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CIPP Evaluation Model for Vocational Education: A Critical Review

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Abstract
The CIPP model has been widely used in the evaluation of vocational education. However, there has been no research that examines the suitability of CIPP in evaluating vocational education. Therefore, this study examined the suitability of CIPP in evaluating vocational education through a literature review. This research was a literature review using the narrative review method. Based on the results and discussion, it was concluded that the CIPP model could provide a real picture of the conditions that occur in programs implemented in vocational education and could be the basis for providing recommendations for solutions given to the constraints found in the four dimensions contained in the models. However, weaknesses were found in the evaluators who had not been able to provide in-depth analysis of the problems that needed to be improved and given solutions so that the evaluation stage was still on the surface of the program being implemented. As a recommendation, it was suggested that the implementation of evaluation activities could not only be emphasized on the model used but also on who was doing the evaluation (evaluator) and the accuracy of the program with the subject that was used as a source of information in determining the success of a program.

Keywords: CIPP, Evaluation, Vocational Education

1. Introduction

Vocational education is education that prioritizes mastery of vital skills to meet the needs of skilled workers in Indonesia. Vocational, according to Airlangga Hartanto, Coordinating Minister for Economic Affairs, plays an important role in Indonesia's progress in the future (FER, 2022). In fact, in 2022, the Ministry of Education, Culture, Research, and Technology established the Directorate General of Vocational Education to improve the quality of vocational education in Indonesia. To maintain the quality of education, including vocational education, it is necessary to evaluate its implementation. Evaluation is different from assessment although it uses the results of the assessment. Evaluation is a systematic effort to collect information to make judgments or decisions (Lynch, 1996), on one or more service programs (Hadley & Mitchell, 1995). Evaluation is not carried out once but is an

activity carried out within a certain period of time (United Nations Development Programme, 2002) to obtain an accountable report (Stufflebeam, 2000).

In conducting the evaluation, several models have been developed by experts, including the objective model (Tyler, 2013), responsive model (Stake, 1983), Goal Free model (Scriven, 1991), and Context, Input, Process, and Product (CIPP).) models (Stufflebeam, 2000). All of these models have been developed and used mainly in the field of educational evaluation, especially the evaluation of educational programs. Among all these models, CIPP is one of the oldest models and has been thoroughly tested. This model was developed in the United States for the first time in school programs and then applied in various fields such as social programs, business, military, health, education, etc. (Stufflebeam, 2000). The CIPP model has four distinct dimensions: context evaluation, input evaluation, process evaluation, and product evaluation. Context evaluation is concerned with assessing needs, problems, and opportunities in a defined environment. Input evaluation is used to evaluate competitive strategies, work plans, and budgets for the chosen strategy to implement the program or project. Process evaluation is used to monitor and assess the activities carried out during program implementation. And, product evaluation helps identify and evaluate desired or undesirable short-term, long-term program outcomes (Stufflebeam, 2000). Process evaluation is used to monitor and assess the activities carried out during program implementation. And, product evaluation helps identify and evaluate desired or undesirable short-term, long-term program outcomes (Stufflebeam, 2000). Process evaluation is used to monitor and assess the activities carried out during program implementation. And, product evaluation helps identify and evaluate desired or undesirable short-term, long-term program outcomes (Stufflebeam, 2000).

The CIPP model has been widely used in the evaluation of vocational education, including those related to the teaching factory (Pratiwi et al., 2019; Qolik & Marsono, 2021; Supriyantoko et al., 2020), competency certification programs (Budiyanto & Suyanto, 2020; Irwanti & Sudira, 2014; Suwarno & Ismanto, 2020); work practices or industrial internships (Ardiani, 2020; Mardiyah & Supriyadi, 2013; Samidjo, 2017), and special programs carried out in vocational education (Salam & Soenarto, 2013; Sunnah & Sukoco, 2014). Despite the fact that the CIPP model is necessary to show the discrepancy of the program being evaluated (e.g. Sa'adah et al., 2017; Surawan & Andriani, 2022; Winarni et al., 2014); however, until now there has been no research that examines the suitability of CIPP in evaluating vocational education. Therefore, this study aims to examine the suitability of CIPP in evaluating vocational education through a literature review.

2. Method

This research is a literature review using the narrative review method. A narrative review is a type of review that is useful in gathering a large amount of literature in a particular subject area and synthesizing it. The aim is to provide the reader with a comprehensive picture, identify and describe an issue of current interest, and understand the knowledge or highlight the importance of the new research (Demiris, Oliver, & Washington, 2019; Paré & Kitsiou, 2016). The steps in conducting a narrative review are conducting searches, identifying keywords, reviewing the contents of abstracts and articles, as well as summarizing and synthesizing findings from articles, and integrating them into writing (Demiris et al., 2019). The articles used as study material are national and international articles, for the last 10 years, related to the CIPP evaluation model for vocational education in Indonesia. Articles that discuss vocational education in Indonesia, but do not use the CIPP model, are not included as review material.

3. Results

According to the formal law in Indonesia (Undang-Undang Nomor 20 Tahun 2003), 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 skills needed by themselves, society, nation, and country. The meaning of education can simply be interpreted as a human effort to foster his personality by the values of society and culture. Thus, however simple the civilization of society, in it occurs or takes place as an educational process. That's why it is often stated that education has existed throughout human civilization. Education is essentially a human effort to preserve his life.

Ki Hajar Dewantara defines education as an effort to advance the character, mind, and body of children so that they can advance the perfection of life and bring children to live in harmony with nature and society. It's just that the notion of education is still general, while the development of conditions requires educational programs that are ready to use and ready to work, both working independently and working in certain industries known as vocational education.

Vocational comes from the Latin "vocare" which means to be called, summons, command (summon), or invitation. According to Billet (2011) "vocations are products of individuals experiences and interests, that are, in some ways, a person dependent. .....constrain the human capacities required to undertake those activities". Vocational is an interesting product or service and is a person's personal experience that causes other people to depend on or need it so that they are called or invited to do a job.

Rupert Evans (1978) for example, defines vocational education as part of the education system that prepares a person to be better able to work in one workgroup or one field of work than in other fields of work. This definition implies that every field of study in vocational education as long as the field of study is studied more deeply than other fields of study and the depth is intended as a provision to enter the world of work. Thus, English is studied more deeply than others for work purposes, so English is vocational education. Clark & Winch (2008) mention that "vocational education is confined to preparing young people and adults for working life, a process often regarded as of rather technical and practical nature."

Discussing the output or output of higher education, it is known that there are still many higher education alumni who experience a mismatch between education and work. According to the Minister of Manpower for the 2014-2019 Working Cabinet, Muhammad Hanif Dhakiri, only about 37% of the workforce worked according to the study program they took during the study period. The rest, which is 63% of the workforce, does not work according to the diploma they received (Mardiana, 2017). The mismatch here means that regardless of ability and choice of study program taken during the lecture period, the selection of work undertaken after becoming a workforce (outcome at the company) is not in line.

Head of the Vocational Education Program, University of Indonesia, Sigit Pranowo said, so far the award for vocational graduates is still low, both from SMK and Diploma. Generally, at every recruitment, the person who is looking for is always a graduate. Moreover, in CPNS registration opportunities for vocational graduates are still rare. "This happens because there is no harmonious communication between labor providers and users," said Sigit. Since the 90s, the government has launched a link and match between vocational education and industry. However, the preparation of the curriculum is still running independently. Education providers feel able to see the needs of the industry. Meanwhile, the industry feels that vocational education graduates are not ready to work. Therefore, the involvement of the industry is essential so that vocational graduates meet the standards of needs, for example, through practical activities involving instructors from the industry. (Revitalization of Vocational Education in Indonesia, 30 July 2020)

Based on the problems encountered, it is known that learning, especially in vocational education, both in SMK and in diploma programs, has not been fulfilled or has not been able to bridge the needs of industry with the abilities of students developed in vocational education. It has also been conveyed, that there is a lack of integration between the industry as a stakeholder and schools or campuses as product providers, in this case, the output of workers who are ready to use in the industry.

The obstacle may also be that the needs of the industry are so broad and continue to grow, while the vocational learning program is not up to date. The provision of programs in the form of a curriculum is one solution, wherein the preparation and evaluation of the curriculum are necessary to have representatives from the industry who convey the programs and trends they are programmed for so that learning programs can be able to follow. It was emphasized that the integration of industry programs as stakeholders with campuses or schools in the form of a learning curriculum, only able to follow, cannot fully match with industry so that to be more connected, a follow-up program is needed in the form of Work-Based Learning (WBL) or Workplace-Based Teaching and Learning. PBTK) as a further policy solution. WBL is a learning approach that utilizes the workplace to structure experiences

gained in the workplace to contribute to the social, academic, and career development of learners and to supplement learning activities. The learning experience in the workplace is applied, refined, and expanded in learning both on campus and in the workplace. With WBL, learners develop attitudes, knowledge, skills, insight, behavior, habits, and associations from experiences in both places and allow learning to occur. related to real-life work activities (Lynch & Harnish, 1998).

Education is a long-term investment, as an investment from an economic perspective, education is a form of commodity. This means that there is an economic value when the mastery of knowledge, skills, and expertise produced and possessed by individuals can be returned within a certain period through types of work in line with the competencies obtained during education.

Although there are various definitions, the essence of the formulation remains the same. The Joint Committee on Standards for Educational Evaluation defines the term evaluation as a systematic investigation activity to determine the value and benefits of the object being evaluated. Fitzpatrick revealed that evaluation is a process of identifying, classifying, and determining criteria to determine the value (worth or merit) of objects that are evaluated based on these criteria (Fitzpatrick, 2011).

Various evaluation models are usually carried out, depending on the understanding and objectives to be achieved and the evaluator's point of view in conducting the evaluation. One of the evaluation models for the implementation of education, the CIPP evaluation model can be used. The CIPP evaluation model consists of four evaluation components, namely context, input, process, and product. By adhering to regulations, the evaluator can formulate the object that is the evaluation target for each component of the CIPP evaluation model.

Data collection techniques, data analysis techniques, determination of evaluation criteria, and decision targets cannot be separated from the CIPP component including from stakeholders, it's just how the evaluator packs it into a determinant in the evaluation results. As stated by Stufflebeam that the determination of criteria depends on the point of view of the evaluator and mutual agreement between the evaluator and stakeholders (Stufflebeam, 1985)

The CIPP evaluation model was developed by Daniel Stufflebeam in 1966. Stufflebeam stated that the CIPP evaluation model is a comprehensive evaluation model that has formative and summative functions. The formative function of evaluation is to provide information to improve and develop the program while the summative function of evaluation is to consider to determine the success or continuation of the program (Stufflebeam & Coryn, 2014). CIPP consists of four evaluation components, namely context evaluation, input evaluation, process evaluation, and product evaluation. The four components of this evaluation are a complete series. This is why the CIPP evaluation model is referred to as a comprehensive evaluation model.

Context evaluation starts from the question what is needed? The purpose of context evaluation is to find out the strengths and weaknesses of the evaluator (Stufflebeam, 1983). Information regarding strengths and weaknesses will determine the actions that can be taken. The next component in the CIPP evaluation model is the input evaluation. Evaluation of inputs helps regulate decisions related to plans and strategies to achieve goals. The focus of the input evaluation study includes a) human resources, b) supporting facilities and equipment, c) funds/budget, and d) various procedures and rules required (Widoyoko, 2014). Process evaluation is carried out to monitor, collect information and prepare reports on the implementation of program planning. This evaluation provides feedback or input to stakeholders to assess the progress of the program. Stakeholders can use the information from this evaluation to find out whether there are deficiencies in program implementation, both strategy and program achievements (Stufflebeam & Coryn, 2014). The final evaluation component in the CIPP evaluation model is product evaluation. In this component, the evaluator identifies the results of program implementation, both short-term and long-term results. This evaluation measures the success of the program based on the objectives that have been set. The results of the product evaluation will be input for stakeholders to determine the sustainability of the program (Widoyoko, 2014).

Although the four evaluation components are declared to be a unified whole so that a comprehensive evaluation model is declared, Stufflebeam also conveys that in its implementation the evaluator can use one or a combination of two or more evaluation components (Stufflebeam, 1983). Because each component in the CIPP evaluation consists of a different focus of study, namely: 1) assessing goals and priorities by comparing them with available needs, problems, and opportunities; 2) assessing the implementation plan and the required budget by comparing it with the targeted goals, 3) assessing the effectiveness of the program, 4) assessing the success of the program by comparing the results and side effects with the targeted needs, checking its cost effectiveness, and (possibly) comparing costs and outcomes with competitive programs; also by interpreting the results that hinder the expenditure of resource efforts and the extent to which operational plans are well and effectively implemented (Stufflebeam & Coryn, 2014).

4. Discussion

The CIPP model has been widely used in Indonesia to find a solution to the underlying problem of the imbalance between the needs of the Business World and the Industrial World and Vocational Education in terms of providing competent resources in their respective fields. The government's policy is Link & Match or can be interpreted as a match between the needs of industry and graduates of vocational education which in its implementation has various obstacles or problems in practice. The CIPP model is used as a tool to determine whether there are obstacles in the implementation of a program starting from the context, input, process, and product to be able to provide practical solutions on how a program should be maintained, repaired, or, for example, discontinued.

According to the Minister of Education, Culture, Research, and Technology of the Republic of Indonesia, Nadiem Makarim, current vocational education cannot meet industry needs. He said that vocational education providers are still plagued with several problems, starting from the curriculum, and the quality of graduate workers, students, and teachers. Previously, the Minister of Manpower, Ida Fauziyah, said that the domestic vocational education model was still problematic. This is reflected in the open unemployment rate (TPT) in Indonesia, which is still dominated by SMK graduates. Referring to open unemployment data released by the Central Statistics Agency (BPS), the TPT figure reached 13.55 percent. This shows that there is no link and match between vocational education and the labor market. This problem is a challenge for all vocational schools in Indonesia to find a solution to the question of how a program should be run to be able to realize the Link & Policy. Those matches. When examined in depth, each school has characteristics and limitations in implementing each program carried out such as human resources, curriculum, as well as facilities, and infrastructure, which may be far from the ideal conditions for a program to be implemented properly. The suitability between the evaluation model used and the program that is trying to be evaluated will determine whether the recommendations given are appropriate or even vice versa, namely creating new problems that are far from the main purpose of the evaluation activity itself.

One program that might be able to support the link & match policy is an industrial work practice program or fieldwork practice where this program is one of the schools' efforts to create a match between learning activities in schools and real conditions in the industry. With the CIPP evaluation model, the evaluator seeks to see how far this program can be run and, in its implementation, it is described from the four dimensions of this evaluation model, namely context, input, process, and product. In evaluating a program there is a goal that must be used as a reference so that errors do not occur. A good evaluation must be detailed and accountable in its implementation. In the evaluation, it should meet the conditions that are used as a reference so that it is right on target.

