, was used in the selection of the research group. Questionnaire form was used as data collection tool and this form consisted of three parts. The first part includes the “Personal Information Form,” the second part includes the “Two-Dimensional Self-Esteem: Self-Liking/Self-Competence Scale” and the third part includes the “Multidimensional Leadership Orientations Scale.” The descriptive statistics of the raw data obtained through the questionnaire form were first calculated by considering the data type. Then, the reliability of the scales related to the obtained data were investigated, and the difference and correlation tests were used in the statistical evaluation. In this direction, it has been determined that there are significant correlations within the scope of age and family income level variables. However, there was no significant relationship within the scope of personal income level variable. On the other hand, it was found that there are significant differences in the scope of department and actively doing sports variables. However, it was observed that there were no significant differences in the scope of gender, grade, and place of residence variables. On the other hand, it was determined that there were positive and moderately significant correlations between the participants’ scores of self-liking and political leadership, human resources leadership, charismatic leadership and structural leadership. In addition, it was found that there were positive and moderately significant correlations between the self-competence scores of the participants and the scores of political leadership, charismatic leadership and structural leadership. On the other hand, it was understood that there was a statistically significant positive and low-level correlation between the participants’ self-competence scores and their human resources leadership scores. As a result, it can be said that as the self-esteem of the participants increases, their leadership orientation also increases. In this context, it can be said that increasing the self-esteem of the participants is an important concept in the context of leadership orientations.

Keywords: Self-Esteem, Leadership Orientation, Faculty of Sport Sciences

1. Introduction

The self is explained as a structure formed by the combination of values, goals and ideals by revealing the individual's behavior styles (Ozoglu, 2019). According to Koknel (1982), the self is formed by the coming together of the individual's opinions about himself/herself. The self is a subjective part of personality and is each individual's self-evaluation of who they are. The person tries to get to know his/herself by seeking answers to questions such as what his/her purpose, what he/she can do and what he/she values. Therefore, the self includes all the characteristics, value judgments, thoughts, beliefs, abilities, possibilities, goals and expectations of the individual and represents an unstable structure.

In its most general sense, self-esteem is defined as the extent to which an individual evaluates himself/herself positively (Kagıtcıbası, 2014). Self-esteem covers how the individual sees and evaluates himself/herself. That is, it constitutes the emotional side of the self-system. In addition, it is accepted that self-esteem is open to changes due to its relative nature (Gelbal et al., 2010; Tufan, 1990). Yorukoglu (1985) explains self-esteem as a state of appreciation that emerges when the individual accepts the self-image that he/she has reached based on his/her self-evaluations.

According to Coopersmith (1967), self-esteem is based on the evaluations that an individual makes and maintains about himself/herself, and its foundations are laid in the early stages of life. He stated that this means an attitude of approval or disapproval, as well as related to how talented, important and valuable the individual sees himself or herself. On the other hand, according to Rosenberg, self-esteem includes positive or negative attitudes towards the self. However, two different connotations emerge for self-esteem. These are (Rosenberg, 1965):

High self-esteem: There is a view that the individual is good enough. The individual feels that he/she is a valuable person, accepts himself/herself as he/she is and respects himself/herself. This situation should not be perceived as individuals expecting any admiration from others or as individuals seeing themselves as superior to others. Individuals with high self-esteem are aware of their skills, capacities and deficiencies, recognize their own limits, and constantly seek change, development and success.

Low self-esteem: It expresses the feelings and attitudes of the individual towards his/her self such as rejection, dislike, abstention and dissatisfaction. Individuals with low self-esteem have less self-confidence and self-esteem than those with high self-esteem. They are often unaware of their own abilities and capacities.

Self-esteem affects people's daily functioning and the way they perform tasks. Some studies have shown that those with higher self-esteem perform better when tasked and can perform well under pressure in a high-intensity situation (Baumeister et al., 2003; Smith et al., 2007). Studies have determined that there is a similar relationship between self-esteem and sports performance. Studies on self-esteem and sports have shown that doing sports has a positive effect on self-esteem (Bowker, 2006; Collins et al., 2018; Slutzky and Simpkins, 2009). In line with all these researches, it can be stated that sports will positively affect the self-esteem of the individual and will help to cope with the problems in life.

The concept that forms the other area of our research is leadership. The origin of the word leader comes from the Anglo-Saxon etymology "laed" and means way, direction. The verb form of the word "laeden" means to travel. Therefore, the leader; it can be defined as the person who guides the journey and guides other passengers during the journey (Kets de Vries, 2001).

To share a more concrete definition of the concept of leadership, "Leadership; it is the privilege of taking responsibility for different levels of authority to manage the actions of others for the purposes of organizations. The leader should be able to take responsibility for all initiatives, regardless of successful or unsuccessful discrimination, influencing the actions of others under any circumstances and guiding them (Roberts, 1988). In this context, Yukl compiled some of the leadership definitions in the literature and listed them as follows. Accordingly, leadership (Yukl, 2010);

- “the directing of the actions taken by the group towards a common goal.” (Hemphill and Coons, 1957)
- “it is an ascending influence within the organization and is more than a mechanical fit through routine instructions.” (Katz and Kahn, 1978)
- “the process of directing the actions of a group working together to achieve a goal.” (Rauch and Behling, 1984)
- “it is the process of giving meaning, direction and increasing willingness to joint efforts to achieve a goal.” (Jacobs and Jaques, 1990).

Yukl, who has important studies in the field of leadership, defined the Multidimensional Leadership approach as follows; “The Multidimensional Leadership Approach is a contingency theory based on the leader's determination of the appropriate leadership style according to the different developmental levels of the followers” (Yukl, 2010).

- Multidimensional Leadership Theory is based on the interaction of three basic concepts. These; The amount of directive given by the leader (task behavior exhibited by the leader),
- The amount of emotional support provided by the leader (relationship behavior exhibited by the leader),
- It is the level of development of the follower for a specific task (Hersey and Blanchard, 1988).

When the relevant literature was searched, no study was found that examined the relationship between two-dimensional self-esteem (self-liking and self-competence) and multi-dimensional leadership orientations (political leadership, human resources leadership, charismatic leadership, and structural leadership) in the context of the students of the Faculty of Sport Sciences. It is thought that the results to be reached in this direction will contribute to the relevant literature. In the light of all this literature, the purpose of the research is to examine the self-esteem and leadership characteristics of the students of the Faculty of Sport Sciences in terms of different demographic variables and to determine the relationship between self-esteem and leadership levels.

2. Method

2.1. Research Model

Survey studies generally aim to describe the current situation related to the subject of the research by photographing (Buyukozturk et al., 2020). In addition, survey researchers are generally more interested in how the characteristics and opinions are distributed among the participants in the sample, rather than why they originate (Fraenkel and Wallen, 2006). In this context, the relational survey model, which is consistent with the main purpose, was used in this quantitative study.

2.2. Population and Sample

The universe of the research consists of 1383 (427 females and 956 males) students studying at the Faculty of Sports Sciences of Bartın University in the Fall Term of the 2021-2022 Academic Year. In this framework, a total of 323 students, 125 females and 198 males, constitute the sample of the research. Convenience sampling method, which is one of the non-probabilistic sampling approaches, was used in the creation of the sample. In this context, it is understood that the acceptable sample size for the research population has been reached (see Sekaran and Bougie, 2016).

2.3. Data Collection Tools

The questionnaire form, which was prepared in accordance with the aims of the research, was applied to the participants on the internet between 04-19 October 2021 on a voluntary basis. During the implementation of the data collection tools, necessary explanations were given to the participants and it was ensured that they answered the questionnaire correctly. This form consists of three parts. The first part includes the “Personal Information Form,” the second part includes the “Two-Dimensional Self-Esteem: Self-Liking/Self-Competence Scale” and the third part includes the “Multidimensional Leadership Orientations Scale.”

2.3.1. Personal Information Form

In the Personal Information Form, there are statements about obtaining the participants' gender, age, department, grade, place of residence, actively doing sports status, monthly average personal income level and monthly average family income level (including personal income).

2.3.2. Two-Dimensional Self-Esteem: Self-Liking/Self-Competence Scale

The “Two-Dimensional Self-Esteem: Self-Liking/Self-Competence Scale” developed by Tafarodi and Swann (2001) to measure the self-esteem levels of the participants was adapted into Turkish by Dogan (2011). Data on the adaptation process of the scale were obtained from a total of 604 university students. The scale consists of 16 items and is in five-point Likert type. In addition, this scale; consists of two sub-dimensions (Self-Liking and Self-Competence). Psychometric properties of the scale in the adaptation study; item analysis, internal consistency (Cronbach's Alpha), test-retest, confirmatory factor analysis and criterion-related validity methods. As a result, it has been determined that the scale is a valid and reliable measurement tool (Dogan, 2011).

2.3.3. Multidimensional Leadership Orientations Scale

The “Multidimensional Leadership Orientations Scale” was developed by Dursun, Gunay, and Yenel (2019) in order to determine the leadership orientations of the participants. Data on the development process of the scale were obtained from a total of 503 university students. The scale consists of 19 items and is in a five-point Likert type. In addition, this scale; consists of four sub-dimensions (Political Leadership, Human Resource Leadership, Charismatic Leadership and Structural Leadership). During the development of the scale, they were applied that exploratory and confirmatory factor analyzes and it was calculated that the internal consistency coefficient (Cronbach's Alpha). As a result, it has been determined that the scale is a valid and reliable measurement tool (Dursun, Gunay, & Yenel, 2019).

2.4. Analysis of Data

IBM SPSS version 23.0 was used in the analysis of the data. First of all, descriptive statistics were calculated by considering the data type of the raw data in the questionnaire form obtained and transferred to the program. Then, t-Test and One Way ANOVA were used for difference tests, Pearson's Correlation and Spearman's Rank-Order Correlation analyzes were used for correlation tests in statistical evaluations according to whether the data obtained showed normal distribution or not. In this context, Hochberg's GT2 post-hoc test was applied for One-Way ANOVA, considering the homogeneity assumption and the distribution of the participants between groups. In calculating the reliability of the scales, Cronbach's Alpha coefficient was taken into account within the framework of internal consistency. In addition, the level of significance was determined as 0.05 in statistical evaluations.

3. Results

In this part of the research, the findings obtained as a result of the analysis of the relevant data are presented and interpreted in the form of tables.

Table 1: Frequency and Percentages Regarding Variables

Variable	Group	f	%
Gender	Female	125	38.7
	Male	198	61.3
Department	Coaching Education	65	20.1
	Physical Education And Sports Teaching	57	17.6
	Recreation	90	27.9
	Sports Management	111	34.4
Grade	1st Grade	88	27.2
	2nd Grade	109	33.7

	3rd Grade	65	20.1
	4th Grade	61	18.9
Place of Residence	Village + Town + Community	51	15.8
	County Seat	86	26.6
	City Center	186	57.6
Actively Doing Sports Status	Yes	177	54.8
	No	146	45.2
Total		323	100,0

When Table 1 is examined, it is seen that the number of male regarding the participants is approximately 1,6 times the number of female and the department with the highest number of participants is sports management. In addition, it is understood that the second grade has the highest number of participants and the fourth grade has the lowest number of participants. In addition, it is seen that the majority of the participants reside in the city center and actively engage in sports.

Table 2: Descriptive Statistics of Age, Average Monthly Personal Income Level and Average Monthly Family Income Level Variables

Variable	n	Mean	Median	Std. Deviation	Minimum	Maximum	Skewness	Kurtosis
Age	32	20.643	20.000	1.9749	17.0	33.0	2.056	8.034
Average Monthly Personal Income Level	31	876.532	650.000	1159.7063	.0	8000.0	2.963	11.732
Average Monthly Family Income Level (Including Personal Income)	30	4501.127	3500.000	3410.2430	450.0	30000.0	3.478	17.768

According to Table 2, the mean age variable of the participants was 20,643 and the standard deviation was 1,9749; the mean of the monthly average personal income level variable is 876,532 Turkish Liras and its standard deviation is 1159,7063; it is seen that the average monthly family income level (including personal income) variable is 4501.127 Turkish Liras and its standard deviation is 3410,2430. In addition, when the skewness and kurtosis values of the table were examined, it was concluded that these variables did not exhibit normal distribution.

Table 3: Reliability Analysis Results of Scales

Subscales	Cronbach's Alpha	Number of Items
Self-Liking	.794	8
Self-Competence	.764	8
Political Leadership	.817	5
Human Resources Leadership	.811	5
Charismatic Leadership	.816	5
Structural Leadership	.799	4

According to Table 3, in the context of internal consistency coefficients (Cronbach's Alpha) calculated within the scope of the research, subscales of self-liking ($\alpha=0.794$) and self-competence ($\alpha=0.764$) were found to be reliable within the framework of the two-dimensional self-esteem scale. In addition, it has been determined that the subscales of political leadership ($\alpha=0.817$), human resources leadership ($\alpha=0.811$), charismatic leadership ($\alpha=0.816$) and structural leadership ($\alpha=0.799$) are reliable within the framework of multidimensional leadership orientations scale.