Wisanti (2016) conducted a study at the Islamic Vocational High School Bustanul Ulum Pakusari Jember which was intended to determine the level of suitability of the on-the-job training program implementation in terms of Context, Input, Process, and Product. The results of the evaluation can be used as information to determine the follow-up of the program being implemented. The evaluation of the on-the-job training implementation in this study uses the CIPP evaluation model, which is to see the on-the-job training implementation from Context, Input, Process, and Product. This evaluation assessment standard is compiled in a research rubric adopted from various foundations regarding the implementation of on-the-job training. The results of this study indicate that in general the implementation of on-the-job training at SMK IBU Pakusari has been carried out in accordance with the procedures set by the government, but still needs improvements in the system to run optimally. Based on the

context evaluation, it is necessary to adjust the objectives of the on-the-job training implementation with the curriculum used and the need to analyze the achievement of competency learning outcomes in schools as the basis for student activities during on-the-job training. Based on the input evaluation, it is necessary to provide teaching materials/materials in the implementation of on-the-job training activities following the needs of the school and the provision of normative and adaptive teaching materials in the form of modules that are given as long as on-the-job training participants carry out on-the-job training activities. Based on the process evaluation, shows that technically the implementation process has gone well, however, several obstacles must be a concern for the IBU Pakusari Vocational School so that the implementation of the next on-the-job training would be better, including difficulties related to the material obtained at school, which should also be a concern for the future. Meanwhile, based on product evaluation, the value obtained by on-the-job training participants is satisfactory, which is above the KKM determined by the school.

Prastoyo and Sulistyo (2020) seek to determine the achievement of the implementation of Overseas Industrial Practices at the Faculty of Engineering, Yogyakarta State University in 2018 in terms of Context Evaluation, Input Evaluation, Process Evaluation, and Product Evaluation. The results of the evaluation show that (1) The achievement of context evaluation is included in the very good category of 87.5% with 28 respondents and an average total score of 12.5. (2) The achievement of input evaluation is included in the very good category of 90.63% with 29 respondents and an average total score of 80.7. (3) The achievement of the process evaluation is included in the very good category of 75% with 24 respondents and an average score of 131.5. (4) The achievement of product evaluation includes aspects of achievement with the aim of industrial practice included in the very good category 81,

Ardiani and Ridwan (2020) conducted a study that aims to describe the context, input, process, and product of the industrial work practice program at SMK Negeri 6 Bungo. This research is evaluation research with the CIPP model. The methodology used is a combination method (Mixed Methods) with a Sequential Explanatory design. Based on data analysis, it was found that the level of achievement of the internship program in the context variable of the internship program at SMK Negeri 6 Bungo was 93.99% with a very good category. The input variable for the internship program at SMK Negeri 6 Bungo is 91.52% with a very good category. The variable process of the internship program at SMK Negeri 6 Bungo is 97.62% with a very good category. The product variable for the internship program at SMK Negeri 6 Bungo is 78.80% with a good category. The internship program's objectives at SMK Negeri 6 Bungo have not been fully achieved, the implementation strategy and the procedure for placing students in the internship schedule have been carried out according to the procedures, and communication with DU/DI has been improved. Cooperation with industry needs to be improved.

Several other research results, including Aferi, and Waskito (2019), discuss the evaluation of the implementation of industrial work practices in class XI TKPI at SMK Negeri 10 Padang using the CIPP method where this study aims to evaluate the internship program from the Context, Input, Process, Evaluation fields. Areli et al (2020) evaluated the on-the-job training program which showed that there were positive implications for the implementation of on-the-job training had carried out their duties well, through various stages of activities ranging from preparation, debriefing, implementation process, and evaluation monitoring. Overall, the implementation of the internship has been going well. The curriculum is appropriate and applied to student Internship activities so that the implementation of the internship runs smoothly, efficiently, and effectively.

From some of the research above, the CIPP model is able to provide a real picture of how the conditions that occur in the internship program and possible solutions are given to the constraints found in the four dimensions contained in the model. However, weaknesses can be found in the evaluators who have not been able to provide an in-depth analysis of the problems that need to be corrected and given solutions so that the evaluation stage is still on the surface of the program being implemented.

The implementation of evaluation activities can not only be emphasized on the model used but also on who is doing the evaluation (evaluator) and the accuracy of the program with the subject that is used as a source of information in determining the success of a program. The CIPP model is comprehensive and is quite easy to use but requires a deeper understanding of the program to be evaluated so that it is truly able to find the critical point

of the four dimensions used in the evaluation process. Furthermore, it would be very wise if the evaluation was not only carried out once but was carried out continuously on a program that had been given recommendations so that what were the improvement points were implemented and the results could then be seen in real terms.

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Teachers' Views on Guidance and Counseling Services at Schools during the COVID-19 Pandemic: Challenges and Opportunities

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Abstract
With the emergence of Covid-19 pandemic, guidance and counseling services at schools have been impeded. In line with this, teachers' experiences and views on counselling services have gained importance since they tried to reach the students via online teaching platforms in most cases. The main purpose of this study is to reveal challenges and opportunities encountered by the teacher counsellors in the implementation of guidance and counseling services remotely during the global pandemic. To achieve this overarching aim, two research questions (RQ) were addressed. This descriptive qualitative study employed both qualitative content analysis and thematic analysis for qualitative data analysis process. The participants of the study were 56 counselor teachers who accepted to participate in the study. Data collected through online google survey form. Findings illustrated that 18 subcategories were gathered under the challenges category. We extracted 13 subcategories with different frequencies under opportunities category. As for the thematic analyses results, we identified 4 themes and 21 subcategories under the school counselors' opinions about challenges encountered however, there were 2 themes and 10 subcategories under the school counselors' opinions about opportunities encountered. As a result, challenges included school counselors' quest for supportive, clear direction and job description in a virtual classroom setting. Opportunities included elimination of the time-space-distance restrictions, in-service training opportunities and ease of access to those services.

Keywords: Challenges and Opportunities, Global Pandemic, Guidance and Counseling Services, Teachers' Views

1. Introduction

As the 21st century unfolds, the world continues to undergo substantial changes in its occupational, social and economic structures. Occupational and industrial specialization continues to increase dramatically. Social structures, social and personal values also continue to change and become more diverse. All these changes are creating complex challenges for students as they anticipate the future. These changes have substantial impact on

the personal, social, career and academic development of students (Gysbers, 2001). Because of these conversions the roles of school counselors have changed dramatically over time. For many years, school counselors have been taught to define their role by the three "Cs:" counseling, coordination, and consultation. However, these three roles are too limiting because they do not provide a basis for serving all students. As a result, the roles of the school counselor have been broadened so that a school counselor's work is more inclusive, and thus, helpful to more students. Today, school counselors strive to be leaders, advocates, collaborators, counselors and coordinators, and data utilizers. These roles enable school counselors to create supportive pathways that allow all students to succeed (Erford, 2003). The main function of education is to provide opportunities for each student to reach his full potential in the areas of educational, vocational, personal, and emotional development. Guidance is an integral part of education and is centered directly on this function. Guidance and counseling services prepare students to assume increasing responsibility for their decisions and grow in their ability to understand and accept the results of their choices (Gibson, 2008). Counselors world-wide seek ways of providing appropriate professional assistance to all students (Glasheen, et al., 2013). The major goals of counseling are to promote personal growth and to prepare students to become motivated workers and responsible citizens. Educators recognize that in addition to intellectual challenges, students encounter personal, social, educational, and career challenges. School guidance and counseling services need to address these challenges and to promote educational success. The guidance and counseling services are an integral part of a school's total educational program; it is developmental by design, focusing on needs, interests, and issues related to various stages of student growth. The scope of the guidance and counseling services in today's school include Personal/social, educational and career aspects (Cooley, 2010). According to MoNE (Ministry of National Education) on the basis of the continuity and integrity of personal development, guidance and counseling services are provided in the social emotional, academic and career development areas for individuals to fulfill their developmental tasks and gain the necessary competencies (MoNE, 2020). Guidance and counseling services are the vital part of fulfilling developmental tasks of individual in education. Expectations from guidance and counseling services spread to such a wide range, the problem of how to fulfill these expectations in pandemic conditions emerges as an outstanding current problem.

Insights from school counselors can be used to obtain a better understanding of the social and emotional effects of global pandemic. The Coronavirus (COVID-19) global pandemic has brought about many changes to our society, which will have long-term effects. During global pandemic, students have exposed to social isolation and technology addiction. Students are facing unprecedented concerns with mental health and behavioral issues related to the global pandemic, Government lockdowns, social isolation, home issues, death and sickness, and uncertainty related to global pandemic could cause mental health issues such as depression, sleep deprivation, and anxiety, which in turn could adversely affect students' motivation for academic success and create behavioral issues in schools (London, & Ingram, 2018; Talmus, 2019). Other mental health issues have been heightened including trauma, suicidality, technology addiction, drug and alcohol abuse, family dysfunction, and more (Hou et al., 2019). School counselors have addressed all students' academic, career, and social/emotional developmental needs and make a positive impact on student achievement, attendance, and behavior. Appropriate duties, for school counselors that will be helpful as students return to school after the global pandemic include providing counseling to students who are tardy or exhibiting behavior problems, providing short-term individual and small group mental health counseling, social emotional classroom lessons for promoting coping skills, and the previously noted consultations with administrators, teachers, parents, families, and community stakeholders (ASCA, 2019). During and after the pandemic, school counselors may be the only source of mental health counseling in school buildings, assisting students with their social emotional needs. While no one knows with certainty the degree this pandemic will affect students when they reenter school, school counselors will be able to mitigate the aforementioned issues and address the individual needs of affected students. School counselors play important role in attending to students' social/emotional needs and retain them to assist students, staff, families, and the community in this time of crisis (Springer et al., 2020). During times of crisis, the role of the counselor is critical. Counselors are expected to provide counseling for students, coordinate all counseling activities, communicate with faculty and parents, seek support from the crisis team, and contact neighboring schools. Counselors provide direct counseling services during intervention and postintervention phases of the crisis. They are expected to serve students and personnel during times of crisis by providing individual and

group interventions; to consult with administrators, faculty, parents, and professionals; and to coordinate services with the school and the community (Jackson-Cherry & Erford, 2018).

This study not only contributes to a better understanding of implementing guidance and counseling services during global pandemic, but it also accounts for challenges and opportunities. Public awareness on how to implement guidance and counseling services during and post global pandemic processes has risen dramatically. The present study provides insights for educators, researchers and all the stakeholders of the community on the issue of guidance and counseling services during global pandemic. The main purpose of this article is to reveal challenges and opportunities encountered by the counselors in the implementation of guidance and counseling services during the global pandemic. To achieve this overarching aim, the following research questions (RQ) were addressed in the present study:

1.What are the challenges encountered while implementing guidance and counseling services during global pandemic?
2.What are the opportunities encountered while implementing guidance and counseling services during global pandemic?

2. Method

2.1 Research Design

The present descriptive qualitative study employed both qualitative content analysis and thematic analysis in order to determine counselors' opinions on guidance and counseling services during the global pandemic. Counselors' opinions regarding the guidance and counseling services were taken by questionnaire form consisting of open-ended questions. The aim of descriptive qualitative research was to describe a phenomenon and its characteristics. Thus, the present study is more concerned with what rather than how or why something has happened (Gall et al., 2007; Smith et al., 2011; Vaismoradi et al., 2013).

2.2 Participant (Subject) Characteristics

School counselors School counselors working various regions of Türkiye were invited to complete an online survey in 2021. The survey consisted of 2 open ended questions. 57 counselors working 11 different cities accepted to participate this study. They accessed through the Google Form and completed the survey online.

Table 1: The regional distribution of counselors who accepted online survey

City/Region	n	Code names
İstanbul	27	İ1, İ2, İ3, İ4, İ5, İ6, İ7, İ8, İ9, İ10, İ11, İ12, İ13, İ14, İ15, İ16, İ17, İ18, İ19, İ20, İ21, İ22, İ23, İ24, İ25, İ26, İ27.
Diyarbakır	2	D1, D2
İzmir	5	İz1, İz2, İz3, İz4, İz5
Bursa	3	B1, B2, B3
Adana	2	A1, A2
Eskişehir	7	E1, E2, E3, E4, E5, E6, E7
Antalya	2	An1, An2
Gaziantep	2	G1, G2
Muğla	2	M1, M2
Burdur	2	Bu1, Bu2
Samsun	3	S1, S2, S3
N =57		

2.3. Data Collection and Analysis

The data were collected by means of online survey form which consists of two open-ended questions. In descriptive qualitative study survey tools are often used to gather data. After questions have been developed using principles of question construction, researcher pilot tests the questions. This helps determine that the individuals in the sample are capable of completing the survey and that they can understand the questions. A pilot test of a survey is a procedure in which a researcher who completes and evaluate the instrument. The participants in the pilot test provide written comments directly on the survey, and the researcher modifies or changes the survey to reflect those concerns. Because the pilot group provides feedback on the survey, we exclude them from the final sample for the study (Berg & Lune, 2015; Creswell, 2007, 2012, 2015; Saldana, 2014, Stake, 2010; Yin, 2011).

The online survey for counselors is subjected to qualitative content analysis and thematic analysis which are classified under the qualitative descriptive design. They are sets of techniques used to analyse textual data and elucidate themes. Their key characteristic is the systematic process of coding, examining of meaning and provision of a description of the social reality through the creation of theme (Gall & Borg, 2007). The process of descriptive qualitative data analysis includes in this study, classification of data, determining major themes and frequency distribution tables (Creswell, 2007, 2012, 2015: Yin,2011: Stake, 2010: Saldana,2014: Berg & Lune, 2015). The school counsellors participated in this study given a code number which contains the initials of their region and respective numbers for example counselors participating from İstanbul coded from İ1 to İ27, counselors participating from Diyarbakır D1 to D2, counselors participating from İzmir İz1 to İz5, counselors participating from Bursa B1 to B3, counselors participating from Adana A1 to A2, counselors participating from Eskişehir E1 to E7, counselors participating from Antalya An1 to An2, counselors participating from Gaziantep G1 to G2, counselors participating from Muğla M1 to M2, counselors participating from Burdur Bu1 to Bu2, counselors participating from Samsun S1 to S3.

3. Results

In this section of the study, research findings given related to challenges and opportunities encountered while implementing guidance and counseling services during global pandemic. Initially, qualitative content analysis results given in table 2 and table 3 then, thematic analysis results given in figure 1,2,3 4,5,6.