Table 4: Descriptive Statistics of the Scales

Subscales	n	Mean	Median	Std. Deviation	Minimum	Maximum	Skewness	Kurtosis
Self-Liking	323	3.9923	4.1250	.70342	1.75	5.00	-.497	-.474
Self-Competence	323	3.5534	3.5000	.64483	1.38	5.00	.088	-.023
Political Leadership	323	3.9443	4.0000	.74741	1.00	5.00	-.499	.059
Human Resources Leadership	323	4.3907	4.6000	.61375	2.20	5.00	-1.077	.499
Charismatic Leadership	323	3.9901	4.0000	.71828	2.00	5.00	-.269	-.786
Structural Leadership	323	4.2082	4.2500	.69924	1.75	5.00	-.590	-.353

When Table 4 is examined, within the framework of the subscales of the two-dimensional self-esteem scale, the mean score of self-liking is 3,9923, the standard deviation is 0,70342, and the mean score of self-competence is 3,5534, and the standard deviation is 0,64483. In addition, within the framework of the multidimensional leadership orientations scale subscales, the mean score of political leadership is 3,9443 and its standard deviation is 0,74741, the mean score of human resources leadership is 4,3907 and its standard deviation is 0,61375, the mean score of charismatic leadership is 3,9901 and its standard deviation is 0,71828, and the mean score of structural leadership is 4,2082 and its standard deviation is 0,69924. was found. In this context, participants have high levels of self-liking, self-competence, political leadership and charismatic leadership; It can be said that the levels of human resources leadership and structural leadership are quite high. In addition, it was accepted that these variables exhibited normal distribution in terms of skewness and kurtosis values (see George and Mallery, 2010; Tabachnick and Fidell, 2013).

Table 5: Age, Personal Income Level and Family Income Level Variables and Spearman Rank-Order Correlation Analysis Results Between Scales

Variables	Self-Liking	Self-Competence	Political Leadership	Human Resources Leadership	Charismatic Leadership	Structural Leadership
Age	r	.064	.074	.132*	-.001	.147*
	p	.249	.183	.018	.990	.008
	n	322	322	322	322	322
Average Monthly Personal Income Level	r	.039	.078	.062	.039	.055
	p	.494	.169	.276	.496	.332
	n	310	310	310	310	310
Average Monthly Family Income Level (Including Personal Income)	r	.135*	.118*	.000	-.025	.016
	p	.020	.041	.996	.671	.784
	n	300	300	300	300	300

*p<0.05

According to Table 5, it was determined that there was a positive low level significant correlation between the age variable and the mean score of the political leadership ($r=0.132$) and charismatic leadership ($r=0.147$) subscales ($p<0.05$). In addition, it was found that there was a positive low level correlation between the mean scores of the subscales of self-liking ($r=0.135$) and self-competence ($r=0.118$) and the monthly average family income (including personal income) ($p<0.05$). However, no statistically significant correlation was found for other conditions related to the variables ($p>0.05$).

Table 6: t-Test Results According to Gender Variable

Subscales	Gender	n	Mean	Std. Deviation	df	t	p
Self-Liking	Female	125	3.9780	.74749	321	-.289	.773
	Male	198	4.0013	.67591			
Self-Competence	Female	125	3.5860	.69296	321	.721	.471
	Male	198	3.5328	.61343			
Political Leadership	Female	125	4.0256	.70527	321	1.557	.120
	Male	198	3.8929	.77016			
Human Resources Leadership	Female	125	4.4624	.59537	321	1.673	.095
	Male	198	4.3455	.62230			
Charismatic Leadership	Female	125	3.9808	.71861	321	-.184	-.184
	Male	198	3.9960	.71983			
Structural Leadership	Female	125	4.1860	.72325	321	-.453	.651
	Male	198	4.2222	.68513			

When Table 6 is examined, it is seen that there is no statistically significant difference between the mean scores of the scales in the context of the gender variable ($p > 0.05$).

Table 7: ANOVA Results According to Department Variable

Subscales	Group	Mean	Std. Deviation	df	F	p	Significant Difference
Self-Liking	Coaching Education (1)	4.0000	.70918	322	1.425	.235	---
	Physical Education And Sports Teaching (2)	3.8947	.74694				
	Recreation (3)	3.9236	.70404				
	Sports Management (4)	4.0935	.67198				
Self-Competence	Coaching Education (1)	3.5538	.65475	322	1.745	.158	---
	Physical Education And Sports Teaching (2)	3.4539	.60117				
	Recreation (3)	3.4875	.64615				
	Sports Management (4)	3.6577	.65295				
Political Leadership	Coaching Education (1)	3.9200	.78086	322	1.546	.203	---
	Physical Education And Sports Teaching (2)	3.9474	.74405				
	Recreation (3)	3.8267	.75800				
	Sports Management (4)	4.0523	.71438				
Human Resources Leadership	Coaching Education (1)	4.4277	.57866	322	2.296	.078	---
	Physical Education And Sports Teaching (2)	4.4351	.59895				
	Recreation (3)	4.2489	.67860				

	Sports Management (4)	4.4613	.57385				
	Coaching Education (1)	3.9446	.66943				
Charismatic Leadership	Physical Education And Sports Teaching (2)	3.9404	.78737	322	4.210*	.006	4>3
	Recreation (3)	3.8289	.71677				
	Sports Management (4)	4.1730	.67876				
	Coaching Education (1)	4.2846	.60576				
Structural Leadership	Physical Education And Sports Teaching (2)	4.1228	.66333	322	5.018*	.002	4>3
	Recreation (3)	4.0111	.79668				
	Sports Management (4)	4.3671	.64475				

*p<0.05

According to Table 7, statistically significant differences were found between the charismatic leadership mean scores ($F_{(3-319)}=4.210$; $p<0.05$) and structural leadership mean scores ($F_{(3-319)}=5.018$; $p<0.05$) of the participants in the context of the department variable. Both of these significant differences were between the recreation and sports management departments and were found to be in favor of the sports management department. However, no statistically significant difference was found for other conditions related to the department variable ($p>0.05$).

Table 8: ANOVA Results According to Grade Variable

Subscales	Group	Mean	Std. Deviation	df	F	p	Significant Difference
Self-Liking	1st Grade	3.9915	.71939				
	2nd Grade	3.9427	.68582	322	.509	.676	---
	3rd Grade	3.9923	.72277				
	4th Grade	4.0820	.69891				
Self-Competence	1st Grade	3.5057	.64963				
	2nd Grade	3.5665	.58743	322	.264	.851	---
	3rd Grade	3.5558	.73222				
	4th Grade	3.5963	.64887				
Political Leadership	1st Grade	3.8841	.71033				
	2nd Grade	3.9229	.79017	322	.508	.677	---
	3rd Grade	4.0185	.73885				
	4th Grade	3.9902	.73885				
Human Resources Leadership	1st Grade	4.3864	.65656				
	2nd Grade	4.3743	.63134	322	.206	.892	---
	3rd Grade	4.4431	.58255				
	4th Grade	4.3705	.55957				
Charismatic Leadership	1st Grade	3.8659	.77413				
	2nd Grade	4.0092	.74206	322	1.356	.256	---
	3rd Grade	4.0369	.60611				
	4th Grade	4.0852	.69422				
Structural Leadership	1st Grade	4.0966	.70856				
	2nd Grade	4.2018	.72287	322	1.630	.182	---
	3rd Grade	4.3462	.69834				
	4th Grade	4.2336	.62894				

When Table 8 is examined, it is seen that there is no statistically significant difference between the mean scores of the scales in the context of the grade variable ($p>0.05$).

Table 9: ANOVA Results According to the Place of Residence Variable

Subscales	Group	Mean	Std. Deviation	df	F	p	Significant Difference
Self-Liking	Village + Town + Community	3.9510	.66053	322	1.424	.242	---
	County Seat	3.8983	.69703				
	City Center	4.0470	.71587				
Self-Competence	Village + Town + Community	3.4902	.59731	322	.335	.716	---
	County Seat	3.5480	.60821				
	City Center	3.5733	.67516				
Political Leadership	Village + Town + Community	3.9137	.69886	322	.653	.521	---
	County Seat	4.0233	.74544				
	City Center	3.9161	.76226				
Human Resources Leadership	Village + Town + Community	4.5490	.46621	322	2.029	.133	---
	County Seat	4.3581	.66589				
	City Center	4.3624	.62045				
Charismatic Leadership	Village + Town + Community	3.9020	.71707	322	.461	.631	---
	County Seat	4.0140	.72650				
	City Center	4.0032	.71689				
Structural Leadership	Village + Town + Community	4.2108	.65836	322	.144	.866	---
	County Seat	4.2413	.73609				
	City Center	4.1922	.69580				

When Table 9 is examined, it is seen that there is no statistically significant difference between the mean scores of the scales in the context of the place of residence variable ($p>0.05$).

Table 10: t-Test Results According to Actively Doing Sports Variable

Subscales	Actively Doing Sports Status	n	Mean	Std. Deviation	df	t	p
Self-Liking	Yes	177	4.0692	.69837	321	2.177*	.030
	No	146	3.8990	.70057			
Self-Competence	Yes	177	3.6744	.65715	321	3.790*	.000
	No	146	3.4067	.59971			
Political Leadership	Yes	177	4.0531	.71645	321	2.915*	.004
	No	146	3.8123	.76518			
Human Resources Leadership	Yes	177	4.4169	.63025	321	.846	.398
	No	146	4.3589	.59372			
Charismatic Leadership	Yes	177	4.0734	.72003	321	2.312*	.021
	No	146	3.8890	.70546			
Structural Leadership	Yes	177	4.2853	.68865	321	2.195*	.029
	No	146	4.1147	.70290			

* $p<0.05$

When Table 10 is examined, it has been observed that there are statistically significant differences between the mean scores of participants' self-liking ($t_{(321)}=2.177$), self-competence ($t_{(321)}=3.790$), political leadership ($t_{(321)}=2.915$), charismatic leadership ($t_{(321)}=2.312$) and structural leadership ($t_{(321)}=2.195$) in the context of actively doing sports ($p<0.05$). It has been determined that all of these significant differences are in favor of those who do sports. However, no statistically significant difference was found between the mean scores of the human resources leadership sub-dimension ($p>0.05$).

Table 11: Results of Pearson Correlation Analysis Between Self-Esteem and Leadership

Variables	Political Leadership	Human Resources Leadership	Charismatic Leadership	Structural Leadership	
Self-Liking	r	.338*	.356*	.444*	.470*
	p	.000	.000	.000	.000
	n	323	323	323	323
Self-Competence	r	.424*	.241*	.538*	.426*
	p	.000	.000	.000	.000
	n	323	323	323	323

* $p<0.05$

According to Table 11, it was determined that there were positive and moderately statistically significant correlations between the participants' mean scores of self-liking and political leadership ($r=0.338$), human resources leadership ($r=0.356$), charismatic leadership ($r=0.444$) and structural leadership ($r=0.470$) ($p<0.05$). In addition, it was found that there were positive and moderately statistically significant correlations between the self-competence mean scores of the participants and the mean scores of political leadership ($r=0.424$), charismatic leadership ($r=0.538$) and structural leadership ($r=0.426$) ($p<0.05$). On the other hand, it was understood that there was a statistically significant positive and low-level correlation between the participants' self-competence mean scores and their human resources leadership mean scores ($r=0.241$; $p<0.05$).

4. Discussion and Conclusion

In this section, comments/discussions regarding the findings related to the self-esteem and leadership levels of the students of the Faculty of Sport Sciences are given.

First of all, it was determined that there was a positive and low-level significant correlation between the age variable and the mean scores of the political leadership and charismatic leadership subscales. In this context, it can be said that as the age of the participants increases, their political and charismatic leadership levels also increase. Moreover, this situation can be associated with the experiences of individuals. Some studies have shown that age, experience, and maturity have an impact on preferred leader behaviors. In a study conducted by Chelladurai (1984); the subscales of preferred leadership behavior in basketball players aged 12-15 and 17-29 were compared. In the study, it was concluded that those in the younger age group preferred social support and democratic behavior more than the older players, while they tended to authoritarian behavior less. On the other hand, Car (2013) did not find a significant difference between the leadership orientation of the students taking sports education and the age variable.