Table 2: The distribution of school counsellors' opinions about challenges encountered while implementing guidance and counseling services remotely

Descriptive Results	*Sources*	*f*
Failure to provide privacy policy.	İ1, İ2, İ3, İ4, İ5, İ6, İ9, İ11, D1, İz1, İz4, İz5, Bu1, Bu2, A1, A2, B1, B2, B3, E1, E2, E3, E4, E5, E6, E7, G1, G2, M1, M2, S1, S2, S3.	33
The necessity of providing resources, documents, and support to psychological counsellors who will work in the digital setting	İ3, İ4, İ6, İ12, İ15, İ20, İ21, İ26, D2, İz4, İz5, B3, A1, B1, B2, B3, E1, E2, E3, E4, E7, G1, G2, M1, M2, S1, S2, S3.	28
The difficulties inherent in psychological counselling and guidance service.	İ5, İ6, İ17, İ18, İ19, İ20, İ23, D1, D2, İz1, İz2, İz3, B1, B2, B3, A2, An1, An2, E1, E2, E4, E5, G2, M2, S1, S3.	26
Difficulty in reaching the messages given by body language.	İ3, İ4, İ15, İ21, İ25, İ26, İ27, D1, İz5, B2, E1, E2, E3, E4, E5, E6, E7, An1, Bu1, Bu2, S1, S2, S3.	23

The necessity of determining the job descriptions of psychological counsellors who will work in the digital setting.	İ2, İ6, İ10, İ14, İ18, İ19, D2, İz4, İz5, B3, A1, A2, An2, E1, E2, E3, G1, G2, M2, S1, S2, S3.	22
Limited access to information technologies.	İ6, İ9, İ15, İ17, D1, D2, İz4, İz5, B2, Bu1, Bu2, A1, A2, An1, An2, G1, G2, M1, M2, S1, S2, S3.	22
Failure to establish healthy face-to-face communication with students.	İ5, İ7, İ11, İ13, İ17, İ19, D1, İz2, İz3, B1, A1, A2, An1, E1, E2, E4, E6, G2, M2, S1, S3.	21
Students' lack of motivation.	İ4, İ5, İ8, İ13, İ14, İ12, İ23, İ24, D1, İz3, B1, A1, An2, E4, E6, G2, M2, S1, S3.	19
The necessity of determining the application principles of psychological counselling and guidance services in the digital setting.	İ5, İ7, İ11, İ13, İ17, İ19, D1, İz2, İz3, B1, A1, An1, E4, E6, G2, M2, S1, S3.	18
Lack of knowledge about the use of information technologies.	İ14, İ22, İ25, D1, D2, B1, Bu1, Bu2, A1, A2, E3, E6, G1, G2, M1, M2, S1.	17
Failure to provide individual psychological counselling services effectively	İ7, İ12, İ16, İ17, İ25, İ27, D1, İz5, B1, B3, A2, An1, G2, M2i	14
Difficulty reaching students online.	İ5, İ12, İ13, İ17, D2, İz1, B2, A1, E1, E2, E4.	11
Failure to use the observation method in natural setting.	İ1, İ5, İ23, İz2, B3, E6, M1, S2, G1, G2.	10
Student indifference.	İ4, İ7, İ8, İ13, İz3, İz4, İz5, E6, An1, S2.	10
Guidance and counselling services are not suitable for distance education.	D2, B3, G1, M2, Bu1.	5
Decreased subjective well-being of psychological counsellors.	İ13, D2, İz3, G1, S2.	5
Difficulty communicating with other teachers and parents online.	İ18, B3, İz2, An2.	4
Digital (Zoom) fatigue.	B1, İz2, E2, E3.	4

In Table 2 the distribution of school counsellors' opinions about challenges encountered while implementing guidance and counseling services during global pandemic given. As it is seen in table 2, under challenges theme there are 18 subcategories with different frequencies. According to school counselors the first three challenges they faced during global pandemic were failure to provide privacy policy(n=33), the necessity of providing resources, documents and support to psychological counselors who will work in the digital setting (n=28), the difficulties inherent in psychological counseling and guidance services (n=26). Some of the school counsellors' opinions related to challenges categories were given as in vivo codes below:

İ5*: I personally had difficulty in reaching the student. I did not have the chance to consult as much as I did in face-to-face education with distance education tools. I also think that remote interviews are not reliable and effective.*

E1: *It is very challenging as it is a face-to-face communication-based job. Being visible and accessible was only thanks to the screen, it was very difficult for me.*

A1*: The guidance service, which is difficult even in the school environment, has become more difficult with the pandemic. We cannot make conversations. Students cannot attend the live lessons we hold. It has become difficult to organize activities. National education constantly asks for reports and numbers as if there was nothing and we were in normal education. Questionnaires created in the form of e-form students It has become*

more difficult to follow the students during the exam process. The uncertainty in the process is tiring us and the students.

An2*: In particular, we are progressing without a therapeutic process. Many students have families in their problems. And they can't open up enough to us by making online calls with their families.*

B1*: Students are less involved in activities due to digital fatigue. In addition, face-to-face repetitive activities for students who do not participate in counselling activities become boring for other students.*

İ9: *I think that there is uncertainty and lack of support about how to apply Gguidance and psychological counselling services during the pandemic process.*

The distribution of school counsellors' opinions about opportunities encountered while implementing guidance and counselling services during global pandemic was given in Table 3.

Table 3: The distribution of school counsellors' opinions about opportunities encountered while implementing guidance and counseling services remotely

Descriptive Results	*Sources*	*f*
Increased awareness of psychological health.	İ1, İ2, İ3, İ5, İ8, İ9, İ14, İ17, İ19, İ21, İ25, İ27, D1, D2, İz1, İz2, İz3, İz4, B1, B2, A2, E3, E4, E6, E7, An1, G2, M1, Bu1, Bu2, S1, S2, S3.	33
Elimination of time-space-distance restrictions	İ2, İ5, İ11, İ16, İ19, İ21, İ15, D1, İz1, İz2, İz3, İz4, İz5, B3, A1, A2, E1, E2, E3, E4, E5, E6, E7, An1, G2, M1, Bu2, S2, S3.	29
The online psychological counselling provides the opportunity to reach more students	İ1, İ3, İ6i, İ18, İ19, İ23, İ24, İ25, İ26, İ27, D1, D2, İz1, İz5, B2, A2, E3, E7, An1, G2, M1, M2, Bu1, Bu2, S1, S2, S3.	28
Increased use of images and videos.	İ4, İ5, İ7, İ9, İ12, İ17, İ19, İ20, İz1, İz3, İz4, B1, B2, E6, E7.	15
Ease of meeting teachers and parents online.	İ2, İ5, İ8, İ10, İ11, İ17, İ21, İ22, İ24, İz5, E2, E3, An1, S2.	14
Ease of accessibility	İ1, İ5, İ8, İ9, İ11, İ12, İ13, İ16, İ17, İ19, İ20, İz2, İz4, E3.	14
The concept of online psychological counselling is an alternative method	İ4, İ5, İ10, İz1, G2, M1, M2, Bu1, Bu2, S1, S2, S3.	12
Making survey and questionnaires easier online	İ13, İ17, İ21, İ24, İ25, D1, İz2, İz3, B1, A2, E2	11
Increased in-service training opportunities.	İ6, İ13, İ15, D1, İz2, E3, G1, M2, Bu1, Bu2, S1.	11
Proliferation of digital data sources.	İ3, İz2, B1, A2, E3, S2.	6
No convenience.	İ13, İz5, E3, A1.	4
Making the principle of volunteering work more.	İ6, A2, E5.	3
Offering the opportunity to work from home.	İ7, İz3.	2

As it is given in Table 3, under opportunities theme there are 13 subcategories with different frequencies. According to school counsellors the first three challenges they faced during global pandemic were: increased awareness of psychological health (n=33), elimination of time-space-distance restrictions (n=29), the online psychological counselling providing the opportunity to reach more students (n=28). Some of the school counsellors' opinions related to opportunities theme were as follows:

İ16*: Easy access to a vast number of parents and students, time saving, time-independent guidance and counselling services.*

İ8: *Thanks to mass media and online platforms, time and space savings have been achieved in the field of education. The use of online media has become more common. Reaching education and university teachers has*

become easier. The trainings received provided equipment and competence for the studies and field applications in the field of guidance and counselling services.

İ3: *Provided time savings and ease of transportation, more participation can be achieved in events that normally few people would spare time for.*

E2*: It was easy to carry out the seminars in the field of guidance organized for parents-student-teachers remotely. Particularly in the evening hours and remotely planned seminars, parent participation was higher.*

S1*: People/ teens/ children became more aware of their positive and negative emotions and psychological health*

A1*: It's not easy at all, it's also a very unpleasant working period. There is no one-to-one face-to-face relationship with the student and the parent, and unfortunately everything is done on the computer and on the phone all the time.*

As for thematic analyses results there were 4 themes and 21 subcategories under the school counselors' opinions about challenges encountered while implementing guidance and counseling services during global pandemic. However, there were 2 themes and 10 subcategories under the school counselors' opinions about opportunities encountered while implementing guidance and counseling services during global pandemic. Themes and subcategories related to challenges given in Figures 1, 2, 3, and 4. Additionally, themes and subcategories related to opportunities given in figure 5 and 6 respectively. Themes under the heading of challenges encountered while implementing guidance and counseling services were given in Figure 1 and listed as: (1) challenges arising from the education system, (2) challenges arising from the nature of counseling and guidance services, (3) challenges arising from the students, (4) challenges arising from the online education. Likewise, themes under the heading of opportunities encountered while implementing guidance and counseling services were illustrated in Figure 2 and labeled as follows: (1) opportunities for the educational system and (2) opportunities for the Guidance and Counseling Services.

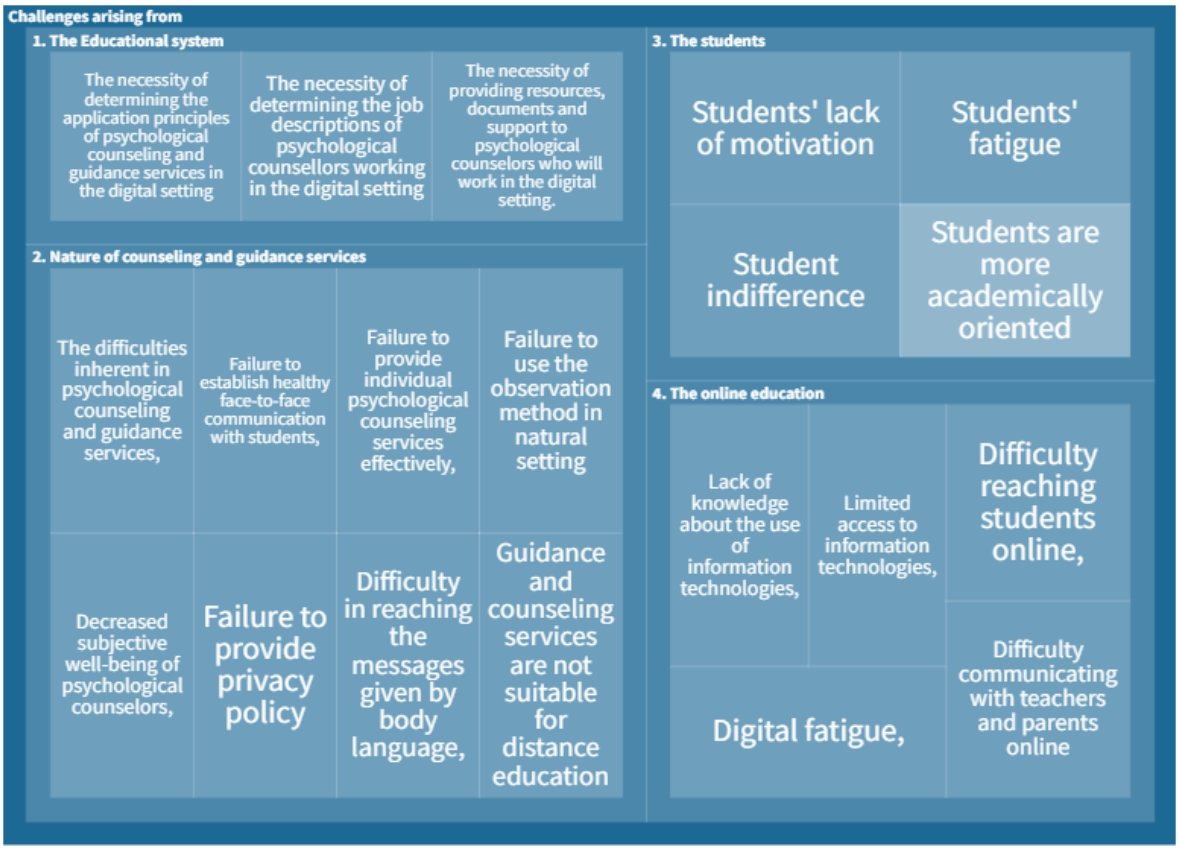

Figure 1: The themes emerged from the challenges that the counsellors encountered

As it is shown in Figure 1 themes emerged from the challenges that counselors encountered classified under four headings. First, challenges arising from the education system theme had 3 sub categories. Second, challenges

arising from the nature of counseling and guidance services theme had 8 sub categories. Third, challenges arising from the students theme had 4 sub categories. Fourth, challenges arising from the online education theme there are 5 sub categories. We conclude from the figure 1 that school counselors had difficulty in application principles and job descriptions of online counseling. And also, school counselors had difficulty in nature of guidance and counseling activities online. Moreover, school counselor had difficulty because of student inclination online counseling and nature of online education.

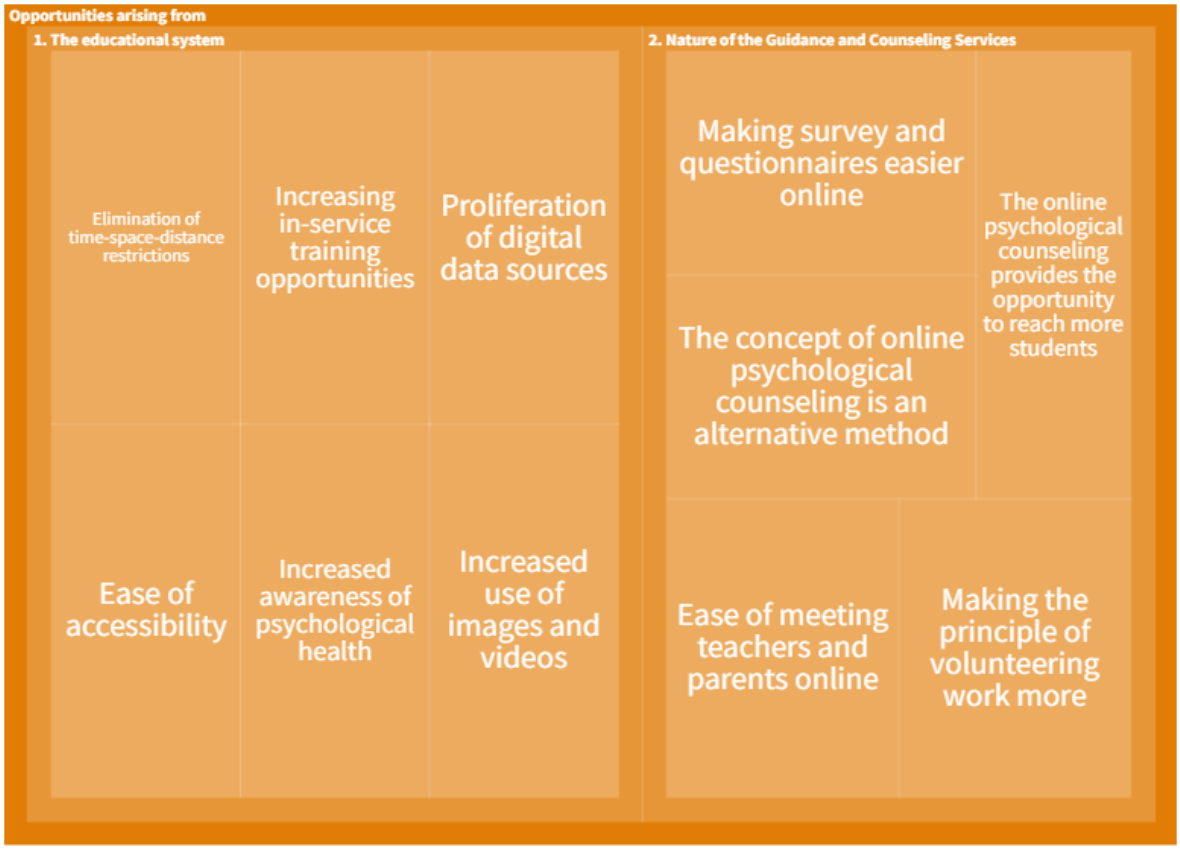

Figure 2: The themes emerged from the opportunities that the counsellors have experienced

Given in Figure 2 themes emerged from the opportunities that counselors encountered classified under two headings. First, opportunities arising from the education system theme had 6 sub categories. Second, opportunities arising from the nature of counseling and guidance services theme had 5 subcategories. We conclude from the figure 2 that school counselors had the opportunity to eliminate time, space, distance limitations and they also get the opportunity of easy accessibility. Moreover, school counselor had the opportunity to reach more students and it is easier to apply survey and questionnaires online.

4. Discussion

This study aims to describe challenges and opportunities encountered by the counselors in the implementation of guidance and counseling services during the global pandemic. As a results of descriptive content analysis, challenges were explained under 18 subcategories with different frequencies and opportunities can be explained under 13 subcategories with different frequencies. Similarly, the result of thematic analysis challenges classified under 4 themes and opportunities classified under 2 themes. Challenges themes are: challenges arising from the education system, challenges arising from the nature of counseling and guidance services, challenges arising from the students, Challenges arising from the online education while opportunities themes are: opportunities for the educational system and opportunities for the Guidance and Counseling Services. According to school counselors it is necessary to determine application principles, job descriptions of psychological counseling and guidance services and it is necessary to meet counselors' material needs in the digital setting. Regarding the

challenges, it is necessary to determine application principles, job descriptions of psychological counseling and guidance services and it is necessary to meet counselors' material needs in the digital setting, School counselors needs to be supported difficulties arising from the nature of counseling and guidance services. Students attitude towards online counseling affect counseling and guidance services. School counselors need to be supported on online education and Information Technologies, Regarding the opportunities guidance and counseling services eliminate the time-space-distance restrictions, in-service training opportunities and easy accessibility. With the concept of online psychological counseling guidance and counseling services have an alternative method and this method provides opportunity to reach more students. The findings of this study supported by the report school counseling during pandemic (Savitz-Romer et al., 2020). As school counselors shifted to remote schooling, they received little counseling-specific direction from school, district, and state leaders, leaving them unclear about expectations for their work. Most reported receiving less support from these leaders than during pre-COVID times (Savitz-Romer et al., 2020).

School Counselor 1 *"I believe that the role of a school counselor in remote learning needs to be clearly defined and shared. There was a lot of confusion as to what we should and/or should not be doing and we spent a lot of time trying to figure out exactly what our role should be during this time that could've been spent supporting our students, families, and staff."*

School counsellor voices were notably absent from COVID-19 planning processes. Like all educators, school counsellors experienced personal stressors such as balancing work and family demands, managing their own mental health/anxiety, and adjusting to new forms of technology (Savitz-Romer et al., 2020).

School Counselor 2 *"It has been very difficult trying to work from home, while homeschooling my children, and taking care of a baby. Our household was full of stress and anxiety."*

The focus of school counseling shifted to meet students' immediate needs due to the remote learning environment and the COVID-19 pandemic (Savitz-Romer et al., 2020).

School Counselor 3 *"My students and their families were in much greater need of emotional support... So many families fell apart because of illness, loss of jobs, and fear."*

School counselors faced unique challenges while lacking sufficient role-specific professional learning (Savitz-Romer et al., 2020). Technology both supported and posed barriers to school counselors (Savitz-Romer et al., 2020).

School Counselor 4 *"Lack of communication has impeded my ability to counsel in all areas. Many students do not have internet due to the rural setting and others quit checking electronic communication."*

As a conclusion, the COVID-19 global pandemic has brought about many changes to our society, which will have long-term effects on our youth and adolescents. During the global pandemic, many youths and adolescents are encountering trauma due to social isolation and adverse and childhood experiences causing an increase in mental health issues. If unaddressed, cases related to suicidality, technology addition, and school safety may continue to rise. Consequently, schools will need to be prepared not only to address the academic deficiencies resulting from the COVID-19 quarantine, yet they must also develop and employ interventions to assist students with their emotional and social development. School counselors are trained in the areas of human growth and development, group counseling, and counseling theories and techniques; therefore, they have the capability to effectively offer and conduct short-term mental health services to those students in need. Moreover, school counselors have also been taught how to serve as leaders, to advocate, and to collaborate to promote systemic change (Pincus et al., 2020).

Based on the findings and after qualitative synthesis of the results, we extracted four main results and concurrently proposed some recommendations accordingly.

- There is a lack of clear guidelines for counselling services in the digital educational settings. Thus, school leaders should devise a clear plan and communicate it widely in order to enhance counseling services and support in virtual settings.
- Students' social, emotional, and psychological well-being rather than academic achievement has become more prominent during and in the after math of COVID-19, thus school leaders should establish a structured time frame for counselors to meet with students and families via online teaching platforms.

- There is a lack of support for school counsellors. Regarding this, school leaders should ask counselors what type of support they need to facilitate connecting with students and to provide counseling via virtual platforms.
- There are also some opportunities emerged in online educational settings like, ease of access, accessing more people without boundaries of time and space and so forth. Yet, school leaders should provide counselors with online resources and opportunities for training on counselor specific topics to foster their professional development.

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Common and Productive Morphemes in Language Acquisition: A Corpus-Based Study on Children's Books

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Abstract
This study is a corpus study on morphological features of children's books in Turkish. The purpose of the study is to determine derivational and inflectional suffixes in Turkish children books and to identify the common and productive morphemes used in child literature in the light of the information obtained; hence, reach clues about determining the priorities in the process of vocabulary acquisition in children. To achieve this, different literature examples written for children were examined, a corpus was formed by analyzing the derivational and inflectional suffixes, the frequency of use of categories and sub-categories was determined and a comparison between categories was made. The results yielded that inflectional suffixes were used more frequently than derivational suffixes, which could be due to less frequent use of derivational suffixes than inflectional suffixes. Also, derivational suffixes could be less productive in language acquisition process and therefore acquired late.

Keywords: Language Acquisition, Inflectional and Derivational Morphemes, Corpus

1. Introduction

Language, which we use to express our feelings and thoughts, is a human-specific phenomenon that distinguishes us from other living things. Although language has a more complex structure than many of the skills we acquire, every child acquires language at the end of a similar time and process (Macwhinney, 2003). In order to understand how this process takes place, the child's language (word) production is observed from infancy, and possible mental processes are tried to be determined.

One of the important factors in determining how language acquisition takes place is the frequency of use of words and units. In the acquisition process, if the child hears a word or a linguistic unit more and processes it into memory, he or she will have acquired that structure earlier. Therefore, the child pays attention to how often he hears morphemes and how many different structures these morphemes are used in (Clark, 2009). Accordingly, morphemic frequency analysis has an important place in observing word acquisition and finding clues about how it occurs. While conducting this analysis, written language can also be made use of besides the spoken language that children are naturally exposed to. Since early childhood books are written for children who have just acquired or are acquiring a language, they can provide us with information in areas such as the order of acquisition of

Turkish and the primary vocabulary. In this study, the books belonging to this period were examined, their morphological structures were analyzed, and the relationship between the affixes and the acquisition of Turkish was tried to be determined. Since no such studies in Turkish in the literature could be reached at the time, the aim of this study is (a) to create a small corpus by analyzing randomly selected books from early childhood literature; (b) to conduct a detailed morphological analysis and to determine derivational and inflectional suffixes in Turkish early childhood books and (c) to determine the common and productive vocabulary used in early childhood literature and in language acquisition process respectively.

In this paper, firstly basic notions and main studies related to morphological frequency and productivity will be mentioned. Then two main groups of suffixes in Turkish, namely derivational and inflectional suffixes will be presented in detail. After that some of the main corpus studies in Turkey will be discussed.

1.1 Frequency and Productivity

The concept of frequency and productivity is one of the key concepts of morphology. Thus, in this section some basic notions will be presented and the relation between frequency and productivity will be discussed.

The notion of frequency we mention in this study is "token frequency." Token frequency is concerned with the actual number of occurrences within the morphological category under consideration in a given text. This means that "repetitions of the same word count as separate items in the token frequency total" (Bauer 2001: 47). Accordingly, in this paper, objective frequency which is the actual number of times a word occurs in a specific written or transcribed spoken data is taken into account.

When it comes to productivity, the phenomenon of morphological productivity has long been discussed from many perspectives in the literature (see, e.g., Schultink (1961), Bauer 1983, Plag (1999). Yet it has long remained as "one of the central mysteries of derivational morphology" (Aronoff 1976: 35). The most accepted and cited definition of productivity is made by Schultink (1961): Productivity as a morphological phenomenon is the possibility for language users to coin, unintentionally, an in-principle uncountable number of new words by means of the morphological process that underlies the form-meaning correspondence in some words they know. Thus the three main features of productivity are unintentionality, unlimitedness and regularity. The productivity of a language is supported by the frequent use of some regular affixes. The relationship between frequency and productivity has been studied by some scholars (e.g. Baayen 1993; Baayen and Lieber 1991), who proposed quantitative measures of productivity defined with respect to the frequency of a given word-formation process. In other words, frequency is claimed to be a relevant parameter in order to evaluate the productivity and the availability of word formation processes (Gaeta & Ricca 2003).

In this paper, the frequency of derivational and inflectional suffixes in child literature will be determined by conducting a frequency analysis and some conclusions in terms of the productivity of suffixes in children's acquisition of Turkish language will be reached.

1.2 Derivational and Inflectional Suffixes

Turkish, which is an agglutinative language belonging to the Ural-Altaic language family, consists of morphologically fixed word stems and productive suffixes attached to the end of them. The suffixes which are arbitrarily attached to roots or stems of a noun or verb to derive new words and create new meanings are called derivational suffixes. Suffixes that establish temporary semantic relationships within and between words are called inflectional suffixes (Korkmaz, 2009). Derivational and inflectional suffixes are the cornerstones of the morphological structure of Turkish. These suffixes and their sub-categories are shown in Table 1.

Table 1: Derivational and inflectional suffixes of Turkish

Inflectional Suffixes		Derivational Suffixes
Nominal Inflectional Suffixes	Verbal Inflectional Suffixes	1. Suffixes that attach to nominals to form nominals
1. Case Suffixes	1.Tense/Aspect/Modality Suffixes	2. Suffixes that attach to nominals to form verbs
2. Possessive Suffixes	a) Tense Suffixes	3. Suffixes that attach to verbs to form nominals
3. Genitive Case Suffix	b) Modality Suffixes	4. Suffixes that attach to verbs to form verbs
4. Plural Suffix	2. Personal Suffixes	
5. Interrogative Particle	3. Negative marker	
6. Relative Pronoun -ki	4. Interrogative Particle	
7. Copular Markers	5. Copular Markers	

In this study, examples from children's literature were analyzed and a corpus was formed by using the derivation and inflectional suffix patterns in the table.

1.3 Corpus and Corpus Studies in Turkish

The collection of large amounts of spoken or written natural language patterns in a language is called corpus. This corpus created is analyzed quantitatively and qualitatively and analyzed syntactically, lexically and morphologically within the scope of corpus linguistics (Biber, 2004). As a result, the frequency of the structure examined, that is, the number of times that linguistic element occurs is checked.

When we look at corpus studies in Turkish, one of the most basic studies is the frequency dictionary of Turkish written by Göz (2003). Spoken Turkish Corpus (STC) demo version, which has been constructed by the Middle East Technical University, is a spoken corpus study consisting of Turkish conversations (see http://std.metu.edu.tr/). The aim of this Project is to construct a linguistically analyzed corpus consisting of one million words of face-to-face or mediated interactions in contemporary Turkish.

In addition to comprehensive oral and written natural language corpus studies, there are also corpus studies examining inflectional and derivational suffixes, which are the subject of this study. Aksan and Mersinli (2010) examined the corpus that is being formed within the scope of the Turkish National Corpus Project (TNC) in terms of inflectional and derivational suffixes. In addition, Uzun et al. (1992) made a very comprehensive corpus study on derivational suffixes in Turkish. If we look at the corpus of special fields for language acquisition in children, one of the most remarkable studies is the Turkish Child Literature Corpus (TCLC), which is currently being created by Mersin University (see http://turkcederlem.mersin.edu.tr/cocuk/). The aim of this project is to determine the primary expression existence; to analyze the levels of age and readability of child literature works; to identify the lexical areas of child literature sample, and to classify the properties of morphemic, lexeme and syntactic categories. Apart from this ongoing project, no study related to corpus of early childhood literature and its morphological features has been found.

2. Method

This study is a holistic study in which the quantitative frequency analysis was conducted. The data obtained from children's books were analyzed in terms of their morphological characteristics. In addition, derivational suffixes, inflectional suffixes and their subcategories were examined. Finally, the frequency values of these suffixes were determined and a comparison between the categories was made.

2.1 Research Data

All affixes in the 5 books examined in this study were identified and a total of 1503 affixes were examined. Afterwards, these affixes were divided into derivational and inflectional suffixes and their sub-categories and

analyzed together. As a result, 1155 inflectional suffixes and 348 derivational suffixes were examined in detail and the frequency values of these groups were calculated.

2.2 Data Collection

The data of this study were compiled from 5 randomly selected children's books from different publishers. The corpus includes the collection of 3 authors by 3 publishers (Çiçek Publishing, Altın Kitaplar and Yapı Kredi Publications). There were three age groups for the books: 0 to 3 year-olds, 2 to 6 year-olds and 3 to 8 year-olds. The target audience was determined by the publishers, so no additional classification has been done in this study. Selecting the books that make up the data from different publications and age groups is to reach the preschool children's literature more broadly and to diversify the sample.

In this study, it is assumed that children's books would be a sample of child language. We predict that suffixes with high frequency would be acquired early and those suffixes which have low frequency values would be acquired late.

3. Findings and Discussion

The suffixes analyzed in the corpus formation study of the early childhood period Turkish literature were integrated into two categories, namely inflectional and derivational suffixes. Accordingly, the suffixes and their sub-categories are shown in Table 2.