In addition, it was found that there were positive and low-level significant correlations between the mean scores of the subscales of self-liking and self-competence and the monthly average family income (including personal income). In line with our findings, it can be stated that as the income increases, the self-liking and self-competence levels of the participants increase. In a study that differs from our research finding, Yanlic (2011) observed that the self-esteem of the participants did not change according to their monthly income.

On the other hand, there was no statistically significant difference between the mean scores of the scales in the context of the gender variable. In Ustalar's (2019) study examining the self-esteem and shyness levels of secondary school students who do and do not do sports, it was determined that there was no statistically significant difference in the self-esteem scores of the athletes according to gender. In the research of Korkmaz (2017) determined that

the gender variable did not play a decisive role on leadership orientation and organizational commitment levels. All these research results are similar to our research.

In another finding, it was found that there were statistically significant differences between the participants' charismatic leadership mean scores and structural leadership mean scores in the context of the department variable. Both of these significant differences were between the recreation and sports management departments and were found to be in favor of the sports management department. Within the scope of this finding, it can be said that the charismatic leadership and structural leadership levels of the students of the sports management department are higher than the students of the recreation department. This situation can be explained by the courses and leadership status of the students of the sports management department during the education process. Ozmutlu (2008) revealed that the leadership levels of Faculty of Sport Sciences students differed significantly according to the department variable. Aydin (2016) examined the leadership characteristics according to the department variable and found a significant difference. These findings in the literature are in line with our research findings.

It was observed that there was no statistically significant difference between the mean scores of the scales in the context of the grade variable. Karatas (2012) examined the empathic skills and self-esteem levels of Education Faculty students. As a result of the research, it was concluded that self-esteem did not show a significant difference in terms of grade variable.

In a similar finding, it was observed that there was no statistically significant difference between the mean scores of the scales in the context of the place of residence variable. Akcagoz (2017) examined the self-concept and depression status of working women. As a result of the research, it was concluded that the longest living unit variable did not show a statistically significant difference on self-concept. Avsaroglu and Ure (2007) found in their study that there was no statistically significant difference in terms of the variable of self-esteem, the longest living unit. All these findings support our research finding.

It was observed that there were statistically significant differences between the mean scores of participants' self-liking, self-competence, political leadership, charismatic leadership and structural leadership in the context of actively doing sports. It has been determined that all of these significant differences are in favor of those who do sports. This can be explained by the fact that individuals who do sports have high self-confidence and are strong both mentally and physically. In the study of Erman (2017), examining the self-esteem and social appearance anxiety levels of university students who do and do not do sports, it was seen that individuals who do sports under license have higher self-esteem than those who do not. In a study conducted on German youth, it is emphasized that encouraging young people to engage in physical activity and the decrease in body weight will positively affect the body esteem and body image of the youth, and will ensure that they are respected among their peers (Kirkcaldy et al., 2002). There are studies in the literature reporting that there is a directly proportional correlation between participating in sports activities and self-esteem (Karadag et al., 2008; Cam et al., 2000; Garry and Morrissey, 2000).

Finally, it was determined that there were positive and moderately significant correlations between the participants' mean scores of self-liking and political leadership, human resources leadership, charismatic leadership and structural leadership. In addition, it was found that there were positive and moderately statistically significant correlations between the self-competence mean scores of the participants and the mean scores of political leadership, charismatic leadership and structural leadership. In addition, it was understood that there was a statistically significant positive and low-level correlation between the participants' self-competence mean scores and their human resources leadership mean scores. When the findings are evaluated from a holistic perspective, it can be said that as the self-esteem of the participants increases, their leadership orientation also increases. In the study conducted by Li, Arvey, and Song (2011), it was seen that the self-esteem of individuals has a positive and significant effect on their leadership development and leadership styles. In the study conducted by Moran (2015), it was found that students' self-esteem levels had a significant effect on their leadership behaviors. In their study, Akdeniz and Saytekin (2020) determined that there is a positive and high level correlation between the inner self-esteem of sports science students and their leadership orientation. In the study conducted by Gunel (2021), on the students of the sports management department, it was determined that self-esteem has a positive and significant

effect on leadership orientations. These studies are consistent with the findings of our research. Individuals are motivated to maintain and develop their self-esteem (Shamir, 1991), which is based on a sense of competence and power/achievement (Gecas, 1982). In this context, the results are considered likely, since self-esteem functions as a motivation factor for leadership (Judge et al., 2002, Shamir & Howell, 1999).

As a result, it can be said that increasing the self-esteem of the participants is an important concept in the context of leadership orientations. Therefore, it is possible to increase the leadership orientation of the students of the faculty of sports sciences by directing them to activities that will increase their self-esteem. In this context, new information has been obtained that will contribute to the literature with the research findings. However, the results of the analysis include limited number of participant data considering the research group. For this reason, similar studies can be conducted with a large data set to cover all age groups. In addition, research results can be diversified by conducting qualitative, mixed and/or experimental studies on a research group with similar characteristics. In this context, different results can be reached that will contribute to the literature.

References

- Akcagoz, H. (2017). Investigation of Self-Concepts and Depression Status of Working Women. The Difference Between Self-Concept and Ideal Self-Concept and Determination of Depression Status in Terms of Variables, Master Thesis, Üsküdar University, Institute of Social Sciences, Istanbul.
- Akdeniz, H., & Saytekin, G. N. (2020). Examination of leadership orientations and self-confidence behaviors of faculty of sport sciences students (Kocaeli University Sample). *International Journal of Curriculum and Instruction*, 12, 233-250.
- Avsaroglu, S., & Ure, O. (2007). Investigation of self-esteem, decision-making and stress coping styles of university students in decision making in terms of self-esteem and some variables. *Selcuk University Journal of Social Sciences Institute*, 18, 85-100.
- Aydin, R. (2016). Comparison of Leadership Characteristics of Students Who are Engaged in Individual and Team Sports Studying at Physical Education and Sports Colleges. Master's Thesis, Bartın University, Institute of Educational Sciences, Bartın.
- Baumeister, R.F., Campbell, J.D., Krueger, J.I., & Vohs, K.D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest*, 4(1), 1-44.
- Bowker, A. (2006). The relationship between sports participation and self-esteem during early adolescence. *Canadian Journal of Behavioural Science*, 38(3), 214-229.
- Buyukozturk, S., Cakmak, E. K., Akgun, O. E., Karadeniz, S., & Demirel, F. (2020). Eğitimde Bilimsel Araştırma Yöntemleri (29. Basım). Ankara: Pegem Akademi.
- Cam, O, Khorshid, L., & Ozsoy, S.A. (2000). Investigation of self-esteem levels in a nursing school. *Journal of Research in Nursing*, 1(8), 33-40.
- Car, B. (2013). Determination of Leadership Characteristics of University Students Receiving Sports Education. Master Thesis Gazi University Institute of Educational Sciences, Ankara.
- Chelladurai, P. (1984). Discrepancy between preferences and perceptions of leadership behavior and satisfaction of athletes in varying sports. *Journal of Sport Psychology*, 6, 27-41.
- Collins, N.M., Cromartie, F., Butler, S., & Bae, J. (2018). Effects of early sport participation on self-esteem and happiness. *The Sport Journal*, 20, 1-20.
- Coopersmith, S. (1967). *The antecedents of self-esteem*, (ss. 235-258) San Francisco: Freeman Press. Accessed from <https://archive.org> on 04.03.2020.
- Dogan, T. (2015). Two-Dimensional Self-Esteem: Adaptation of the Self-Liking/Self-Competence Scale into Turkish: A Validity and Reliability Study. *Education and Science*, 36(162), 126-137.
- Dursun, M., Gunay, M., & Yenel, I. F. (2019). Multidimensional Leadership Orientations Scale (MLOS): Validity and Reliability Study. *International Journal of Management Academy*, 2(2), 333-347.
- Erman, S. (2017). Investigation of Self-Esteem and Social Appearance Anxiety Levels of University Students Who Play and Don't Do Sports. Düzce University Institute of Health Sciences, Department of Physical Education and Sports, Master's Thesis, Düzce.
- Fraenkel, J. R., & Wallen, N. E. (2006). How to design and evaluate research in education (6th ed.). New York: McGraw-Hill International Edition.
- Garry, J. P., & Morrissey, S. L. (2000). Team sports participation and risk-taking behaviours among a biracial middle school population. *Clin J Sport Med*, 10(3), 185-190.
- Gecas, V. (1982). The self-concept. *Annual Review of Sociology*, 8, 1-33.

- Gelbal, S., Duyan, V., & Sevin, C. (2010). Investigation of the Relationship between High School Students' Socio-Demographic Characteristics and Social Support Status and Self-Esteem Levels. *Journal of Social Work with Society*, 21(2), 7-18.
- George, D., & Mallery, P. (2010). In GEN (Ed.), SPSS for Windows step by step. A simple study guide and reference. Boston, MA: Pearson Education, Inc, 10.
- Gunel, I. (2021). The Effect of Self-Esteem on Leadership Orientation: A Study on Students of Sports Management Department. *Asian Journal of Education and Training*, 7(1), 91-95.
- Hemphill, J., & Coons, A. (1957). Development of the Leader Behaviour Description Questionnaire, ed. R.M.Stogill- A.E. Coons, *Leader Behaviour: Its Description and Measurement*, Columbus: Ohio State University.
- Hersey, P., & Blanchard, K. (1988). *Management of Organizational Behavior: Utilizing Human Resources. Fifth Edition*, Englewood Cliffs, New Jersey: Prentice Hall, Sf. 170-183.
- Jacobs, T. O., & Jaques, E. (1990). Military executive leadership. In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership* (pp. 281–295). Leadership Library of America.
- Judge, T. A., Iliens, R., Bono, J. E., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*, 87, 765–780.
- Kagitcibasi, C., & Cemalcilar, Z. (2016). *Human and People from Past to Present Introduction to Social Psychology*. (16th Edition). Istanbul: Evrim Publications.
- Karadag, G., Guner, I. Cuhadar, D., & Ucan, O. (2008). Self-esteem of Gaziantep University Health School Nursing Students. *Firat Journal of Health Services*, 3(7), 29-42.
- Karatas, Z. (2012). Investigation of empathic skills and self-esteem levels of education faculty students. *Mehmet Akif Ersoy University Journal of the Faculty of Education*, 12(23), 97-114.
- Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations*. New York: Wiley.
- Kets de Vries M. F. (2001). *Leadership in Organizations. International Encyclopedia of Social and Behavioral Science. INSEAD, France*.
- Kirkcaldy, B. D., Shephard, R. J., & Siefen, R. G. (2002). The relationship between physical activity and self-image and problem behaviour among adolescents. *Soc Psychiatry Psychiatr Epidemiol*, 37(11), 544-550.
- Koknel, O. (1982). *Personality from Anxiety to Happiness*. Istanbul: Altin Kitaplar Publications.
- Korkmaz, O. (2017). Authentic leadership and organizational trust. *The Journal of Academic Social Science Studies*, 58, 437-454.
- Li, W. -D., Arvey, R. D., & Song, Z. (2011). The influence of general mental ability, self-esteem and family socioeconomic status on leadership role occupancy and leader advancement: The moderating role of gender. *The Leadership Quarterly*, 22(3), 520-534.
- Moran, A. J. (2015). An examination of self-esteem's impact on the leadership behaviors of female undergraduate student leaders. Master Theses.
- Ozmutlu, I. (2008). Comparison of Leadership and Creativity Characteristics of Students Studying in Physical Education and Sports Colleges (Gazi University Example), Master Thesis Gazi University Institute of Health Sciences, Ankara.
- Ozoglu, S. (2019). Self concept in counseling. *Ankara University Journal of Faculty of Educational Sciences (JFES)*, 8(1) , 93-111.
- Rauch, C. F., & Behling, O. (1984). Functionalism: Basis for an alternate approach to the study of leadership. In J. G. Hunt, D. M. Hosking, C. A. Schriesheim, & R. Stewart (Eds.), *Leaders and managers: International perspectives on managerial behavior and leadership* (pp. 45-62). New York: Pergamon Press.
- Roberts, W. (1988). *Leadership Secrets of Attila The Hun*. Warner Books, New York.
- Rosenberg, M. (1965). *Society and Adolescent Self-Image*. Princeton University Pres, New Jersey.
- Sekaran, U., & Bougie, R. (2016) *Research Methods for Business: A Skill-Building Approach (7th Edition)*. West Sussex: John Wiley & Sons Ltd.
- Shamir, B. (1991). Meaning, Self and Motivation in Organizations. *Organization Studies*, 12(3), 405-424.
- Shamir, B., & Howell, J. M. (2018). Organizational and Contextual Influences on the Emergence and Effectiveness of Charismatic Leadership. Katz, I., Eilam-Shamir, G., Kark, R. and Berson, Y. (Ed.) *Leadership Now: Reflections on the Legacy of Boas Shamir (Monographs in Leadership and Management, Vol. 9)*, Emerald Publishing Limited, Bingley, pp. 255-281.
- Slutzky, C. B., & Simpkins, S. D. (2009). The link between children's sport participation and self-esteem: Exploring the mediating role of sport self-concept. *Psychology of Sport and Exercise*, 10(3), 381-389.
- Smith, R.E., Smoll, F.L., & Cumming, S.P. (2007). Effects of a motivational climate intervention for coaches on changes in young athletes' achievement goal orientations. *Journal of Clinical Sport Psychology*, 1(1), 23–46.
- Tabachnick, B.G., & Fidell, L.S. (2013). *Using multivariate statistics (6th ed.)*. Boston: Allyn and Bacon.
- Tafarodi, R. W., & Swann, W. B. (2001). Two-dimensional self-esteem: Theory and measurement. *Personality and Individual Differences*, 31(5), 653-673.