Table 2: Frequencies of use of inflectional and derivational suffixes and their subcategories in early childhood books (n=1503)

Inflectional Suffixes (1155)				Derivational Suffixes	f
Nominal Inflectional Suffixes	f	Verbal Inflectional Suffixes	f	1. Suffixes that attach to nominals to form nominals	41
1. Case Suffixes	345	1. Tense/Aspect/Modality Suffixes	253		
2. Possessive Suffixes	166			2. Suffixes that attach to nominals to form verbs	50
3. Genitive Case Suffix	74	a) Tense Suffixes	214		
4. Plural Suffix	92	b) Modality Suffixes	39		
5. Interrogative Particle	7	2. Personal Suffixes	121	3. Suffixes that attach to verbs to form nominals	173
6. Relative Pronoun –ki	2	3. Negative marker	37		
7. Copular Markers	34	4. Interrogative Particle	4		
		5. Copular Markers	20	4. Suffixes that attach to verbs to form verbs	84
Total	720		435		348

When we look at the general results, a total of 1503 suffixes have been reached in the corpus study of which 1155 are inflectional and 348 are derivational suffixes. It is seen that the number of inflectional suffixes in the corpus is significantly higher than the derivational suffixes. When we look at the inflectional suffixes, nominal inflectional suffixes are used more than the verbal inflectional suffixes, with a frequency of 720. While the number of use of case suffixes is significantly higher (345) among the nominal inflectional suffixes, the most frequently used verbal inflectional suffixes are tense suffixes (214) which are under the category of tense, aspect and modality. The analysis of derivational suffixes showed that suffixes that attach to verbs to form nominals (173) are used most frequently. In general, the derivational suffixes attached to verbs are used more than those that are attached to nominals. According to the data obtained from the corpus and summarized in Table 2, the following results can be obtained:

(a) In early childhood books inflectional suffixes are given more weight than derivational suffixes. This may be because inflectional attachments are more basic, frequently used, more productive, and acquired earlier.

(b) The fact that the usage of derivational suffixes is less in children's literature may result in that these suffixes are less productive and acquired later in the language acquisition process of children.
(c) According to the data obtained from the early childhood literature, the most frequently used and most productive suffixes are the case suffixes. This is followed by tense suffixes, possessive suffixes and personal suffixes, respectively. This information can give us a clue about the basic morphemes of words and sentences formed by children during the acquisition of Turkish.

3.1 Inflectional Suffixes

As a result of the analyzed data, inflectional suffixes were determined in the children's literature; it has been divided into two categories as nominal and verbal inflectional suffixes and examined according to their subcategories. Attachments and their frequency of use are shown in Table 3 and Table 4.

Table 3: Frequencies of nominal inflectional suffixes

Plural Suffix	f	Case Suffix	f	Possessive Suffix	f	Genitive Case Suffix	f	Interrogative Particle	f	Relative Pronoun	f	Copular Markers	f
-LER (92)	92	Dative -E (146)	146	1st person singular -M	5	-(N)IN	74	MI	7	-KI	2	-(I)DI	14
		Accusative -I	71	2nd person singular-(I)N	34							-(I)MIŞ	0
		Locative -DE	57	3rd person singular -I	97							-(I)SE	1
		Ablative -DEN	38	1st person plural -MIZ	6							-DIR	19
		Instrumental -LE	33	2nd person plural -NIZ	4								
				3rd person plural -LERI	20								

Table 3 gives the frequency of inflectional suffixes attached to nominals. Accordingly, -LER plural suffix, case suffixes, possessive suffixes and -(N)IN genitive case suffixes are suffixes with high frequency of use in the corpus. -MI interrogative particle, -KI relative pronoun and copular markers that give predicate to nouns are used less frequently. It is seen that the frequency of use of the -E suffix, which is the marker of dative case among the case suffixes, is significantly higher. The use of case suffixes following the dative suffix is accusative, locative, ablative, instrumental case suffixes respectively.

From this finding, it can be concluded that the dative suffix is highly productive and is important and prioritized for the input that children receive in the lexical acquisition process. When the possessive suffixes are examined, the third person singular possessive suffix -I is present with a significant difference, while the usage level of the second singular -(I)N and third-person plural -LERI possessive suffixes is moderate. The frequency of use of other personal suffixes is very low. From this finding, it can be concluded that third-person narration is mostly used in the analyzed children's books. Frequent reference to possessive and genitive suffixes can provide information on the use of noun phrases in the reviewed literature. When the copular markers attached to nominals are examined, we see that the -DIR and -DIK suffixes are used. The fact that the frequency of the copula used in the construction of the nominal sentences is low may indicate that the nominal sentences are few and the verbal sentences are more in the analyzed books.

As a result, it is observed that the most frequently used nominal inflectional suffixes are dative case suffix -E, third person singular possessive suffix -I, plural suffix -LER, and accusative case suffix -I.

Table 4: Frequencies of verbal inflectional suffixes

Tense Suffixes	f	Modality Suffixes	f	Personal Suffixes	f	Negative marker	f	Interrogative Particle	f	Copular Markers	f
Aorist tense -(I)R	32	Necessity -MELI	10	1st person singular -M	11	-MA	37	MI	7	Past copula -(I)DI (16)	16
Present tense-YOR	30	Desiderative -SA	0	2nd person singular -N / SIN	26					Evidential copula -(I)MIŞ	0
Past tense -DI	140	Optative -A	11	1st person plural -IZ / K	22					Conditional copula -(I)SE	4
Evidential Past tense -MIŞ	5	Imperative (No affix)	18	1st person plural -LIM	4						
Future tense -ECEK	7			2nd person plural -SINIZ / IN	17						
				3rd person plural -LER	41						

Table 4 shows the analysis and frequency of verbal inflectional suffixes in the corpus. According to this, among the inflectional suffixes attached to verbs, the most frequently used ones are tense suffixes and personal suffixes. Other suffixes with less frequency are modality suffixes, -MA negation marker, copular markers and MI interrogative particle.

The past tense suffix –DI, which is among the tense suffixes in the corpus, has a very high frequency of use (140). This finding indicates that the form of expression in the analyzed books is the past tense. This indicates that the productivity level of the suffix is very high, which may prioritize the child acquisition of the –DI suffix. Other tense suffixes used in the corpus are the aorist suffix -(I)R and the present tense suffix -YOR. The future tense –ECEK and evidential past tense suffix –MIŞ are used very little.

Among modality suffixes, the imperative mood which has no suffix is used the most followed by -A optative mood and -MELI imperative mood, respectively. The fact that the modality suffixes are not used much in the corpus and the imperative mood is more may be due to the simplicity of the syntactic structure of the written language which has been studied.

When the personal suffixes in Table 4 are examined, the third person plural suffixes are mostly seen. Since there is no third person singular suffix, it is not included in the corpus. Since third-person narration is dominant in the analyzed data, it is usual not to use other personal suffixes.

The most commonly used copular marker is the –DI suffix. The fact that the frequency of copula is not high may mean that copular structures transform verbs into compound verbs, and that such complex structures are not used much in early childhood books and are produced later in the acquisition process.

As a result, the most commonly used verbal inflectional suffixes are: the past tense suffix -DI, the negative suffix -MA, the 3rd person plural suffix -LER, the aorist suffix -(I)R, and the present tense suffix -YOR.

3.2 Derivational Suffixes

In addition to inflectional suffixes, derivational suffixes were also compiled in the early childhood books examined in this corpus study. The examined derivational suffixes, their subcategories and frequency of use are shown in Table 5 in detail.

Table 5: The corpus results of derivational suffixes and their subcategories in early childhood books

Suffixes that attach to nominals to form nominals (n=41)	f	Suffixes that attach to nominals to form verbs (n=50)	f	Suffixes that attach to verbs to form nominals (n=173)	f	Suffixes that attach to verbs to form verbs (n=84)	f
-LI	18	-LE	30	-MA	49	-(I)R	20
-LIK	10	-LEN	8	-DIK	29	-T	17
-CI	5	-LEŞ	6	-MAK	15	-L	13
-SIZ	3	-R	2	-IP	15	-N	13
-CIK	2	-T	2	-DIĞINDA	9	-DIR	8
-KI	1	-K	1	-KEN	7	-Ş	7
-TI	1	-A	1	-NTI	6	-ALA	4
-CI	1			-A	6	-I	2
				-INCA	5		
				-EREK	4		
				-GE	4		
				-IŞ	4		
				-AN	4		
				-ECEK	3		
				-MIŞ	3		
				-K	2		
				-I	2		
				-CE	1		
				-GIN	1		
				-N	1		
				-DIKCA	1		

When we examine the results given in Table 5, it is seen that the frequency of use of suffixes forming nominal from verb is very high (173), followed by suffixes forming verb from verb (84). The frequency of use of derivational suffixes which nominalize or verbalize the attached noun is low. Among the suffixes that attach to nominals to form nominals, the most productive ones are -LI AND -LIK. For example, kar-lı (snow-y), renk-li (color-ful), dost-luk (friend-ship), kaya-lık (rock-y). Among the suffixes that attach to nominals to form verbs, the suffix -LE is used significantly such as su-la (irrigate), kilit-le (lock). Among the suffixes that form a nominal from the verb, the most frequently used suffix is -MA. Besides the use of forming a noun by changing the meaning of the verb as in the word uçurt-ma (kite), there is also the use as verbal which serves as an infinitive as in the words uç-ma (fly -ing), hatırla-ma (remember –ing). In the corpus created, -DIK, -MAK and -IP suffixes were frequently included in addition to the -MA suffix. –MAK (-to and -ing) suffix mostly functions as verbal and is attached to the verbs as infinitive. Similarly, -DIK suffix is attached to verbs and derive adjectives from them, and -IP suffix derives adverbs from verbs. For example, otur-mak (to sit), koş-up geldi (he came running), kullan-dık-ı kalem (the pen which he use). Among the suffixes that form a verb from verb, -(I)R and -T derivational suffixes are used the most. These two suffixes make the word to which it is attached transitive and causative. For instance, the intransitive verb uç (fly) becomes transitive after getting (I)R suffix as in 'O uçurtmayı uç-ur-du'(He flew a kite). Moreover, as in the sentence 'Dün saçını kestir-t-ti' (She had her hair cut), -T suffix allows to form the causative structure. In addition to these suffixes, –L and –N suffixes which turn the structure into passive and reflexive are among the frequently used suffixes, although less frequently.

4. Conclusion

In this study, randomly selected early childhood literature in Turkish was examined morphologically, derivational and inflectional suffixes were analyzed by examining its lexical features and a corpus was formed. The obtained data were grouped according to derivational, inflectional suffixes and their subcategories, and the frequency of use was found. According to the results, the frequency of use of inflectional suffixes in the books written for children in early childhood period is higher than the derivational suffixes. The dative case suffix –E and the past tense suffix –DI are the most frequently used suffixes and more than other suffixes. Nominal inflectional suffixes are more than verbal inflectional suffixes. In addition, verbal sentences which are performative are included more than nominal sentences. When the derivational suffixes are examined, it has been concluded that the suffixes that are attached to verbs to form nominals are used more, and the suffixes attached to nominals are less. –MA, -LE, and –DIK are the most commonly used derivational suffixes. We can conclude that these structures, which are used more frequently, can be more productive and therefore may have priority in children's vocabulary.

All in all, the analysis of inflectional and derivational suffixes obtained through this corpus study is believed to have helped determine the more frequently used, more productive and prioritized suffixes in the input that children hear and obtain in language acquisition and especially in the process of lexical acquisition. Besides, it is hoped to be helpful by providing a base for further studies.

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The Effect of Philosophy Education for Children (P4C) on Students' Conceptual Achievement and Critical Thinking Skills: A Mixed Method Research

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Abstract
The research aims to investigate the effect of philosophy education for children in social studies course on students' conceptual success and critical thinking skills. Sequential descriptive model, one of the mixed methods research approaches, was used in this study. The study group of the research consists of 64 students studying in 5th grade in a secondary school affiliated with the Ministry of National Education located within the provincial borders of Istanbul city. The students included in the study group studied in the same primary school. The students were randomly selected by the researcher considering their primary school grade score averages, gender characteristics and their economic conditions. Quantitative data of the study were collected using Conceptual Achievement Exam and Critical Thinking Skills Scale, on the other hand qualitative data was collected using Semi-Structured Interview Form. In order to reveal the effects of philosophy education practices for children on students' conceptual success and critical thinking skills, a 10-week practice was conducted in the context of "Technology and Life" unit in 5th-grade social studies course book. Quantitative data of the research were analyzed with SPSS package program, and qualitative data were analyzed with MAXQDA program. According to the results of the research, before practices of Philosophy Education for Children, no significant difference was found between mean rank of experimental group's Conceptual Achievement Exam and Critical Thinking Skills Scale pre-test scores and control group's Conceptual Achievement Exam and Critical Thinking Skills Scale pre-test scores. After the practices of Philosophy Education for Children, a significant difference was found between mean rank of experimental group's Conceptual Achievement Exam and Critical Thinking Skills Scale post-test scores and control group's Conceptual Achievement Exam and Critical Thinking Skills' post-test scores on behalf of the experimental group. Experimental group students made a comprehensive evaluation of practices of philosophy education for children. The students stated that philosophy practices for children not only improved their skills in different ways but influenced their critical thinking and also creative, social, verbal and empathy skills as well.

Keywords: Philosophy for Children, Conceptual Achievement, Critical Thinking Skills

1. Introduction

Inspired by Vygotsky's theory of learning, Matthews Lipman and Ann Sharp developed Philosophy Education Program for Children (P4C). In the program, in which Socratic Method is used, firstly, a discussion about a

subject is initiated. Then, the discussion is developed within the cause and effect relationship. The discussion is concluded ending up with a judgment. During the discussion, children listen to each other and ask questions about the topic and answer the questions addressed. In the practices of philosophy education for children, a discussion group is formed in which the teacher is included. Participants sit in a round shape. The group is guided by the teacher and the question is supported by case studies. Discussion process is carried out under the guidance and control of the teacher (Ferreira, 2004; Marashi, 2008; O 'Riordan, 2013).

In the activities of philosophy education for children, students are creative and can form hypotheses explaining their ideas. In this process, students can test what they produce by producing mental models during the discussion. In this process, students may encounter situations that confirm or contradict each other. In contradictory situations, students can experience mental instability. With this contradiction, students can organize new schemes in their minds. The activities of philosophy education for children enable high-level thinking in terms of discussing in society, defending and proving one's ideas. An opinion is considered true only if it is expressed in public (Akkocaoğlu Çayır, 2015; Biesta, 2017).

From 1970s to present day, the philosophy education program for children has spread all over the world and has become a program which is a philosophy of life. Lipman, inspired by John Dewey's idea that "research begins with a certain knowledge," aimed to develop critical thinking skills of children via philosophical dialogue by respecting each other's thoughts. Lipman suggested the idea that there is no real difference, philosophically or scientifically, in the inner and outer worlds of mind. Accordingly, critical thinking is the process of decision making about how to solve the situations that cause problem in order to generate hypotheses. Lipman's aim is not to turn children into philosophers but to help them become individuals who direct to critical and reflective thinking and develop themselves in this direction. By this way, children know not only when to take action, but also when not to take action (Vansieleghemand Kennedy, 2011).