- Tufan, B. (1990). The concept of self-esteem and the development of self-esteem throughout life. *Journal of Hacettepe University School of Social Services*, 8(1-2-3).
- Ustalar, A. (2019). Investigation of Self-Esteem and Shyness Levels of Secondary School Students Who Do and Do Not Sports. Kütahya Dumlupınar University, Institute of Social Sciences, Department of Physical Education and Sports. Master Thesis. Kütahya.
- Yanlic, N. (2011). Self-Esteem of Disabled Athletes Playing Sitting Volleyball. Unpublished Master's Thesis, Fırat University, Institute of Health Sciences.
- Yorukoglu, A. (1985). Youth Mental Health and Mental Problems. Ankara: İş bank Cultural Publications.
- Yukl, G. A. (2010). *Leadership in Organizations. Seventh Edition, Englewood Cliffs, New Jersey: Prentice Hall.*



Investigation of Injury Anxiety Level of Archers According to Various Parameters: Students of Faculty of Sport Sciences and Club Athletes

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Abstract

This study aims to analyze injury anxiety in archers according to several parameters. The research universe consists of archers who conduct sports in archery clubs modern category and Sports sciences Faculty students in the Turkey.. On the other hand, the research sample comprises 346 archers, 194 men and 152 women, who willingly participate in archery at sports clubs in various cities in Turkey. In the study, the personal information form generated by the researcher and the "Sports Injury Anxiety Scale" established by Rex and Metzler (2016) and modified into Turkish by Caz, Kayhan and Bardakçı (2019) were utilized as data collection methods. Statistical analysis of the data was done with SPSS 25 program, t-test and One Way Anova tests. According to the results of the research, it was established that among the archers who participated in the research, the archers who had a lot of sports experience, had a sports injury before, and did not have any other sportsmen in their family, had a high mean score of sports injury anxiety.

Keywords: Archery Education, Sports Injuries, Anxiety, Student, Learning

1. Introduction

1.1 Introduce the Problem

Archery is a sport that aims to score high points by shooting arrows at the target with high accuracy in a limited time using bow, arrow, target, and various protective and auxiliary materials (Kabak & Karanfilci, 2018, Leroyer, Hoecke & Halal 1993). The beginning of archery dates back to ancient civilizations, where bows and arrows were used for hunting wild animals and as a weapon in wars, and over time it became one of the modern sports and had been taking part in the Olympic Games programs since 1972. Archery is a sport that athletes of all age groups can do, and it has become one of the sports branches that attract attention in the world day by day (Mondal & Mridha, 2021). Depending on the pedestrians and the game rules (Lee, 2009), archery consists of two main categories: Traditional Archery and Modern Archery. Both categories have their own sections.

Modern archery is divided into two main categories as compound bow and recurve bow, based on the type of bow used in itself. In both categories, competitions are held in national and international organizations. Besides, only the recurve bow category can compete in the olympic games.

Sports injuries are the common name given to all kinds of damage that occur when the endurance limits are exceeded as a result of the whole or a part of the body encountering more than normal force during sports activities. These injuries can occur for a variety of reasons such as impacts, falls, and severe contractions (Kılıç, Yücel, Gümüşdağ, Kartal, & Korkmaz, 2014) and according to the recovery time of the injury, they are called as mild, moderate, and serious injuries (Bavli & Kozanoğlu, 2008).

In sports environments where competition and winning are at the forefront, athletes may experience various physical injuries as a result of sometimes having to push the limits to reach high performances. The cause of these injuries is sometimes the physical conditions in the sports environment and the materials used.

The type and area of injury in sports vary according to the age of the athlete, gender, and other factors. In general, whichever limb the athletes use the most, injuries are more common in that region (Çakır, Kısa, 2021). Since archers use the upper part of the body more frequently, injuries occur mostly in the shoulder, neck, and back regions as muscle pain and strain. (Kocaman, Atay, Alp & Suna 2018). In archery, sports injuries due to many reasons such as incorrect application of some techniques, overloads may occur, as well as injuries that may occur as a result of accidents that may occur if the necessary safety precautions are neglected. For whatever the reason might be, sports injuries are an undesirable situation that causes injury anxiety in athletes.

There are many components, including psychological components, that cause injury anxiety in the sports environment. An increase in injury anxiety in the athlete can be caused by the combination of one or more of them. (Aksoy, 2019, Rex & Metzler, 2016, Ivarsson & Johnson, 2010, Petrie, 1993). Although high injury anxiety in archers can negatively affect performance, at more advanced levels, it can cause the athlete to cool off from the sport or even quit the sport.

This study, which examines the level of injury anxiety in archers and the parameters affecting it, is important as it is thought to assist coaches and sports psychologists in dealing with injury anxiety in athletes. Besides, although there have been various studies on archery in the literature, there are no studies conducted on injury anxiety in archers. It is thought that this study is important in terms of filling this gap in the

2. Method

2.1. Population-Sample

The population of the study consists of athletes who do sports in archery clubs operating in the modern category in Turkey. The sample, as for that, consists of a total of 346 archers, 194 men and 152 women, who practice archery in sports clubs in various provinces, in the questionnaire created in the digital environment.

2.2 Data Collection Tools

In the study, the personal information form was created by the researcher, and the "Sports Injury Anxiety Scale" was developed by Rex and Metzler (2016) and adapted into Turkish by Caz, Kayhan, and Bardakçı (2019) were used as data collection tools. This scale consists of six sub-dimensions and 19 items. There is no negative (reversely coded) item in the 5-point Likert-type (1: strongly disagree-2: disagree- 3: neither agree nor disagree- 4: agree- 5: strongly agree) scale.

2.2 Data Analysis:

The data obtained within the scope of the study were analyzed using the SPSS 25 Package Program. Primarily, the Kolmogorov-Smirnov normality test was performed to determine whether the obtained data were normally distributed or not, to determine what kind of analysis to be made. In consequence of the test, it was determined

that the data were between -1.5 and +1.5 and provided the assumption of normal distribution (Tabachnick & Fidell, 2013). Thus, parametric tests were used in the analysis of the data.

3. Results

In this part of the study, data obtained from participants using the "Sports injury anxiety scale" was analyzed statistically in terms of different variables.

Table 1: Frequency and Percentage Distributions of the Descriptive Attributes of the Study Group

Variables		<i>f</i>	%
Gender	Male	194	56,0
	Female	152	43,9
Type Bow	Recurve Bow	257	74,3
	Compound Bow	89	25,7
Is there any other person in your family who does active sports?	Yes	122	35,3
	No	224	64,7
Sports experience	Less than 1 year	168	48,6
	1-3 Years	95	27,5
	3-7 Years	83	24,0
Did you experience sports injury before? What is the recovery time?	No	135	39,0
	1-7 Days	127	36,7
	8-21 Days	59	17,1
	21 Days and Over	25	7,2
	<i>Total</i>	346	%100

When Table 1 is examined, it is seen that of the athletes participating in the study, 194 are male, and 152 are female. According to the type of bow used, 257 athletes in the recurve bow category and 89 athletes in the compound bow category participated in the study. The number of archers engaged in active sports in their family is 122, and the number of archers in their family who do not play any active sports other than themselves is 224. In terms of sportsmanship experience, the number of individuals doing archery for less than 1 year is 168, the number of individuals doing archery for 1-3 years is 95, and the number of individuals doing archery for 3-7 years is 83. The number of athletes who have not experienced sports injuries before is 135, the number of athletes who experienced sports injuries and recovered between 1-7 days is 127, the number of athletes recovering between 8-21 days is 59, the number of athletes recovering in 21 days or more is 25. The results of the t-test analysis of the Sports Injury Anxiety Levels of the participants by gender are given in Table 2.

Table 2: T-Test Results of Sports Injury Anxiety Scale Scores by Gender

	Gender	N	X	ss	t-test		
					t	<i>sd</i>	<i>p</i>
The Anxiety of Loosing Ability	Male	194	3,319	1,082	2,766	344	.006*
	Female	152	2,980	1,193			
Poor Perception Anxiety	Male	194	3,340	1,109	-1,487	344	.138
	Female	152	3,519	1,121			
The Anxiety of Suffering	Male	194	3,273	1,161	1,379	344	.169
	Female	152	3,092	1,273			
Disappointing Anxiety	Male	194	3,376	1,071	-,542	344	.588
	Female	152	3,440	1,131			
The Anxiety of Loss Social Support	Male	194	3,355	1,183	-,712	344	.477
	Female	152	3,447	1,194			

The Anxiety of being Injured Again	Male	194	3,469	1,105	-,332	344	.740
	Female	152	3,509	1,171			

* $p < 0.05$

It is seen that there is a statistically significant difference only in the sub-dimension of Losing Ability according to gender variable of sub-dimension scores of Sports Injury Anxiety Scale (SIAS) in Table 2 ($t[2.776]=.006$; $p < 0.05$). This difference is in terms of male athletes ($X=3,319$).

Table 3: T-Test results according to the bow type used by the participants' sports injury anxiety levels

	Type Bow	N	X	ss	t testi		
					t	sd	p
The Anxiety of Loosing Ability	Recurve	257	3,120	1,144	2,766	344	.168
	Compound	89	3,314	1,134			
Poor Perception Anxiety	Recurve	257	3,393	1,151	-1,487	344	.461
	Compound	89	3,494	1,012			
The Anxiety of Suffering	Recurve	257	3,210	1,247	1,379	344	.668
	Compound	89	3,146	1,113			
Disappointing Anxiety	Recurve	257	3,478	1,079	-,542	344	.033*
	Compound	89	3,191	1,126			
The Anxiety of Loss Social Support	Recurve	257	3,455	1,182	-,712	344	.115
	Compound	89	3,224	1,194			
The Anxiety of being Injured Again	Recurve	257	3,529	1,126	-,332	344	.240
	Compound	89	3,365	1,150			

There is a statistically significant difference between the archers' SIAS sub-dimension scores, only in the Disappointment sub-dimension according to the type of publication used according to Table 3 ($t[-.542]=.033$; $p < 0.05$). This difference is in terms of archers using recurve bows ($X=3,478$).

Table 4: T-Test results of the participants' sports injury anxiety levels according to the status of other active athletes in the family

Variable of active athlete and another individual in the family		N	X	ss	t-test		
					t	sd	p
The Anxiety of Loosing Ability	Yes	122	3,187	1,123	-,374	344	.709
	No	224	3,139	1,156			
Poor Perception Anxiety	Yes	122	3,468	1,101	-1,122	344	.263
	No	224	3,327	1,124			
The Anxiety of Suffering	Yes	122	3,236	1,267	-,892	344	.373
	No	224	3,114	1,183			
Disappointing Anxiety	Yes	122	3,495	1,076	-2,099	344	.037*
	No	224	3,237	1,100			
The Anxiety of Loss Social Support	Yes	122	3,549	1,241	-3,296	344	.001*
	No	224	3,114	1,131			
The Anxiety of being Injured Again	Yes	122	3,549	1,141	-1,383	344	.168
	No	224	3,373	1,126			

When Table 4 is examined, there is a statistically significant difference in the Disappointed ($t[-2.099]=.037$; $p < 0.05$) and Losing Social Support sub-dimension ($t[-3.296]=.001$; $p < 0.05$) scores of the archers in the SIAS sub-dimension scores, according to the variable of active athlete and another individual in the family. This difference is in the direction of individuals in the Disappointment sub-dimension ($X=3,495$) and Losing Social Support sub-dimension ($X=3,549$) who do not engage in active sports other than themselves in their family.