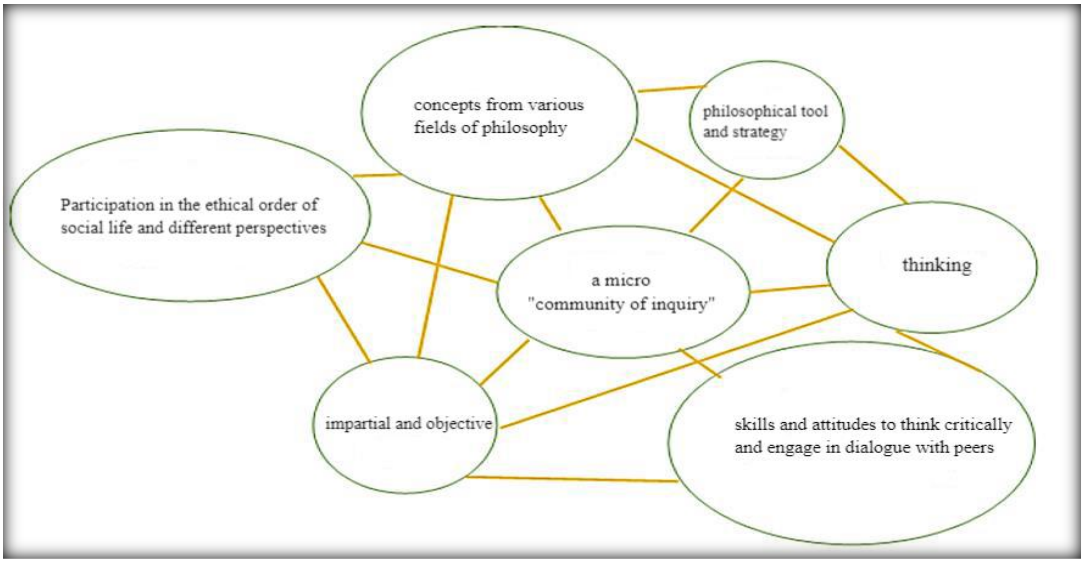

Figure 1: Elements of Lipman's P4C method

While teaching in 1960s, Lipman read stories to students, asked questions and discussed with them. At the end of the discussion, Lipman developed a number of tests to assess achievement. Receiving positive results from this application, Lipman decided to develop a philosophy program for children (Karakaya, 2006). In 1969, he wrote the story book "Harry Stottlemeier's Discovery," which is the first book of the philosophy education program for children for students at the age of 11-12. The book includes suggestions that improve questioning and reasoning, and encourages the development of alternative thinking and imagination (Lipman, 1974). In 1974, Lipman co-founded the Institute for the Advancement of Philosophy for Children with Ann Margaret Sharp. In 1975, Ann Margaret Sharp and Frederick S. Oscanyan wrote a teacher's handbook to implement "Harry Stottlemeier's Discovery." After that, curriculum development and teacher education for philosophy for children was initiated by IAP4C. The institute has shown that philosophy education for children can be

performed with various activities (tale, story, legend, drama, pictures, music and sports) (Karakaya, 2006). Lipman wrote stories for students of different ages and developed guidebooks for teachers to use these stories as well. Regarding the program many teachers were given seminars and courses by Lipman. In 1979, the Institute for the Advancement of Philosophy for Children started publishing *Thinking: The Journal of Philosophy for Children*. The journal includes lecture and practice reports accessible to educators. The materials of the philosophy education program for children are translated into 24 different languages and implemented in 63 countries today (Gardner, 2019).

Studies in Turkey regarding the philosophy education for children firstly started in 1974 with the establishment of the Philosophical Society of Turkey (TFK). The institution has been organizing various seminars and courses and holding meetings since its establishment. The Philosophical Society of Turkey became a member of the UNESCO International Federation of Philosophical Organizations (FISP) in 1979. Philosophy Education Unit for Children was established within the scope of Philosophical Society of Turkey. In 2005, with the suggestion of Turkey, the Philosophy Strategy was prepared by UNESCO and put into practice in the member states. According to this strategy coordination would be ensured between philosophy organizations and civil society organizations for the development of philosophy education and philosophy research would be supported. It would also focus on current philosophical matters. Ankara University Children's Science Center has been giving philosophy education to children since 2014. Teachers are also given philosophy education for children at various universities. The Ministry of National Education in Turkey decided to teach “Thinking Education” course in 7th and 8th grades in 2016 (MEB, 2016; Tepe, 2015).

During the practices of philosophy education for children, teachers help students make logical inferences and direct class discussions within the framework of certain rules. Rather than forcefully teaching students what philosophy of life should be, teachers should pave the way for them to practice philosophy via logical deductions. Students’ expressing their personal or emotional problems is not a philosophical discussion. This situation can only be a starting point for students, who have the ability to philosophize, to have philosophy education for children. Whether a situation has philosophical consequences or not is determined under the guidance of teacher. However, teachers should not act omnisciently determining whether the situation is philosophical or not. This situation causes a lack of confidence in students as they cannot think independently while getting the answers from the teacher to discover themselves during the practices of philosophy education for children. Teachers must be in the model of a person who knows everything but does not reflect this to student and guides student during the application process, instead of criticizing the inadequacies of students (Hashim, R, 2017; Lipman, Sharp and Oscanyan, 1977).

In studies carried out within the context of the effect of philosophy education practices on critical thinking skills, it was found that philosophy education practices for children have an influence on students' critical and creative thinking skills. Critical thinking is a high-level way of thinking. From this point of view, critical thinking requires an analysis and evaluative way of thinking that contains the logic of discussion at its core. On the other hand, creative thinking is a way of thinking that enables new ideas, concepts or objects to occur. In this context, creative thinking is a way of thinking that supports critical thinking. Via critical thinking a judgment is made by using logic, on the other hand new ideas are produced through creative thinking (Boyacı, Gülenç & Karadağ, 2018; D’Olimpio & Teschers 2017). Philosophy education practices for children that contain critical and creative thinking skills are considered as an effective approach in education today (Gardner, 2019).

According to Lipman, who is accepted as the founder of philosophy education practices for children, philosophy education for children is a philosophical approach applied to reveal reasoning and judgment competence of students. In traditional understanding of education, there is an education practice based on memorizing knowledge. In this learning approach, the value of transforming knowledge into skill is low. Although critical thinking skill is important, it might not be sufficient when it is used alone. This situation must be supported by creative thinking. In this context, philosophy education practices for children offer opportunities for development of cognitive, discernment and reasoning skills by including critical thinking and creative thinking skills.

It can be stated that social studies curriculum is important since it provides students with the opportunity to think creatively, to approach events critically, to make sense of current events and follow them. At this point, it is thought that philosophy education for children can be effective in teaching social studies. When studies regarding this subject were examined, no study was found on philosophy education for children in the field of social studies education. In this context, it is thought that this study will contribute to literature. In addition, it is thought that the findings and results of the study will guide researchers and teachers working in this field. In the study, it was aimed to investigate the effect of philosophy education for children in social studies course on students' conceptual achievement and critical thinking skills. Within the context of this purpose, the problem statement of the research is; what is the effect of philosophy education for children in social studies course on students' conceptual achievement and critical thinking skills?

- Answers were searched to the following questions in the research:
- Is there a statistically significant difference in students' conceptual achievement before and after the practice?
- Is there a statistically significant difference in students' critical thinking skills before and after the practice?
- What are the students' views regarding philosophy education practices for children after the practice?

2. Method

2.1. Research Model

Sequential descriptive design model, which is one of the mixed methods research approaches, was used in this study. In this design, qualitative data was collected after quantitative data were collected and analyzed. Quantitative data is generally prioritized. Qualitative data is mainly obtained in order to increase quantitative data. Data analysis is interrelated and often combined in data interpretation and discussion sections. This design is especially useful in explaining unexpected research findings or relationships (Creswell, 2017).

In this research design, researcher can use the strengths of other methods within the same study in order to cover the weaknesses of a method. Not being restricted by a single method researcher can answer research questions in a broader and more complete way and present strong evidence for results by looking at the closeness and accuracy of findings. Moreover, researcher produces more precise and complete information about theory and practice through the combined use of qualitative and quantitative research. However, combining quantitative and qualitative work can be difficult for a single researcher and require teamwork, especially if both methods are to be used simultaneously. Some details about mixed studies being left to be studied entirely by methodologists, might be the disadvantage of this design (Creswell & Plano-Clark, 2007; Freankel, Wallen, & Hyun, 2012; Johnson & Onwuegbuzie, 2004). The model for the sequential descriptive design is indicated in figure 2.

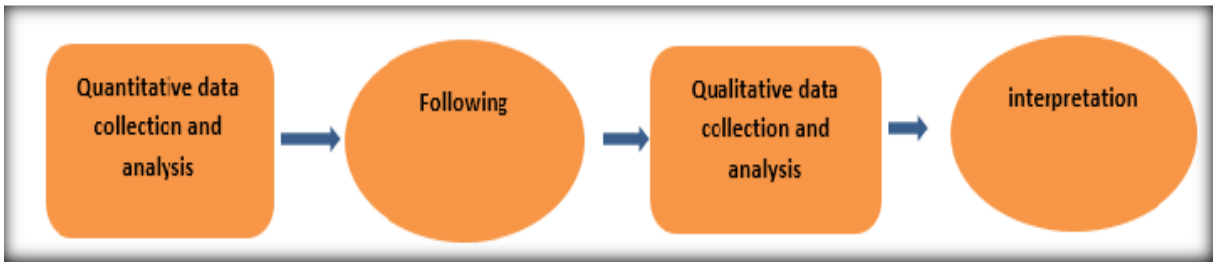

Figure 2: Sequential descriptive design model

2.2. Study Group

Determining the subject group, subjects must be chosen randomly in experimental studies. The study is carried out with existing groups in school environments where random grouping is not possible. In this case, two

groups, which are close to each other considering their features, are selected. Sample size is recommended to exceed 30 in groups (Büyüköztürk et al. 2017). In this direction, study group of the research consists of 64 students studying in 5th grade in a secondary school which is located within the provincial borders of Istanbul city and affiliated with the Ministry of National Education. The students included in the study group study in the same primary school. Study group students were chosen randomly by the researcher considering the degree of closeness to each other, primary school grade score averages, gender characteristics and economic structures. Information about the study group is indicated in figure 3.

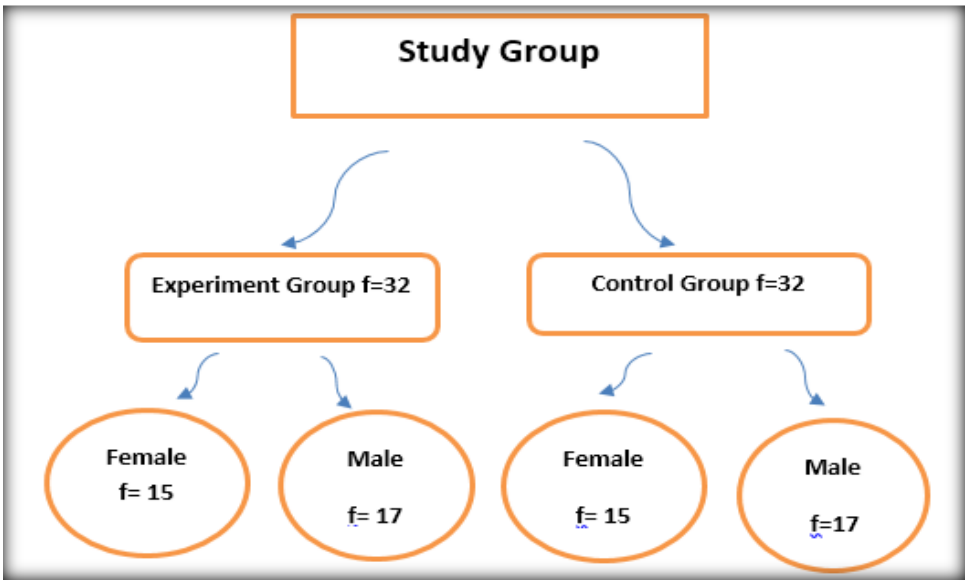

Figure 3: Study group information

2.3. Data Collection Tools

Quantitative data of the study was collected with Conceptual Achievement Exam and Critical Thinking Skill Scale; qualitative data were collected with Semi-Structured Interview Form.

2.3.1. Conceptual Achievement Exam (CAE)

Conceptual Achievement Test (CAE), which was developed to assess the conceptual achievement of students in the research, consists of 10 questions in total. Preparing the exam, conceptual achievement exam developed by Ferreira (2004) was taken as an example. The exam questions include classifying scientific process skills, observation and inference, the difference between concepts and questioning scientific concepts.

Multiple choice questions, paragraph writing and some drawings were required in the exam, which consisted of 10 questions. Each question in the exam was 10 points, totally 100 points. During the analysis, scores were analyzed and evaluated at the rate of 1/10, over 10 points, for simplicity by resembling the results of other tests. In addition, questions of the acquisition assessment exam support each other with the concepts of basic skill scale. Answers of the participants were evaluated by preparing an answer key and analyzed by converting them into numerical data.

2.3.2. Critical Thinking Skills Scale

Critical Thinking Skills Scale (CTSS), which was developed by Eğmir and Ocak (2016), was used to measure critical thinking skills of students participating in the research. The scale was formed in a multidimensional way. The scale aims to understand a given problem situation, distinguish between subjective and objective judgments, analyze and evaluate inferences, ask questions appropriately, and determine and measure the reliability of a source. For this purpose, the scale prepared was first applied to 5th-grade students and analyzed. The first scale

form, which involved 39 questions, was carried out, and then the number of questions was reduced to 25 as a result of item analyzes and pilot schemes. The revised scale was applied to one 5th grade classroom in each of 4 secondary schools, and difficulty and distinctiveness analyzes were made on retest items. In the final analysis of the scale, internal consistency reliability values were determined KR-20 value as 0,61 and KR-21 value as 0,63; the difficulty index of the test was 0,37 and the distinctiveness index was 0.32.

2.3.3. Semi-Structured Interview Form

A semi-structured interview form was prepared by the researcher to evaluate the application process. The interviews took place in parents meeting room of the school where the study was carried out. 32 students in experimental group participated in the interview. The interviews took four hours. The interviews were audio taped by a recorder and transcribed later. Students were informed that the interviews would be used for research purposes only and their identity information would be kept confidential. Each student was given a code (eg, S.1,….., S.32) and interviews were conducted and analyzes were made accordingly.

2.4. Implementation Process

A 10-week practice was conducted in the context of "Technology and Life" unit in 5th grade social studies textbook in order to reveal the effects of philosophy education practices for children on students' conceptual achievement and critical thinking skills. Before starting the application, participants were informed about Philosophy for Children (P4C) and the things to be done in the process were explained. In the first week, the Conceptual Achievement Examination (CAE) and the Critical Thinking Skills Scale (CTSS) were applied to experimental and control groups. Afterward, lessons were taught every week in line with the lesson plan made for experimental group and control group. In this process, activities were carried out based on stories that were created in the context of P4C practices. At the end of the application, Conceptual Achievement Examination (CAE) and Critical Thinking Skills Scale (CTSS) were applied again to experimental and control groups. In addition, a semi-structured interview form was applied to experimental group of students to support the data obtained from philosophy education practices for children. The implementation process of the research is indicated in Figure 4.

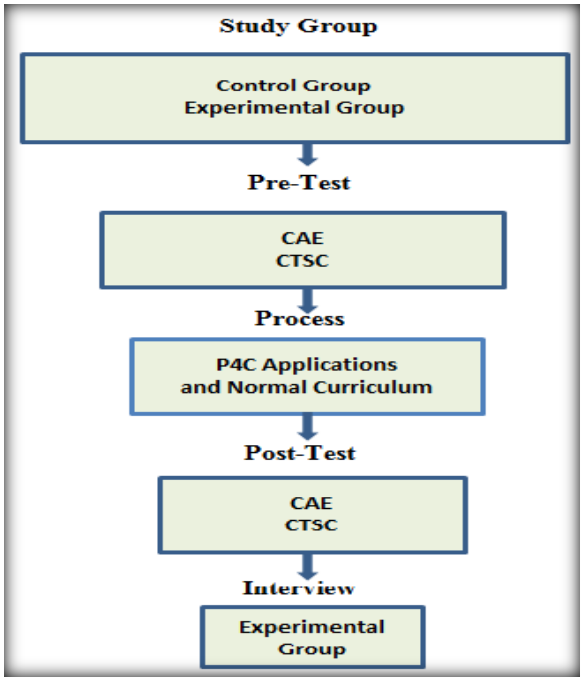

Figure 4: Implementation process

2.5. Analysis of Data

Quantitative data obtained from the research was arranged considering research questions and transferred to SPSS 22.0 statistics program. In the analyses it was examined whether experimental and control groups' scores from the conceptual achievement test and critical thinking skills scale indicated a statistically significant difference before and after the application or not. In significance tests of the findings obtained from SPSS program, $p>0.05$ means there is no significant difference, $p\leq0.05$ means there is a significant difference (Can, 2019). Kolmogorov-Smirnov test was used to check whether pre-test post-test difference of the groups indicated normal distribution or not and it was evaluated according to 0.05 significance value. In qualitative data of the research, MAXQDA 2020 qualitative data analysis program was used to analyze semi-structured interviews. The interviews were analyzed with the coding made in MAXQDA 2020 program.

3. Findings

3.1. Quantitative Data Findings

Table 1: Experimental and Control Group CAE Pre-Test Scores

Group	N	Mean Rank	Sum of Rank	Z	*p*
Experiment	32	32,42	1037,50	-,034	.973
Control	32	32,58	1042,50		

According to the table, when Mann-Whitney U test results are examined, it is seen that mean rank of experimental group's Conceptual Achievement Exam (CAE) pre-test scores is 32.42; mean rank of control group is 32.58. There is no statistically significant difference between the mean scores of experimental group and control group according to mean rank [z=-.034; p> .05].

Table 2: Experimental and Control Group CAE Post-Test Scores

Group	**N**	**Mean Rank**	**Sum of Rank**	**Z**	***p***
Experimental	32	37,84	1211,00	-2,309	.021
Control	32	27,16	869,00		

According to the table, when Mann-Whitney U test results are examined, it is seen that mean rank of experimental group's Conceptual Achievement Exam (CAE) post-test scores is 37.84; mean rank of control group is 27.16. According to mean rank, there is a statistically significant difference between mean scores of experimental group and mean scores of control group in on behalf of experimental group [z=-2.309; p< .05].

Table 3: Experimental and Control Group CTSS Pre-Test Scores

Group	**N**	**Mean Rank**	**Sum of Rank**	**Z**	***p***
Experimental	32	37,84	1211,00	-2,309	.021
Control	32	27,16	869,00		

According to the table, when Mann-Whitney U test results are examined, it is seen that mean rank of experimental group's Critical Thinking Skills Scale (CTSS) pre-test scores is 33.03; mean rank of control group is 31.97. There is no statistically significant difference between mean scores of experimental group and control group according to mean rank [z=,-230; p> .05].

Table 4: Experimental and Control Group CTSC Post-Test Scores

Group	**N**	**Mean Rank**	**Sum of Rank**	**Z**	***p***
Experimental	32	38,14	1220,50		
				-2,441	.015
Control	32	26,86	859,50		

According to the table, when the results of Mann Whitney U test were examined, mean rank of Critical Thinking Skills Scale (CTSS) post-test scores of experimental groups were 38.14; mean rank of control group was 26.86. According to mean rank, there is a statistically significant difference between mean scores of experimental groups and mean scores of control group on behalf of experimental group [z=-2,441; p< .05].

3.2. Qualitative Data Findings

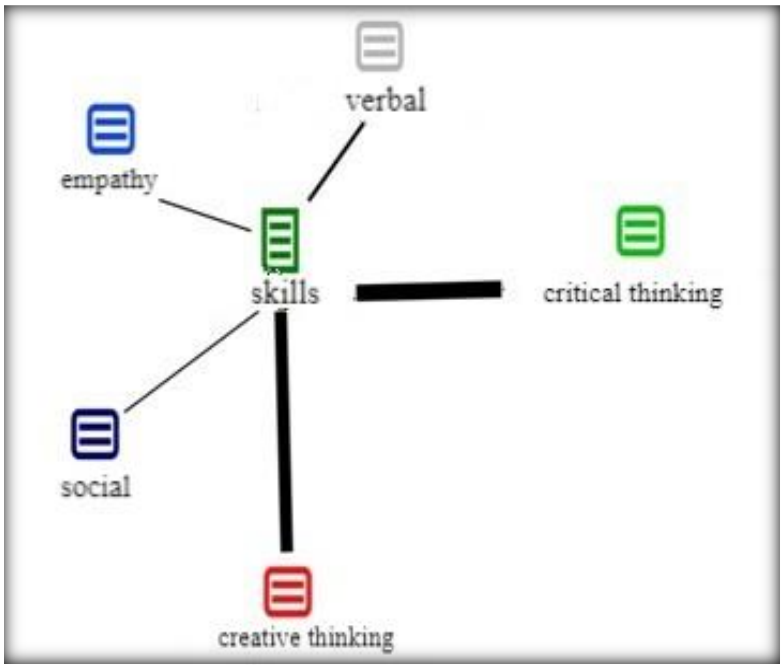

Figure 5: MAX Maps code concurrence model for philosophy education for children (P4C) skill development

Experimental group students made a comprehensive evaluation of practices of philosophy education for children. When students were asked about which skills the practices of philosophy education for children developed, they stated that their skills were developed in different ways. Students stated that practices of philosophy education for children mostly influenced their critical thinking skills. Regarding this, student named S12 stated that, "*When I first heard the name of this practice, it seemed unfamiliar to me. But, I started to like these activities when we made the applications. I couldn't wait for social studies course. These activities also developed my critical thinking skills. I started to look at things from this perspective*." Similarly, student S18 stated that practices of philosophy education for children improved their critical thinking skills and that these practices must be done in

other lessons as well. "*I can criticize using practices of philosophy education for children in social studies class. I feel like a philosopher. I wish these activities were applied in other lessons as well*." S9 stated that "*We philosophized via practices of philosophy education for children. Philosophy means thinking critically. I can say that it really improved my critical thinking skills. Of course, it improved my other skills too, but it mostly influenced my critical thinking skills*." Students stated that practices of philosophy education for children developed their creative thinking skills. Regarding this, S8 stated that, "*I was very nervous when I first heard the name of this activity. But later on, I felt that the lessons were different. I started to be more creative. I started to be more sociable in terms of generating new ideas*". Similarly, S7 stated that practices of philosophy education for children improved their creative thinking skills and these practices must be done in other lessons. "*Practices of philosophy education for children helped me to produce more creative ideas when I use them in social studies class. I wish we could apply these activities in other lessons as well."* S19 stated that "*With the practices of philosophy education for children, my critical thinking ability has improved. Since I could think critically, I started to be creative. I get well done by my teachers in most lessons. By philosophizing, we can think critically. I can say that with the practices of Philosophy for Children, I have improved my ability to think critically. Depending on this, my creative thinking skill has developed*." Students stated that practices of philosophy education for children improved their social skills. Regarding this, S11 stated that, "*I co-worked with my friends in Philosophy for Children activities. I listened to their ideas. I criticized their ideas or added something to them. In this situation, I realized that I am a more sociable student*." Similarly, S17 stated that, "*Our teacher gave us seats in a round table in the lessons. He suggested that we discuss our ideas with our friends and contribute. I am not a very sociable person, but I think that my social skills have improved with these applications*." S29 stated that "*My social skills improved with the practices of philosophy education for children. As my social skills improved, I started to establish closer relationships with my friends. This situation was also reflected in my family life at home. I get appreciation from my mom and dad for this*." S20 expressed that, "*We philosophize with our friends. I can say that my social skills have improved significantly with the practices of Philosophy for Children*." Students stated that practices of philosophy education for children improved their verbal skills as well. Regarding this, S31 stated that, "*Our teacher gave us the right to speak in Philosophy for Children activities. This made me develop better speaking skills*." Similarly, S27 expressed that, "*Our teacher taught us different sitting styles in the lessons. He wanted us to discuss our ideas with our friends and contribute to others' ideas. As an introvert person, I couldn't speak. At first, I couldn't speak in class, but later on, I could easily tell my friends about my ideas*." S23 stated that "*My verbal skills improved with the practices of philosophy education for children. As my verbal skills improved, I started to communicate with my friends more easily*." S20 stated that, "*We discuss with our friends via philosophy. We improve our communication by discussing. I can say that my verbal skills have improved significantly with the practices of Philosophy for children*." The students stated that practices of philosophy education for children improved their empathy skills. Regarding this, S28 stated that, "*While making the practices of Philosophy for Children, one of my friends expressed an idea from a different point of view, I did not criticize him, I tried to find out why he thought that way. After all, we all have different characters. I thought that my friend might look at that event from a different perspective*." Also, S16 stated that, "*Our teacher had told us about a skill called empathy. In fact, I can say that my ability to empathize has improved with this application. I tried to understand the other person and to respect others' ideas*."

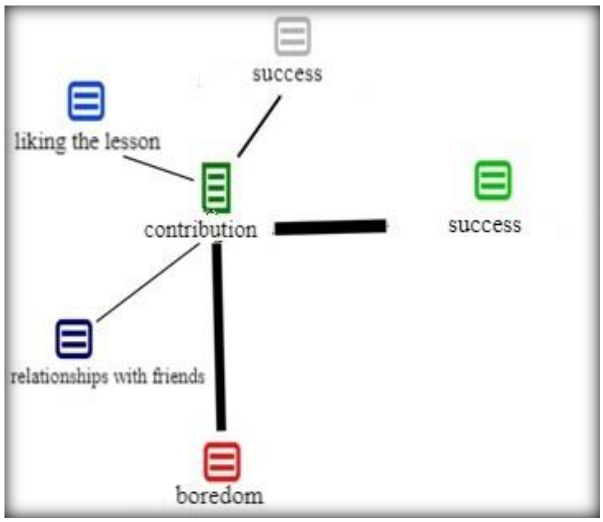

Figure 6: MAX Maps code concurrence model regarding philosophy education for children (P4C) contribution

Experimental group students made a comprehensive evaluation of practices of philosophy education for children. Regarding the question asked about how practices of philosophy education for children contribute, students made statements in different ways. The students stated the contribution of philosophy education practices for children as making the lesson more interesting. Since social studies course is a verbal course, it can emerge from students' opinions that these practices will be appropriate for the course. S9 expressed that, "*Sometimes I get bored in classes. Especially in verbal lessons such as social studies and Turkish lessons... But when our teacher said that we would perform practices of philosophy education for children in social studies lesson, I was a little worried. Then, I realized that the lesson was not boring anymore. I felt like a philosopher*." S25 stated that "*I was bored because Social Studies course was a verbal course. Don't get me wrong, our teacher teaches well, but I feel sleepy and bored in class. When our teacher made these practices in class, I stopped getting bored during the lesson*." Students mentioned the contribution of philosophy education practices for children as an increasing of success in the course. S19 expressed that, "*I couldn't get a high score in the social studies course. Our teacher gave us an exam before we started to teach the lesson with these applications. I didn't get a high score. But I got high scores in other exams. Philosophy education course increased my course success. I hope to get higher scores in exams from now on*." S20 stated that, "*I can say that the biggest contribution of philosophy education practices for children is that it increases my success in social studies course. Because before these applications, I was getting lower scores in exams, but now I am getting better scores*." S13 expressed that, "*I am preparing for the scholarship exam. I used to get bored while studying for social studies class and I couldn't work. This negatively affected my performance. But with the practices of philosophy education for children, I stopped getting bored with the lesson. Maybe we processed only one unit with these practices. But I started working on other units as well. While solving the exam preparation questions, both my interest and the number of correct answers in tests increased*." Students stated the contribution of philosophy education practices for children as developing some skills. S22 stated that, "*These practices mostly contributed to the development of my critical thinking skills. As I answered in the first question, the practices improved my critical thinking skills*". S2 expressed that, "*The biggest contribution of philosophy education practices for children was improving my creative thinking skills. I started to be more creative with philosophy activities. I even started to give different answers to the questions asked by our teacher*." S17 stated that, "*As I said in the first question, it contributed to my critical thinking skills. From the beginning to the end of the application, we criticized the events with suspicion. Because of this situation, philosophy education for children contributed to the development of my critical thinking."* Students stated that the contribution of philosophy education practices for children as enjoying the lesson. S8 expressed that, *"I used to dislike social studies course. I used to be bored with the lesson. But now I'm starting to enjoy the lesson and I'm looking forward to the next lesson.*" S12 expressed that, "*Our teacher Y.... lectures the lesson well. But I used to dislike the lesson. Now I can say that I like the lesson with these activities*." S10 stated that, "*I am not interested in some courses. I can't. One of these courses was Social Studies course. I don't have such an attitude towards the course at the moment. Because what we did in the lesson increased my bond with social studies lesson*." Students stated the contribution of philosophy

education practices for children as the improvement of their relations with their friends. S1 expressed that, "*Maybe it will be a little irrelevant, but the activities that our teacher applied in the lesson improved my relations with my friends. This may also be due to the fact that I was an unsociable person at the beginning. But I can say that philosophy education for children really contributes*." S27 stated that, "*Our relations have improved since we started to be in contact with our friends since the beginning of philosophy education practices for children. Thanks to this, our good friendship developed further. This made me very happy*."

4. Conclusion and Discussion

According to the results of the research, no significant difference was found between mean rank of experimental group's Conceptual Achievement Examination (CAE) pre-test scores and control group's conceptual achievement pre-test scores before practices of philosophy education for children. After the Practices of Philosophy Education for Children, a significant difference was found on behalf of experimental group between mean rank of experimental group's Conceptual Achievement Exam (CAE) post-test scores and control group's conceptual achievement exam post-test scores. In the study of Bilen (2020) and Wilson & Harris (2018) students' conceptual achievement and scientific process skills were found to be on behalf experimental group with philosophy education for children. In the study by Mhosronejad & Shokrollahzadeh (2020) and Şavşet (2016) it was found that academic and cognitive levels of students, who received philosophy education for children, were higher than other group students. Similarly, in terms of permanence, encouraging the students to learn must be permanent. Kefeli and Kara (2008) and Youssef, Campbell and Tangen (2016) state that philosophy education for children improves academic success by improving students' reasoning system and making it easier to understand the subject. In the study of Sprod (1994) and Wang (2019) it was found that practices of philosophy education for children improve students' conceptual achievement and scientific process skills.