Table 5: ANOVA Test results of the participants' sports injury anxiety levels according to their athletic years

	Categories	N	X	Ss	Source of Variance	KT	sd	KO	F	p	Meaning
The Anxiety of Loosing Ability	Less than 1 year	168	3,070	1,121	Between Grups	6,332	2	3,166	2,442	,088	
	1-3 Years	95	3,380	1,160	In-Group	444,60	343	1,296			
	3-7 Years	83	3,100	1,147	Total	450,93	345				
	Total		3,170	1,143							
Poor Perception Anxiety	Less than 1 year	168	3,286	1,079	Between Grups	6,988	2	3,494	2,832	,060	
	1-3 Years	95	3,621	1,093	In-Group	423,246	343	1,234			
	3-7 Years	83	3,458	1,192	Total	430,234	345				
	Total	346	3,419	1,117							
The Anxiety of Suffering	Less than 1 year	168	2,887	1,129	Between Grups	33,507	2	16,754	12,110	.000*	B-A
	1-3 Years	95	3,600	1,215	In-Group	474,519	343	1,383			
	3-7 Years	83	3,349	1,224	Total	508,026	345				
	Total	346	3,194	1,213							
Disappointing Anxiety	Less than 1 year	168	3,179	1,057	Between Grups	16,725	2	8,362	7,196	,001*	B-A
	1-3 Years	95	3,632	1,001	In-Group	398,628	343	1,162			
	3-7 Years	83	3,602	1,199	Total	415,353	345				
	Total	346	3,405	1,097							
The Anxiety of Loss Social Support	Less than 1 year	168	3,065	1,050	Between Grups	37,022	2	18,511	14,118	,000*	B-A
	1-3 Years	95	3,789	1,090	In-Group	449,732	343	1,311			
	3-7 Years	83	3,614	1,368	Total	486,754	345				
	Toplam	346	3,396	1,187							
The Anxiety of being Injured Again	Less than 1 year	168	3,145	1,065	Between Grups	38,167	2	19,083	16,161	,000*	B-A; C-A
	1-3 Years	95	3,836	,918	In-Group	405,025	343	1,181			
	3-7 Years	83	3,777	1,288	Total	443,191	345				
	Total	346	3,487	1,133							

*p<0,05

A= Less than 1 year, B= 1-3 Years, C= 3-7 Years.

In Table 5, the SIAS of the participants according to their athletic years, Anxiety of Suffering (F=12.110; <P 0.05), Anxiety of Disappointment (F=7.196; <P 0.05), Anxiety of Losing Social Support (F=14.118) ; <P 0.05), Re-Injury Anxiety (F=16.161; <P 0.05), there is a statistically significant difference in the mean scores.

As a result of the Post-Hoc analysis Tukey Test, which was conducted to determine between which groups this difference occurred, the sub-dimensions of Suffering (X=3,600), Disappointment (X=3.632), Losing Social Support (X=3.789) were 1-3. It has been determined that the level of injury anxiety of the archers with a sportsmanship experience between 1 and 5 years is higher than those of the archers with less than 1 year of sports experience. In the Re-Injury sub-dimension, it was determined that the archers who had 1-3 years (X=3.836) and 4-7 years (X=3.777) sports experience had higher injury anxiety score averages than archers who had less than 1-year (X=3.145) sports experience. has been done.

Table 6: Anova-test results of participants' sports injury anxiety level scores according to previous sports injury and recovery time.

	Categories	N	X	Ss	Source of Variance	KT	sd	KO	F	p	Meaning
The Anxiety of Loosing Ability	No	135	3,044	1,151	Between Grups		3	4,849	3,800	,011	A-D; D-A,B
	1-7 Days	127	3,078	1,185	In-Group		342	1,276			
	8-21 Days	59	3,423	1,053	Total		345				
	21 Days or Over	25	3,720	,842							
	Total	346	3,170	1,143							
Poor Perception Anxiety	No	135	3,303	1,024	Between Grups		3	1,369	1,099	,350	
	1-7 Days	127	3,433	1,288	In-Group		342	1,246			
	8-21 Days	59	3,593	,967	Total		345				
	21 Days or Over	25	3,560	,960							
	Total	346	3,419	1,116							
The Anxiety of Suffering	No	135	2,837	1,173	Between Grups		3	9,686	6,916	,000	B-A; C-A; D-A
	1-7 Days	127	3,401	1,248	In-Group		342	1,400			
	8-21 Days	59	3,389	1,114	Total		345				
	21 Days or Over	25	3,600	1,040							
	Total	346	3,193	1,213							
Disappointing Anxiety	No	135	3,259	1,112	Between Grups		3	2,504	2,100	,100	
	1-7 Days	127	3,527	1,132	In-Group		342	1,193			
	8-21 Days	59	3,339	,975	Total		345				
	21 Days or Over	25	3,720	1,021							
	Total	346	3,404	1,097							
The Anxiety of Loss Social Support	No	135	3,288	1,158	Between Grups		3	2,255	1,607	,188	
	1-7 Days	127	3,551	1,245	In-Group		342	1,403			
	8-21 Days	59	3,237	1,072	Total		345				
	21 Days or Over	25	3,560	1,260							
	Total	346	3,396	1,187							
The Anxiety of being Injured Again	No	135	3,451	1,173	Between Grups	6,988	3	2,851	2,243	,083	
	1-7 Days	127	3,661	1,195	In-Group	423,246	342	1,271			
	8-21 Days	59	3,211	,831	Total	430,234	345				
	21 Days or Over	25	3,440	1,121							
	Total	346	3,487	1,133							

*P<0.05

A= No, B=1-7 Days, C= 8-21 Days, D= 21 Days or more

In Table 6, a statistically significant difference was found in the Anxiety of Losing Ability ($F=3,800$; $<P 0.05$) and Anxiety of Suffering ($F=6.916$; $<P 0.05$) sub-dimensions of the SIAS according to the previous sports injury and the recovery time of the archers. In consequence of the Post-Hoc Analysis Tukey Test, which was conducted to determine between which groups this difference was, it was determined that the Anxiety of Losing Ability sub-dimension average score ($X=3,720$) of the archers who recovered in 21 days or more was higher than the archers who did not experience any sports injuries ($X=3,044$). Again in the same sub-dimension, it was determined that the mean score ($X=720$) of the archers who recovered in 21 days or more was higher than the archers with no previous sports injuries ($X=3.044$) and archers healed in 1-7 days ($X=3.078$).

In the Anxiety of Suffering sub-dimension, it was determined that the archers healed in 1-7 days ($X= 3,401$), archers healed in 8-21 days ($X= 3.389$), and archers healed in 21 days or more ($X=3.600$) sports injury anxiety scores were higher than the archers who did not have a sports injury before ($X= 2.837$).

4. Discussion

In this study, in which the level of injury anxiety in archers was evaluated according to different variables, it was determined that male archers' anxiety levels were higher only in the "Losing of Ability" sub-dimension, among the archers' sports injury anxiety scale sub-dimension mean scores according to gender.

According to the type of bow used, it was determined that the anxiety levels of the Olympic recurve archers were higher than the compound archers only in the Disappointing Anxiety sub-dimension, from the SIAS sub-dimension scores.

It has been determined that the sports injury anxiety level mean scores of archers who do not have any other active sports in their family are higher than archers who do other sports in their family in the "Disappointing Anxiety and Anxiety of Loss Social Support sub-dimensions." This situation can be explained as the fact that archers in their family who played sports other than themselves have the opportunity to receive support from other members of their families who do sports in case of any sports injury, and therefore their anxiety about Disappointing Anxiety and Anxiety of Loss Social Support is less.

Archers with 1-3 years of sports experience have higher sports injury anxiety score averages than archers with less than 1 year in Anxiety of Suffering, Disappointing Anxiety, Anxiety of Loss Social Support sub-dimensions. In the Anxiety of being Injured Again sub-dimension, it was seen that the sports injury anxiety levels of the archers with 1-3-year and 4-7 years of sports experience were higher than the archers with less than 1 year. As the experience of the athletes increases, their expectations and needs for winning also increase. In this regard, every competition is important for athletes. The thought that their careers may be damaged due to the matches they could not attend due to sports injuries may cause more anxiety in more experienced athletes. This can be explained by the increase in sports injury concerns of archers as their sports experience increases.

It was determined that the anxiety levels of the archers who had not experienced a sports injury before in the Anxiety of Losing Ability and Anxiety of Suffering sub-dimensions of the SIAS were lower than those of the athletes who had experienced a sports injury and recovered at different times. Sports injuries are classified as minor injuries lasting 1-7 days, moderate injuries lasting 8-21 days, and serious injuries lasting more than 21 days (Kocaman, Atay, Alp & Suna 2018). It can be said that since the archers who healed in 1-7 days experienced minor injuries, their anxiety levels were lower than those of the athletes who had moderate and long-term injuries. In this regard, archers who have not experienced sports injuries before have lower anxiety levels, which can be explained in this direction. In a study conducted supporting the findings by Heil (1993), it was stated that injury experiences, physical pain in athletes, questioning of ability lead to anxiety.

It is thought that taking all necessary safety measures to prevent situations that can cause serious injuries in archery training, and competition areas will be effective in preventing sports injuries and related sports injury anxiety.

According to the study findings, the archers participating in the study generally have high sports injury anxiety levels. Nevertheless, archers who have a lot of sports experience, who have had sports injuries before, and who do not have any other sportsmen in their family have been found to have higher sports injury anxiety levels.

Sports environments with intense physical activity are risky areas for sports injuries. This risk is even higher in archery which is a shooting sport. Sports environments, where the risk of injury is high, bring injury anxiety in athletes. It is thought that measures to be taken to eliminate risk factors that may cause injury in sports environments will be effective in reducing injury anxiety in archers. However, it is thought that measures such as archers being careful to take their protective measures, not neglecting warm-up and cool-down techniques before training and matches will prevent the risk of injury and therefore, injury anxiety.

References

- Aksoy, D. (2019). Spor yaralanmalarında tedavi sonrası durumluk ve sürekli kaygı düzeylerinin incelenmesi. *Beden Eğitimi ve Spor Bilimleri Dergisi*, 21(2), 89-96.
- Bavli, Ö., & Kozanoğlu, E. J. F. Ü. S. B. T. D. (2008). Adolesan basketbolcularda mevkilere göre yaralanma türleri ve nedenleri. 22(2), 77-80.
- Çakır, Z., & Cihad, K. (2021). Farklı Kategoride Yarışan Taekwondocuların Spor Yaralanmalarına Karşı, Kaygı Durumlarının İncelenmesi. *The Online Journal of Recreation and Sports*, 10(3), 18-30.
- Heil, J. (1993). A psychologist's view of the personal challenge of injury. *Psychology of sport injury*, 33-46.
- Ivarsson, A., & Johnson, U. (2010). Psychological factors as predictors of injuries among senior soccer players. A prospective study. *Journal of sports science & medicine*, 9(2), 347.
- Kabak, B., & Karanfilci, M. (2018). Okçuların Antrenman ve Müsabakada Geçirdikleri Spor Yaralanmalarının İncelenmesi. *Kilis 7 Aralık Üniversitesi Beden Eğitimi ve Spor Bilimleri Dergisi*, 2(1), 17-27.
- Kılıç, B., Yücel, A. S., Gümüüşdağ, H., Kartal, A., & Korkmaz, M. (2014). Spor yaralanmaları üst ekstremitte yaralanmaları kapsamında omuz yaralanmaları ve tedavi yöntemleri.
- Kocaman, G., Atay, E., Alp, M., & Suna, G. (2018). Okçularda Spor Yaralanmaları Bölgelerinin ve Türlerinin Değerlendirilmesi. *Spor Hekimliği Dergisi*, 53(1), 001-008.
- Lee, K. H. (2009). Evaluation of attention and relaxation levels of archers in shooting process using brain wave signal analysis algorithms. *Science of Emotion and Sensibility*, 12(3), 341-350.
- Leroyer, P., Van Hoecke, J., & Helal, J. N. (1993). Biomechanical study of the final push-pull in archery. *Journal of Sports Sciences*, 11(1), 63-69.
- Mondal, T., & Mridha, S. (2021). A study on Indian archery: An upsurge with reference to different awards.
- Petrie, T. A. (1993). Coping skills, competitive trait anxiety, and playing states: Moderating effects an the life stress-injury relationship. *Journal of sport and exercise psychology*, 15(3), 261-274.
- Rex, C. C., & Metzler, J. N. (2016). Development of the sport injury anxiety scale. *Measurement in Physical Education and Exercise Science*, 20(3), 146-158



Teacher Candidates' Views about the Effects of Information and Communication Technologies on Human Rights and Freedoms

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Abstract

The recent rapid developments in technology have caused great changes in all areas of human life. This study aimed to determine the views of teacher candidates on the rights and freedoms affected by information and communication technologies (e.g., telephone, computer, and internet). The study was carried out in the spring term of the 2020-2021 academic year, and the sample consisted of 100 volunteer teacher candidates studying the "Human Rights and Democracy Course" at the Faculty of Education of Yozgat Bozok University. The data of this qualitative research were collected through teacher candidates' compositions and were analyzed using content analysis. According to the results of the research, the rights and freedoms that are thought to be positively affected by the use of information and communication technologies are as follows: freedom to obtain and disseminate information, freedom of communication, right and duty of education, right to congregate / right of organization, right to legal remedies, freedom of expression and dissemination of thought, and right to enter public services. The negatively affected rights and freedoms are determined as privacy of private life, right to request the protection of his/her personal data, personal liberty and security, freedom of information and dissemination, and right to health. To minimize the negative impact of information and communication technologies on rights and freedoms, teacher candidates expressed some suggestions such as information and communication technologies education, human rights education, sanction/punishment, personal security measures, and increasing supervision.

Keywords: Rights and Freedoms, Information and Communication Technologies, Teacher Candidate

1. INTRODUCTION

Latest developments in science and technology have changed the concept of time and space in accessing information. Today, people can instantly access information no matter where they are. Tools such as computers, the Internet, and mobile phones have started to be considered as compulsory needs. From trade to politics, from education to entertainment, many works and transactions can be carried out online quickly and easily, without traveling far and without waiting in line. This makes the use of information and communication technologies (ICT) widespread in daily life. According to the results of the Survey on Information and Communication Technology

Usage in Households conducted by the Turkish Statistical Institute (TUIK), 92% of the households will have access to the internet from home in 2021, while the rate of internet usage is 82.6% in individuals between the ages of 16-74 (TUIK, 2021).

While technology refers to the process of facilitating human life through reason and logic, ICT (an important part of this process) is defined as the whole of technologies that enable information to be collected, processed, transmitted and accessed at the desired place and time (Atılğan, 2006: 2; Alaca & Yılmaz, 2016: 512). ICT is a comprehensive category that includes hardware and software that facilitate the production, storage, transmission and retrieval of digital information (McPherson, 2015: 2). ICT is an umbrella term that includes any communication tools or applications that cover various services and applications such as various mass media (radio, television, telephone, etc.), computer hardware and software, satellite systems (Khandagale, 2016: 2).

Information technologies are the result of scientific knowledge accumulated throughout the history of civilization (Yeşilorman & Koç, 2014: 120) and they have become comprehensive enough to change and transform all natural and social life (Bitirim Okmeydan, 2017: 351). Today, the use of ICT has become an increasingly common lifestyle (Alaca & Yılmaz, 2016: 513). Developments in ICT have also affected state institutions, so systems (e-government, e-pulse, EBA, etc.) have been developed to provide public services quickly, efficiently and with high quality (Pektaş, 2011: 67).

The rapid progress experienced has accelerated all kinds of information flow, deeply affected social, cultural and economic life, and changed many values and concepts (Atılğan, 2006:2). Human rights and freedoms are also affected by the changes and developments in the age of technology. The ever-increasing use of ICT and several violations make it obligatory to question its impact on human rights and freedoms.

Human rights are the rights that people have from birth just because they are human, without discrimination for any reason such as language, religion, race, gender, and socioeconomic status (Yavuz, Duman, & Karakaya, 2016: 57). While an individual is using his rights and freedoms within the framework of the law and with his free will, the individual can never be compelled by anyone to waive their rights. In a constitutional state, laws guarantee the rights of individuals and leave the use of these rights to the free will of the individual within the framework of the individuality of the rights (Yıldız, 2016: 60). With the expansion of the usage areas of the internet, it is inevitable that more than one human rights and freedom will be affected at the same time, since people from all over the world who know or do not know each other can communicate through ways such as virtual games, social media, and e-mail (Kaya, 2020: 163).

Thanks to ICTs, any injustice experienced in one part of the world can be public property all over the world in a short time. It can be acted with common feeling and consciousness against violation of rights. Information on rights and remedies can also be obtained easily. In extraordinary situations such as pandemics, education can be maintained through these tools.

ICT has provided human rights activists with new tools to defend human rights (Puddephatt, Horner & Hawtin, 2010: 3). According to McPherson (2015: 3), ICT supports the exercise of human rights and the prevention of human rights violations in various ways. However, these applications bring risks as well as support. For example, recordings of digital video cameras may prevent some abuses, but may also violate the right to privacy. As stated in the 2011 report of the United Nations Human Rights Council, the ability to access and effectively use these technologies has become an indispensable tool for the realization and support of human rights, especially freedom of expression, political participation, and the fight against inequality (Karppinen, 2017: 3).

Online platforms are used by billions of people every day to express themselves and to comment, discuss, criticize, search, create content, share opinions and content (Jorgensen, 2018: 244). Through social media, people can express their thoughts about any event by writing, speaking, and discussing. Also, people can share information, images as well as videos on these platforms. They can search and apply for a job via the Internet, that is, individuals' actions in the real world have moved to the virtual environment (Vural & Bat, 2010: 3351). The possible negative effects of these transactions on human rights necessitate the more conscious use of ICT.

Regarding the literature, the studies on the subject have focused on the use, level of use, and purposes of ICT (Avcu & Gökdaş, 2012; Hakkari, Tüysüz & Atalar, 2016; Karasu, 2016; Yaylak & İnan, 2018). Besides, research has examined the effects of communication technologies such as social media, internet and mobile phones on rights (Karlıdağ, 2014; Şen & Şen, 2015; McPherson, 2015; Khandagale, 2016; Karppinen, 2017; Dülger, 2018; Jorgensen, 2018; Serin, 2019; Çobansoy, 2020; Akince, 2021). This study is significant because no study presents the views of teacher candidates on human rights affected by information and communication technologies. Besides, the findings of this research are important in terms of providing information on the measures to be taken to raise awareness of the rights and freedoms that individuals have in the digital environment, what rights violations they may experience because of using ICT, and what the defense mechanisms to apply in case of violation are. It is thought that the findings will contribute to the research to be conducted to reveal the relationship between technology and rights.

2. METHOD

This qualitative research adopted the phenomenology design. Malterud (2001) advocates that qualitative research aims to present different perspectives for explaining entities or events, defining the relationships between events, and helping to understand individual and social problems (as cited in Kınca, 2015: 59). Phenomenological research is a qualitative research design that aims to reveal individuals' perceptions and experiences about a certain subject. This type of research is inductive descriptive research in which defining the meaning of the expression of lived experiences is prioritized (Ersoy, 2019: 84).

2.1 Data Collection Tools

Data were collected through teacher candidates' compositions in which they wrote their feelings and thoughts on a particular subject. Therefore, teacher candidates were given a topic titled "The Effect of Information and Communication Technologies usage on Human Rights and Freedoms" and they were asked to write an essay describing their positive or negative thoughts about the use of ICT on human rights and freedoms. They were given enough time without any interventions so that they could write their thoughts on the subject in a free and creative way. The submitted compositions were coded as ST1, ST2, S3...

2.2 Study Group

Convenience sampling was adopted to recruit volunteer 100 teacher candidates studying in different departments in the Faculty of Education, Yozgat Bozok University, studying the "Human Rights and Democracy Course," which is one of the general culture elective courses. Convenience sampling enables the researcher to choose a convenient sample from the target population (Baltacı, 2018: 259). Table 1 informs about their gender and the departments they are studying.

Table 1: Distribution of participants in terms of gender and the departments they are studying

Gender	N	%
Female	60	60
Male	40	40
Departments they are studying	N	%
Guidance and Psychological Counseling	25	25
Primary School Teaching	20	20
Preschool Education	25	25
Turkish Language Teaching	10	10
Elementary Mathematics Teaching	10	10
English Language Teaching	10	10
TOTAL	100	100

2.3 Data Analysis

Content analysis was used to analyze the data. Codes and themes were created based on the rights in the Universal Declaration of Human Rights, the fundamental rights and freedoms in the Constitution of the Republic of Turkey, and the rights and freedoms underlined by teacher candidates in their compositions. For reliability, the compositions were analyzed according to the themes created by a social studies teacher with a master's degree, based on the suggestion that another researcher's confirmation should be obtained during the data analysis process. The researcher and the social studies teacher discussed the "consensus" and "dissensus," and revisions were made in line with joint decisions. Intercoder reliability was found 89% using Miles and Huberman's (1994) formula. Findings were converted into quantitative form and presented in tables showing frequencies and percentages. A composition may contain expressions that fall into more than one category. To ensure the internal validity of the research, direct excerpts were given.

3. FINDINGS

This part presents both findings of content analysis in tables and participant's direct statements

Table 2: The positive effects of ICT use on rights and freedoms

Rights and Freedoms	f	%
Freedom to obtain and disseminate information	62	19
Freedom of communication	43	14
Right and duty of education	42	13
Right to congregate / right of organization	41	13
Right to legal remedies	39	12
Freedom of expression and dissemination of thought	36	11
Right to enter public services	20	6
Personal liberty and security	18	5
Right to health	9	3
Right to life	6	2
Property rights/ inviolability of the domicile	6	2
TOTAL	322	100

As is seen in Table 2, the rights and freedoms that are positively affected by the use of ICT are freedom to obtain and disseminate information (f=62, 19%), freedom of communication (f=43, 14%), right and duty of education (f=42), 13%, right to congregate / right of organization (f=41, 13%), right to legal remedies (f=39, 12%), freedom of expression and dissemination of thought (f=36, 11%), right to enter public services (f =20, 6%), and personal liberty and security (f=18, 5%). In addition, right to health, right to life, and property rights/inviolability of the domicile were also emphasized by the participants. Here are some representative excerpts:

ST13: *We can instantly access the information we want. We can find out how to defend our rights by searching the internet and TV. Thanks to our smartphones and tablets, we can see violations of rights in a very short time. Authorized institutions and organizations can intervene and control this situation in a short time. The effective use of technology enables people to react to injustices in a short time and to appreciate good developments.*

ST16: *The use of smartphones, the Internet and social media helps spread everything more easily. Thanks to search engines, we can have information about our rights even if we do not study law. We are constantly informed about developments. We can condemn an attack on human rights anywhere in the world.*

ST19: *It contributes to the rights to education by contributing to the mental development of children, improving their creativity and facilitating their educational activities. Personal safety is ensured by calling other people and institutions and asking for help when faced with an emergency via the Internet and telephone. It facilitates situations such as making an appointment at the hospital, internet banking, and utilizing e-government public services.*

ST41: *Thanks to the developing technologies, people can easily make voice calls or video calls to communicate with each other. Besides, people can have much information about a subject easily and quickly through various*

information technologies. Cameras enable people to protect their rights such as property rights and inviolability of the domicile when thieves break into their homes. People are comfortable expressing their thoughts in various internet applications.

ST65: *Information technologies also contribute to ensuring personal liberty and security. The KADES program is a good example, which was established by the Ministry of Internal Affairs. This application can be used by women and children during violence and abuse circumstances, and it enables people to push the notification button and enable the necessary units to take action. SABİM (Ministry of Health Communication Center) phone application provides easy access to all kinds of health-related services.*

Table 3: The negative effects of ICT use on rights and freedoms

Rights and Freedoms	f	%
Privacy of private life	83	38
Right to request the protection of his/her personal data	32	15
Personal liberty and security	30	14
Freedom of information and dissemination	18	8
Right to health	16	7
Prohibition of inhumane treatment	10	5
Protection of the family and children's rights	10	5
Freedom of expression and dissemination of thought	8	4
Prohibition of discrimination	8	4
TOTAL	215	100

When Table 3 is examined, the rights and freedoms that are negatively affected by the use of ICT are as follows: privacy of private life (f=83, 38%), right to request the protection of his/her personal data (f=32, 15%), personal liberty and security (f=30, 14%), freedom to obtain and disseminate information (f=18,%) 8), right to health (f = 16, 7%), prohibition of inhuman treatment (f = 10, 5%), protection of the family and children's rights (f = 10, 5%). Also, freedom of expression and dissemination of thought, and prohibition of discrimination are among the rights and freedoms negatively affected by the use of ICT. Some statements are below:

ST94: *While using information technologies, people may encounter cyberbullying, be exposed to harassment, or suffer material and moral damages. Racism and belief discrimination can be made through social media and the internet. The privacy of private life can be violated, people can easily share and reproduce others' photos and videos by secretly taking them. While playing various games on the Internet, children may harm themselves to pass the stages in the game.*

ST76: *Some people deviate from the freedom of thought and opinion by making hate speech and violent posts in the media, which negatively affects people psychologically. These hate speeches are also made directly against values such as language, religion, gender, race and culture. This shows that human rights can be easily violated in the digital medium. From another point of view, if the platforms we are a member of on the Internet do not have secure encryption, if the websites are not secure enough, they become easily accessible; thus, there becomes a decrease in privacy and online reliability.*

ST71: *There is a lot of information on the internet, and it is not easy to know whether it is true or fake. Students can access a lot of information instantly, but unfortunately not every information they reach is correct, and they often receive and use this information without checking its accuracy. This takes away our right to access accurate information. Technological devices can cause addictions and physical ailments, which undermines people's right to health.*

ST25: *As technology developed, it began to appeal to a broad audience. People are reluctant to express their thoughts in this broad audience. This is because people who express their thoughts through social media accounts can be subjected to social media lynching by others with opposing views. Also, their ideas may be viewed as contrary and subject to investigation. Therefore, people may hesitate to express their opinions freely. This situation negatively affects the freedom of thought and opinion.*

ST12: *We can easily say that there is fake news, fabrications, and all kinds of information pollution in social media. Humor and humiliation are mixed on the internet and especially in social media. As a result of miscommunication, many incidents that violate human rights occur. Facial recognition systems, transferring identity information to digital media, or sharing identity information with third parties harm individuals' right to*

privacy. Information and communication technologies pollute our environment by constantly emitting radiation and take away our right to a healthy life.

Table 4: Suggestions to reduce the negative effect of ICT on rights and freedoms

Suggestions	f	%
ICT education	53	28
Human right education	33	17
Sanction/penalty	29	15
Personal precautions	24	12
Supervision and control	20	11
Legal regulation	17	9
Restriction	11	6
Media literacy education	3	2
TOTAL	190	100

According to Table 4, the suggestions of the participants to eliminate or minimize the negative effects of ICT on rights and freedoms are ICT education (f=53, 28%), human rights education (f=33, 17%), sanction/penalty (f=29, 15%), personal precautions (f=24, 12%), supervision and control (f=20, 11%), legal regulation (f=17, 9%), restriction (f=11, 6%), media literacy education (f=3, 2%). Here are some statements:

ST1: *Although access to Internet applications is unrestricted, it must be under supervision and control. Law of respect for users should be enacted. Legislation including new information technologies should be made.*

ST5: *First, people should be given detailed information about human rights and information technologies. The state should punish those who do not comply with the law of privacy so that people can learn from their mistakes and not do such things again.*

ST20: *Penalties can be made more severe in case of theft of personal information. Individuals should also take necessary security measures to prevent the theft of information. For example, they should choose their passwords in accordance with the secure password setting rules and change the password when necessary. ICT education should be given regularly to all age groups.*

ST23: *Necessary information and education can be provided to minimize the negative effects of ICT. Necessary penal actions may be applied to those who violate these rights.*

ST31: *Restrictions should be placed on social media and television channels that violate human rights, and I recommend that people be trained and conscious about the protection of these rights and the correct use of information technologies. In addition, laws on human rights violations of information technologies should be enacted.*

ST58: *To prevent such negative situations, informative seminars should be given to individuals about their digital rights and how these rights should be protected. Participating in these seminars should be compulsory. In addition, the necessary penalties should be given to people when these rights violations occur, and social media access should not be allowed.*

4, DISCUSSION AND CONCLUSION

Human rights and freedoms are vital for maintaining a dignified life. These rights are innate, inalienable, and universal. History is full of people's struggles for rights and freedom. Today, while developing technology makes daily life easier, it causes some changes regarding the living and defense of human rights and freedoms. The rights and freedoms affected by ICT should be examined. The positive effects of ICT should be strengthened, and measures should be taken to eliminate its negative effects. Accordingly, the findings of this study are as follows: Regarding the positive effects of ICT on rights and freedoms, participants first emphasized the freedom to obtain and disseminate information and freedom of communication. Thanks to the internet networks, communication that could take weeks or even months with the old methods can be achieved in seconds. Thanks to mobile phones and social platforms, time and space boundaries have disappeared in communication. Mobile phones and social platforms have removed the boundaries in communication, such as time and place. An individual can access a book in any library all around the world in a virtual environment whenever he/she wants. Information can be easily accessed through internet search engines. Communication technologies have important duties in the context of

preparing, disseminating and informing the public about news and information about human rights (Işık & Ata, 2021: 223). Thus, it can be said that ICT has a positive effect in terms of increasing the cognitive and affective competencies of individuals, especially regarding human rights, and positively affects the freedom of obtaining and disseminating information and freedom of communication.

Another positively affected one is the right and duty of education. Various studies support that the use of ICT in education contributes to effective learning. In Turkey, with the declaration of a pandemic in March 2020, distance education was applied. Instruction was given through applications such as EBA (Education Informatics Network), Zoom, and Google Meet. The aim was to ensure that all students in the country could benefit from the right and duty of education.

According to teacher candidates, the right to congregate / right of organization and the right to legal remedies are positively affected by the use of ICT. The positive effect of exercising right to information and communication directly affects the right to legal remedies and right of organization. Violations of rights in any part of the world can be heard in a short time, people can come together on various virtual platforms and act jointly to eliminate the violation, and they can enable the police and judicial bodies to act faster. As Atilla & Bodur Ün (2018: 795) state, thanks to information technologies, it has become easier to fight for rights together by forming local, national, and transnational communities with a common thought and consensus, rather than being together physically. ICT has become an indispensable part of human life in terms of developing a sense of us among users and contributing to a common consciousness in line with the determined targets (Karaçor, 2009: 128). ICT can serve multiple functions such as creating a network between associations and organizations fighting for human rights, organizing activities, warning about rights violations to mobilize activists and members, publishing newsletters, sending e-mails, and fundraising (Ugirashebuja, 2009: 5; Işık & Ata, 2021: 224).

Teacher candidates emphasized that freedom of thought and opinion was positively affected by ICT. Freedom of thought and opinion is one of the indispensable rights and freedoms included in various human rights documents and constitutions. In Articles 25 and 26 of the Constitution of the Republic of Turkey, "Everyone has the freedom of thought and opinion. No one can be compelled to express his thoughts and convictions for whatever reason and purpose, nor can they be condemned or blamed for their opinions. Everyone has the right to express and disseminate his/her thoughts and opinions by speech, in writing or pictures or through other media, individually or collectively." Individuals can freely use this right, except for the cases expressed in the constitution. ICT has also positively affected the freedom of expression and dissemination of thought. People can share texts, images, videos, watch the posts, comment on them, and criticize them wherever and whenever they want via social media (e.g., WhatsApp, Twitter, YouTube).

Lindroos (2003) advocates that the state has become more accessible to citizens thanks to ICT (as cited in Vural & Sabuncuoğlu, 2008: 13). E-government applications make it easier to access public services; thus, the dimensions of the citizen's relationship with the administration have also changed. As long as individuals have access to the Internet, they can access information and services whenever and wherever they want and services can be provided to individuals more easily and quickly through e-government (Kırışık & Özer, 2015: 202; Vural & Sabuncuoğlu, 2008: 13). Citizens can access the necessary information from the websites of government and private institutions, and they can submit their applications and complaints via e-mail and WhatsApp applications without the need to go to the institution. Thanks to digital applications, any doctor can access detailed information about individuals' health/disease history and provide a faster as well as more efficient health service (Bitirim Okmeydan, 2017: 365). The e-appointment system can be given as a good example of these applications. With this system, the sick citizens do not wait for a long time in the hospitals. In this context, teacher candidates underlined the right to enter public services and the right to health regarding the positive effects of ICT.

Teacher candidates also reported that ICT positively affected the freedom and security of the person and the right to live. Accelerated communication and ease of obtaining and sharing information also make it easier to prevent or catch criminals. The presence of cameras in homes, workplaces and streets can be seen as a factor reducing the tendency to crime. Thanks to emergency telephone lines such as 155, 156, 140, 148, security forces can be reached quickly in case of a security threat.

However, some rights and freedoms are negatively affected because of the use of ICT. Most teacher candidates pointed out the right to privacy and the right to protect his/her personal data as the most negatively affected rights are. This negative impact naturally affects personal liberty and security. Privacy of private life is placed near the top in the constitution and documents related to human rights. The scope of private life includes information such as physical characteristics, information about education/work, religion, thoughts and opinions on various subjects, family structure, family life and family characteristics (Kılınç, 2012: 1091). According to Bitirim Okmeydan (2017: 360), while sharing information without limitation of time and place contributes to the freedom of information and communication, it also creates problems in terms of personal security and privacy regarding the privacy of private life. People are asked to provide some information to create social media or e-mail accounts, download and use various applications on their mobile phones. Users may consider it a necessity to provide personal information in order not to be deprived of these services and avoid social exclusion (Karlıdağ, 2014: 103). According to Yüksel (2003: 185), the first source of threat to privacy is self-disclosure. The sharing that users make voluntarily on various platforms brings with it some potential problems such as the capturing, storing, manipulating and transferring personal accounts and therefore personal information to third parties (Işık & Ata, 2021: 238; Bitirim Okmeydan, 2017:362). Protection of personal information was initially seen as a part of the right to privacy, but with the adoption of the European Union Declaration of Fundamental Rights in 2009, data protection has become a separate fundamental right in Europe (Brunner, 2018: 233). The right to request the protection of his/her personal data is the right of the citizens to have a say in cases such as the capture, collection, processing or transfer of their personal information. No action can be taken on personal data without the knowledge and consent of the data owner (Dülger, 2018: 74).

According to teacher candidates, the freedom to obtain and disseminate information and the freedom of expression and dissemination of thought are both positively and negatively affected because of ICT use. This is because just like correct information, false information and news can also spread rapidly on the internet. The disappearance of the boundaries in mass information distribution due to the Internet and the fact that the virtual environment is an area where it is very difficult to control, information pollution arises, and it becomes difficult to distinguish what is real and what is false (Atilla & Bodur Ün, 2018: 804; Işık & Ata, 2021: 244; Semiz, 2019: 3).

Especially in recent years, the widespread use of mobile phones has caused some physical and mental disorders in terms of health. This situation was also emphasized by teacher candidates. The eyes, musculoskeletal system can be damaged as a result of long-term use of devices such as mobile phones, televisions and computers, and the emitted radiation can adversely affect the whole body. According to the results of the Survey on Information and Communication Technology Usage in Households conducted by TUIK, 80.5% of all individuals between the ages of 16-74 was found to use the internet regularly (almost every day or at least once a week) in the first three months of 2021. While distance education is the main reason for this increase, social media and games also cause mobile phone/internet addiction to become widespread.

Teacher candidates associated the prohibition of inhuman treatment and the prohibition of discrimination, which are thought to be among the rights that ICTs negatively affect, with their social media posts. The examples given regarding the negative impact on these rights were related to the racist activities in the world. Teacher candidates stated that during the use of freedom of thought and opinion provided by social media, some people made humiliating, discriminatory posts, comments, and lynching against religion, language and race. According to Işık & Ata (2021: 235), the increasing use of social media has brought with it some negativities that cannot be considered under the freedom of opinion. For example, sharing such as insults, slander, slander that may damage a person's honor and reputation on social media is against human rights and the law.

The new generation, called Generation Z and Generation Alpha, was born in technological environment and grows with technology. Babies learn to play on the phone almost before they learn to speak. Mothers use the phone as a tranquilizer so that their children do not cry. In such an environment, the impact of ICT on children's rights should also be questioned. Teacher candidates believe that ICT negatively affects the protection of the family and the rights of the child, which are included in the constitution. The use of technology causes a decrease in communication and interaction within the family, which brings child neglect. Parents who do not have media literacy proficiency cannot take the necessary precautions, which can make children vulnerable in the virtual

environment. Children's frequent participation in social media platforms, seeing and watching posts that are not suitable for their age and developmental characteristics can negatively affect their psycho-social, cognitive, sexual and physical development. This situation can lead to legal, moral and ethical violations. Besides, parents' sharing photos and images of their children is one of the most important problems encountered within the scope of violation of children's rights (Serin, 2019: 2).

One of the most important aims of scientific studies is to offer solutions for the welfare and happiness of society to eliminate the negative situations in human life. In this research, the teacher candidates' solution suggestions to eliminate or minimize the negative impact of ICT on rights and freedoms are ICT education, human rights education, sanction/ penalty, personal precautions, supervision and control, legal regulation, restriction, and media literacy education.

Teacher candidates mostly emphasized the importance of education such as ICT education, human rights education, and media literacy education. For being an effective member of the information society, individuals need to have ICT-related skills and competencies (Alaca & Yılmaz, 2016: 514). In the curriculum renewed in 2017, digital competency has been one of the eight key competencies targeted to be acquired by individuals. Integration of ICT into education is at the forefront of issues on education. During the pandemic process, the ability of all students, teachers and parents to use ICT has become questionable. To teach the correct and effective use of ICT and to prevent rights violations that may occur in social networks, individuals should be made aware of ICT use, media literacy, and human rights. Therefore, it can be said that elective courses such as life sciences and social studies courses, human rights, citizenship and democracy courses, information technologies and media literacy are important. Teacher candidates suggested that family education should be carried out within the scope of lifelong learning. Besides, they recommended personal precautions. Training can increase awareness about the importance of taking the necessary security measures during the use of ICT and what can happen in case of negligence. Based on the opinions of the participants, it can be said that the negative effects of rights and freedoms can be prevented by taking personal security measures such as not sharing personal information, using passwords, using an anti-virus program, being careful in using passwordless wi-fi, not using applications where personal information can be accessed while using public wi-fi.

According to teacher candidates, the most important responsibility in eliminating the negative impact of ICT use on rights and freedoms rests with the state. Participants argue that legal regulations regarding the use of ICT should be made, an effective and continuous audit should be carried out, and penal sanctions should be applied as a result of the supervision and control. Bringing human rights to the highest level is the primary duty of all states. States must prepare the necessary environment for the realization of these rights and for people to live truly equal, free and dignified (Yavuz, Duman & Karakaya, 2016: 62). In this context, two important laws have been enacted: law No. 5651 on Regulating Broadcasts on the Internet and Combating Crimes Committed Through These Broadcasts, adopted in 2007, and Law No. 6698 on the Protection of Personal Data, adopted in 2016. The Information Technologies and Communications Authority was established to ensure that everyone can benefit from new technologies, services and applications, and to protect them from the risks and threats that may arise against the rights and freedoms guaranteed by international agreements. This institution, which regulates and supervises the telecommunication sector in Turkey, was established in 2000 with the name of "Telecommunication Authority" with the law numbered 4502.

Based on the study findings, suggestions that can be made to improve the positive effects of ICTs and to eliminate their negative effects are as follows:

- The content and achievements of the human rights, citizenship and democracy course should be developed to include the relationship between ICT and human rights and freedoms.
- Media literacy courses should be given as a compulsory course, not as an elective.
- Cyber security education should be given to all citizens within the scope of lifelong learning.
- The awareness of individuals should be raised by preparing advertisements and public service announcements about the personal security measures to be taken during the use of ICT.

- To comply with ethical rules in social media and other virtual environments, the closure of the personal account for a certain period and the implementation of sanctions such as fines can contribute to a positive change in behavior.
- This study aimed to determine the rights and freedoms that ICT positively or negatively affect in line with the opinions of teacher candidates. Further studies may be conducted with different sample groups and to investigate the reasons for the effects on rights and freedoms.

References

- Akince, B. (2021). Nesnelerin interneti, güvenlik ve gizlilik, insan hakları bağlamında bir değerlendirme. *International Journal of Social Inquiry*, 14 (1), 53-80. DOI: 10.37093/ijisi.950466
- Alaca, E. & Yılmaz, B. (2016). Bilgi ve iletişim teknolojilerinin kullanımı ve bilgi toplumuna dönüşüm: Türkiye’de durum. *Türk Kütüphaneciliği*, 30 (3), 507-523. <https://dergipark.org.tr/pub/tk/issue/48653/618601>
- Atılğan, D. (2006). *İletişim teknolojileri çağında değişen bilgi hizmetleri*, 1. Uluslararası Bilgi Hizmetleri Sempozyumu: İletişim, İstanbul.
- Atilla, H. & Bodur Ün, M. (2018). Ulusal ve ulusötesi toplumsal hareketler ve yeni bilgi ve iletişim teknolojileri . *Ankara Üniversitesi SBF Dergisi*, 73 (3), 787-809. DOI: 10.1501/SBFder_0000002517
- Avcu, D. Ü. & Gökdaş, Y. D. D. İ. (2012). İlköğretim ikinci kademe öğretmenlerinin bilgi ve iletişim teknolojilerine ilişkin kabul ve kullanım niyetleri. *Adnan Menderes Üniversitesi Eğitim Fakültesi Eğitim Bilimleri Dergisi*, 3 (1), 42-59. <https://dergipark.org.tr/en/pub/aduefebder/issue/33889/375236>
- Baltacı, A. (2018). Nitel araştırmalarda örnekleme yöntemleri ve örnek hacmi sorunsalı üzerine kavramsal bir inceleme. *Bitlis Eren Üniversitesi Sosyal Bilimler Dergisi*, 7(1), 231-274.
- Bitirim Okmeydan, S. (2017). Yeni iletişim teknolojilerini uygulamak: Etik, güvenlik ve mahremiyetin kesiştiği nokta. *Gümüşhane Üniversitesi İletişim Fakültesi Elektronik Dergisi*, 5(1), 347-372. DOI: 10.19145/gumuscomm.273050
- Brunner, L. (2018). Digital communications and the evolving right to privacy. Molly K. Land & Jay D. Aronson (Ed.) *New technologies for human rights law and practice* (s. 243-269). United Kingdom: Cambridge University Press. <https://www.cambridge.org/core/terms>. <https://doi.org/10.1017/9781316838952>
- Çobansoy, G. (2020). *İnsan hakları açısından kişisel verilerin korunması sorunu* (Yüksek Lisans Tezi), Maltepe Üniversitesi Lisansüstü Eğitim Enstitüsü, İstanbul.
- Dülger, M. V. (2018). İnsan hakları ve temel hak ve özgürlükler bağlamında kişisel verilerin korunması. *İstanbul Medipol Üniversitesi Hukuk Fakültesi Dergisi*, 5 (1), 71-144. <https://dergipark.org.tr/en/pub/imuhfd/issue/54314/737027>
- Ersoy, F. (2019). Fenomenoloji. A. Saban ve A. Ersoy (Ed). *Eğitimde nitel araştırma desenleri içinde* (s. 81-134). Ankara: Anı Yayıncılık.
- Hakkari, F., Tüysüz, C. & Atalar, T. (2016). Öğretmenlerin bilgisayar yeterlikleri ve öğretimde teknoloji kullanımına ilişkin algılarının çeşitli değişkenler bakımından incelenmesi. *Bayburt Eğitim Fakültesi Dergisi*, 10 (2), 460-481. <https://dergipark.org.tr/en/pub/befdergi/issue/17275/180478>
- Işık, T. & Ata, A. (2021). Yeni medya iletişim süreçleri bağlamında insan hakları. *Iğdır Üniversitesi Sosyal Bilimler Dergisi*, 27, 220-250. <https://dergipark.org.tr/en/pub/igdirsosbilder/issue/64336/957147>
- Jorgensen, R. F. (2018). Human rights and private actors in the online domain. Molly K. Land & Jay D. Aronson (Ed.) *New technologies for human rights law and practice* (s. 243-269). United Kingdom: Cambridge University Press. <https://www.cambridge.org/core/terms>. <https://doi.org/10.1017/9781316838952>
- Khandagale, V.S. (2016). Information communication technologies and human rights in 21st century. https://www.researchgate.net/publication/303895075_Information_Communication_Technologies_and_Human_Rights_in_21st_Century
- Karaçor, S. (2009). Yeni iletişim teknolojileri, siyasal katılım, demokrasi. *Yönetim ve Ekonomi Dergisi*, 16 (2), 121-131 . <https://dergipark.org.tr/en/pub/yonveek/issue/13691/165705>
- Karasu, M. (2016). Öğretmen adaylarının sosyal medya kullanım durumları ve medya okuryazarlık düzeyleri arasındaki ilişkinin incelenmesi. *Ege Eğitim Dergisi*, 17(2), 549-566.
- Karlıdağ, S. (2014). Yeni iletişim teknolojileri ve mahremiyet: E-belediyeler kişisel bilgileri koruyor mu?. *Erciyes İletişim Dergisi*, 3 (4), 102-120. DOI: 10.17680/akademia.v3i4.5000012420
- Karppinen, K. (2017). Human rights and the digital. H. Tumber & S. Waisbord (Ed.). *This is a preprint of a chapter to be published in the Routledge Companion to Media and Human Rights*. <https://www.routledge.com/The-Routledge-Companion-to-Media-and-HumanRights/Tumber-Waisbord/p/book/9781138665545>
- Kaya, M. B. (2020). İnsan hakları ekseninde internetin kontrolü ve hukuki sorumluluk rejimi. *Anayasa Yargısı*, 37(2), 159-203. <https://dergipark.org.tr/en/pub/anayasayargisi/issue/59080/850345>

- Kılınç, D. (2012). Anayasal bir hak olarak kişisel verilerin korunması. *Ankara Üniversitesi Hukuk Fakültesi Dergisi*, 61, 1089-1172.
- Kıncal, R. (2015). *Bilimsel araştırma yöntemleri* (4. Baskı). Ankara: Nobel Yayıncılık.
- Kırışık, F. & Sezer, Ö.(2015). Bilgi ve iletişim teknolojilerinin kamu politikası oluşturma sürecindeki rolü. *Ekonomik ve Sosyal Araştırmalar Dergisi*, 11(2), 199-215. <https://dergipark.org.tr/en/pub/esad/issue/38966/456089>
- McPherson, E. (2015). ICTs and human rights practice. <https://www.repository.cam.ac.uk/handle/1810/251346>
- Pektaş, K. E. (2011). Belediye hizmetlerinde bilgi-iletişim teknolojilerinin kullanımı ve e-belediye uygulamalarındaki son gelişmeler: Bir literatür taraması. *Sosyal Bilimler Dergisi*, 13(1), 65-88.
- Puddephatt, A. Horner, L. & Hawtin, D.(2010). Information and communication technologies and human rights. *DG EXPO Policy Department*. https://www.europarl.europa.eu/meetdocs/2009_2014/documents/droi/dv/2_4_puddephattstudyv2_12_4_puddephattstudyv2_en.pdf
- Semiz, Ö. (2019). Dijital kültür, özgürlükler ve sınırları üzerine. <https://teftis.ktb.gov.tr/Eklenti/62399,dijial-kultur-ozgurlukler-ve-sinirlari-uzerine-ozgur-se-.pdf?0>
- Serin, H. (2019). Sosyal medyada çocuk hakları ihlalleri: Ebeveynler ve öğretmenler farkında mı?. *Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Dergisi Armağan Özel Sayısı*, 1005-1031. DOI: 10.17494/ogusbd.555107
- Şen, A. F. & Şen, Y. F. (2015). Sosyal medya, iletişim hakkı ve ifade özgürlüğü üzerine bir değerlendirme. *Gazi Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 17 (2), 122-136. <https://dergipark.org.tr/en/pub/gaziuiibfd/issue/28307/300802>
- Türkiye İstatistik Kurumu [TUIK] (2021). *Hanehalkı bilişim teknolojileri (BT) kullanım araştırması*. [https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-\(BT\)-Kullanim-Arastirmasi-2021-37437](https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-(BT)-Kullanim-Arastirmasi-2021-37437)
- Uğrashebuja, E. (2009). The Nexus between ICTs and human rights in Africa in Rwanda. <https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/41474/129276.pdf>
- Vural, Z. B. A. & Bat, M. (2010). Yeni bir iletişim ortamı olarak sosyal medya: Ege Üniversitesi İletişim Fakültesine yönelik bir araştırma. *Yaşar Üniversitesi E-Dergisi*, 5 (20), 3348-3382. <https://dergipark.org.tr/tr/pub/jyasar/issue/19132/203023>
- Vural, Z. B. A. & Sabuncuoğlu, A.(2008). Bilgi iletişim teknolojileri ve ütopyan bakış açısı. *Selçuk İletişim*, 5(3) , 5-19. <https://dergipark.org.tr/en/pub/josc/issue/19017/200679>
- Yavuz, N., Duman, T. & Karakaya, N. (2016). *İnsan Hakları ve Demokrasi: Vatandaşlık Bilgisi* (3. Baskı). Ankara: Pegem Akademi.
- Yaylak, E. & İnan, S. (2018). Sosyal bilgiler öğretmenlerinin eğitimde sosyal medyayı kullanma düzeyleri. *Eğitim Kuram ve Uygulama Araştırmaları Dergisi*, 4(2), 62-87. <https://dergipark.org.tr/en/pub/ekvad/issue/38280/448917>
- Yeşilorman, M. & Koç, F. (2016). Bilgi toplumunun teknolojik temelleri üzerine eleştirel bir bakış. *Fırat Üniversitesi Sosyal Bilimler Dergisi*, 24 (1), 117-133. DOI: 10.18069/fusbed.72486
- Yıldız, M. (2016). İnsan hakları. Z. Meray (Ed.). *Vatandaşlık bilgisi* içinde (s. 28-63). Ankara: Pegem Akademi.
- Yüksel, M. (2003). Mahremiyet hakkı ve sosyo - tarihsel gelişimi. *Ankara Üniversitesi SBF Dergisi*, 58 (01). DOI: 10.1501/SBFder_0000001619