According to the results of the research, no significant difference was found between mean rank of experimental group's Critical Thinking Skills Scale (CTSS) pre-test scores and control group's critical thinking skill pre-test scores before philosophy education practices for children. After the practices of philosophy education for children, a significant difference was found in behalf of experimental group between mean rank of experimental group's Critical Thinking Skills Scale (CTSS) post-test scores and control group's critical thinking skills post-test scores. The students, who participated in the research, carried out activities within the context of understanding certain problem situations, distinguishing subjective and objective judgments, making certain inferences, analyzing and asking appropriate questions in the process, which improved the critical thinking skills of students. According to Sıddıqui, Gorard, and See (2019) applying philosophy activities to students, influence their development of critical thinking skills. In the process, students' analysis and evaluation, attributing different meanings to questions and making certain inferences contribute to their critical thinking skills. Rahdar, Pourghaz, and Marziyeh (2018) state that students' understanding of problem situations, making certain inferences and being active in practices by asking purposeful questions in the face of these situations positively influence their critical thinking skills. Naseri, Gorjian, Ebrahimi, and Niakan (2017) state that practices of philosophy for children develop students' critical thinking skills. Philosophy education for children encourages students to think critically from different perspectives in terms of understanding, analysis, synthesis, evaluation and making sense of questions. In the study of Fereira (2014) it was found that philosophy education for children had a positive effect on students' critical thinking skills. Gasparatou and Kampeza (2012) suggest that philosophy education for children encourages students to think in multiple ways. Being able to look at questions from different perspectives, analyze and evaluate allow students to develop their critical thinking skills. According to Matsuoka (2007) inferences, analysis and evaluations are important factors considering students' ability to think critically and be creative. Trickey and Topping (2004) suggest that Practices of Philosophy Education for Children and the most basic thinking skills observed in students are integrated under critical, creative and reflective thinking skills. Other studies regarding the subject (Pennel, 2012; Jones-Teuben, 2013; Karadağ & Demirtaş, 2018; Işıklar, 2019; Sormaz Öğüt, 2019) are similar to the results of the research.

Experimental group students made a comprehensive evaluation on practicesof philosophy education for children. When asked about which skills the philosophy education practices for children developed, the students stated

that their skills developed in different ways. Students stated that practices of philosophy education for children influenced their critical thinking mostly, and then being creative, social, verbal and empathy skills. In the study of Echeverria & Hannam (2016) and Karadağ & Yıldız Demirtaş (2018) it was suggested that the practices of philosophy education for children approach have a positive effect on students' critical thinking skills. In the study of Leng (2015), it was suggested that with philosophy education for children, students use inductive and deductive reasoning skills to establish relationships between concepts and demonstrate their flexible thinking and empathy skills. Gimenez-Dasi, Quintanilla, and Daniel (2013) stated that philosophy education for children contributes positively to students' understanding of emotions and the development of their social skills. McBryde (2013) stated that philosophy education for children is an application in which high-level thinking skills such as creative, critical and empathy skills are used effectively. According to Lam (2011) considering the philosophical inquiry dimension of philosophy education for children, it can be stated that students develop their critical thinking skills. Daniel et al. (2005) stated that philosophy education for children positively influenced students' creative thinking skills. Similar results were obtained in other studies (Whitebread et al., 2006; Jenkins & Lyle, 2010) in terms of high level of thinking skills.

Experimental group students made a comprehensive evaluation of philosophy education activities for children. In the question asked about how philosophy education practices for children contribute, the students stated that they contribute in different ways. The students stated that the contribution of philosophy education practices for children is to change the lesson from being dullness to being interesting, to increase the success of the lesson, to develop some skills, to love the lesson and to increase relations with friends. Bhurekeni (2021) and Bilen (2020) states that with philosophy education for children students enjoy discussing and explaining their ideas. They feel important while focusing on discussions. Students participating in discussions in practices of philosophy education for children they improve their language use, self-expression and social skills. On the other hand, students have a positive attitude towards the lesson. According to García-Moriyón, González-Lamas, Botella, González Vela, Miranda-Alonso, Palacios, & Robles-Loro (2020) and Güven (2019) with the philosophy education for children, students like to think and produce together. Along with the process of thinking and decision-making with peers, a collaborative thinking style emerges. Students establish closer relationships with each other via philosophy education for children. Students actively determine the discussion process while philosophizing. The questions they ask in this process are the determinants of the discussion process. Students feel more free in their thoughts. Cassidy, Marwick, Deeney, and McLean (2017) state that philosophy education for children provides students more contribution compared to regular classrooms, considering student self-regulation, active participation, and attention to the lesson. Makaiau, Ching-Sze Wang, Rangoonaden and Leng (2017) and Siddiqui, Gorard, and See (2017) suggest that philosophy education for children contributes positively to students' communication skills, self-confidence in discussion environments in which they are involved in the discussion, respect the different opinions of their peers and are effective in solving social and behavioral problems. Barrow (2012) states that philosophy education for children contributes to the development of students' self-expression and self-esteem, arouses curiosity and enable them develop positive attitude towards the lesson. Işıklar & Öztürk (2022) and Jones (2015) and Kiyarsi (2017) states that in a society that makes inquiries, students are aware of their self-awareness and social awareness skills and are in a socially positive relationship with their peers. Kilby (2019) and Paine (2012) stated that philosophy education for children motivates students towards the lesson, makes the lesson more interesting and provides understanding of the subject. Philosophy education for children provided success in students' participation in the course, in their satisfaction with the subject and also their motivation. Students indicated a difference in terms of self-knowledge, self-confidence, respect and support for their peers, and it was seen that this situation was at a different level from academic learning. In addition, students have been successful in learning the language of reasoning about their own world. Via philosophy for children, students learned to be more flexible, tolerant and open-minded in their relations with their friends in the context of being cooperative. The common point of research regarding the subject of philosophy education for children is that it has a positive effect on self-awareness, social awareness, self-confidence, classroom communication, empathy, critical thinking and collaborative dialogue of students.

5. Suggestions

- Philosophy education for children can be used in other courses in secondary schools (Science, Thinking Education, Environmental Education, Law and Justice, Media Literacy).
- In-service training can be given to social studies teachers in terms of efficiency of practices of philosophy education for children.
- Activities performed in abroad for philosophy education for children can be researched.
- A guide book can be prepared and distributed to schools as a guide for teachers in philosophy education for children.
- This study is limited to 10 weeks. By working more longitudinally, the activities related to the subject can be discussed in detail.
- In this research, Social Studies course was conducted in the context of the "Technology and Life" unit. Different studies can be done by applying them to different units in Social Studies course.
- This research was conducted in a secondary school with 5th grade students. Different studies regarding the subject can be carried out in different grade levels and different school types.
- In this study, the effect of philosophy education for children on conceptual achievement and critical thinking skills was investigated. The effects of philosophy education practices for children on different variables can also be investigated.

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An Online Program to Empower Teachers' Learning to Develop Students' Critical Thinking Skills

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Abstract
The aim of this study was to develop an educational innovation called "An Online Program to Empower Teachers' Learning to Develop Students' Critical Thinking Skills." The study recognized the importance of social changes (i.e., becoming a knowledge-based society and a digital society) in the 21st century by examining knowledge from good quality resources that are related to a variety of concepts of 21st-century skills development. The information, which has been widely published on the Internet, was used to develop a system and to create efficient educational innovations, which hopefully will be beneficial to the development of teachers and students in the future. Based upon the concepts of: "Successful teachers, successful students" and "Knowledge and Action are power," online programs are used as media so that the target population can access them quickly and efficiently and with lower costs and with the availability of "Anywhere and Anytime." As a result, the effective innovation of "An Online Program to Empower Teachers' Learning to Develop Students' Critical Thinking Skills" has been developed in accordance with the criteria. Moreover, the innovation will be utilized at the Faculty of Education at the main campus of Mahamakut Buddhist University and at every other campus, which offers Thai, English, and Social Teaching curriculums.

Keywords: 21st-Century Skills, Critical Thinking Skills, Online Programs, Self-Learning Module

1. Introduction

At present, Information Technology and Communications through the system of the Internet are greatly influencing the development of innovations. Thus, the educators and educational entrepreneurs have been creating innovations to expand the learning limitations, to create opportunities to gain access to learning resources, and to create success in learning. These innovations are powerful tools that can help to facilitate the management of teaching and learning activities and instructors should learn to apply the designs of educational innovations in order to facilitate learning. Therefore, the Ministry of Education has agreed to make a policy to support the study of innovations. For example, in the national educational plans, it has stated its goals to develop learners' creative attributes and skills (Office of the Education Council, 2017). In the second issue of the 15-year plans of higher education (2008-2022), the objective was to produce graduates, who could develop innovations (Office of the Higher Education Commission, Ministry of Education, 2017). The 12th issue of the National Economic and Social Development plans focused on the reformation of learning and on developing the whole educational system so

that innovations could be produced (Office of the National Economic and Social Development Council, 2018). The Office of Higher Education Commission assigns all educational institutes to aim at developing intellectual skills and producing graduates, who have the qualifications to think critically and innovatively (Office for National Education Standards and Quality Assessment (Public Organization), 2010). Additionally, it has been said that in the Thailand 4.0 Model, the country's sustainability would become a success through innovations that would drive and develop the economy. In other words, the youth of Thailand need to develop 21st-century skills, including critical thinking skills.

To enter the era of Thailand 4.0, the country needs to create its own innovations without international help as before. The key goal of Thailand 4.0 is to become a country which is "wealthy, stable, and sustainable." In other words, the goal is to generate more income and to produce higher quality human resources because it is the most essential element. Human beings possess knowledge and energy, which can drive the country forward. In order to develop high-quality individuals with knowledge and skills in accordance with the mentioned policy, it is vital for the education system of Thailand to enter "Education 4.0" because it is an essential tool for developing and improving the quality of human resources (Meesri & Devata, 2018). In the era of Thailand 4.0, the focus is not only placed on providing information and classroom knowledge for learners, but also on preparing them to be humans, who have essential survival skills, especially morals for the 21st century, such as critical thinking, problem solving, creativity, and innovation creation (Office of the National Economic and Social Development Council, 2018).

In this first portion of the 21st century, there have been many studies about technology, including studies that have placed emphasis on the rise of the Internet as it becomes the medium of education in the modern world. In 1993, a survey of the educational value of the activities on computer networks across the United States of America was conducted by Bank Street College of Education, who found that online activities help learners to see the world from a broader perspective as they learn more about societies, communities, and cultures. The learners can search for information from any part of the world because the Internet gives them access and opportunities to communicate with people anytime and anywhere. Therefore, computer networks are resources that have enormous amounts of intellectual treasure with much more than any other source. This results in high-order thinking skills, especially inquiry-based analytical skills, critical thinking skills, data analytical skills, problem-solving skills, and freethought skills (Thai Good Views, 2009).

Thajchayapong (1998) discussed the different ways in which the Internet can benefit education. Firstly, it gives teachers and learners access to numerous learning resources, such as the "Library of the World." Information is available at the touch of a finger anytime and anywhere, even in areas where few resources are available. Together, students can input information about plants, nature, the environment, the history of communities, local arts, cultures, and wisdom, and then they exchange it with other students around the globe. At the same time, teachers can share useful information online, such as academic articles and teaching materials with other teachers, which can even help the students to learn. Secondly, it helps to develop communication between teachers and students. For example, they can send emails, which are convenient, fast, precise, and easy to use. As a result, greater communication among teachers, between teachers and students, and among students themselves can occur within the educational sphere. Thirdly, the roles of the teachers and students are changing. The use of the internet in teaching and learning shifts the focus of a classroom allowing teachers to become facilitators and allowing learning to become more active. Moreover, the internet database is an important and positive factor, which helps to enhance the students' learning and allows them to conduct research by themselves. Hence, applying technologies is vital to the development of educational quality. It is also important to adjust the roles when building learning networks both inside and outside of schools and to develop the students' knowledge and abilities, so that they can gain the necessary skills to compete in the international market and to live happily (Ministry of Education, 2008).

The 21st century's social changes are widely affecting the way of life, so the teachers need to be ready to prepare students for life in the 21st century, which differs greatly from the past century. The most essential skill is the skill of learning, which is causing the management of learning to change. Knowledge, abilities, and vital skills are the results of the reformation of teaching and learning in tandem with the preparation for other skills. Another essential skill is the skill of innovation, which is an indicator of the students' readiness to enter what is today's more

complicated world of work. These skills consist of initiative, creative and innovative skills, critical thinking and problem-solving skills, and communications and cooperative skills (Abdulloh & Niemted, 2020).

The first researcher is a teacher at the Faculty of Education at the main campus of Mahamakut Buddhist University and is a supervisor. After having discussions with students, it was brought to the researcher's attention that due to a lack of activities to develop their critical thinking skills, most of the students, as a result, did not possess these vital skills. Browne, Freeman, and Williamson (2000), McDunnigann (n.d.), Regan (2015), University of Essex (2016), and University of West Florida (2018) all agree that critical thinking skills are necessary for the following reasons: 1) they give people confidence when needing to effectively solve problems; 2) they help people to make logical and cautious decisions; and 3) they help people to achieve their goals more efficiently because they can think critically and logically. Moreover, critical thinking skills, which are based on logic and principles, contribute by: 1) enhancing communicative skills; 2) helping people, who are living in a constantly changing world to become lifelong learners; and 3) helping people to become more disciplined and responsible. The aforementioned advantages of critical thinking skills can promote more efficient performance.

The unceasing changes in society, the expectations for the further development of the country, the goal of enhancing education in accordance with the Thailand 4.0 Model, the various uses of the Internet for educational purposes, a lack of critical thinking skills among students and a lack of activities to help develop critical thinking skills for the students at the main campus of Mahamakut Buddhist University have all led the group of researchers to develop the educational innovation called "An Online Program to Empower Teachers' Learning to Develop Students' Critical Thinking Skills." The researchers believe that the use of Research and Development (R&D) methodology corresponds to the previously mentioned backgrounds and statements of the problems for the online program that was studied and developed in the selected experimental area. Moreover, they believe that the target population can benefit from the results of this study, which is the objective of publishing this study. According to the principles of R&D methodology, once an innovation has been piloted with a target group, whose qualifications can represent a population, and once that innovation has been proven to be efficient in accordance with the set criteria, then the innovation can be more efficiently and effectively used with the referred population group in much wider areas and will less cost than the document-based programs.

2. Objectives of the Research

This study aimed at applying Research and Development (R&D) methodology, which would result in the creation of "An Online Program to Empower Teachers' Learning to Develop Students' Critical Thinking Skills" in accordance with the criteria. The elements of this online program were the projects for the development of the teachers' learning and for the application of the results from the teachers' progress to develop the students. Each project consisted of a self-learning and practice manual created in a module pattern.

3. Research Hypothesis

After reviewing the related literature, the researcher made a manual, evaluated the quality of the manual, and revised it, and then created a tool for the pilot. The researcher piloted the manual in randomly selected schools in the experimental areas and used the principles and conceptual framework of R&D methodology, which is believed to generate efficient educational innovations. Therefore, the research hypothesis was that the development of "An Online Program to Empower Teachers' Learning to Develop Students' Critical Thinking Skills" would be efficient and would show the following results: 1) post-test scores of the teachers would meet or exceed the 90/90 standard and there would be significantly higher average scores at post-development and 2) the average scores of the post-tests of the students' critical thinking skills evaluation would be significantly higher than the pre-tests.

4. Research Methodology

4.1 The Conceptual Framework

Creating "An Online Program to Empower Teachers' Learning to Develop Students' Critical Thinking Skills," which would be efficient, was based on the following: 1) the importance of changes in society with respect to

knowledge and 2) the digitally-based society of the 21st century. The published resources of knowledge, related to skills development in the 21st century on the Internet, were examined for their quality, were placed into a system, and were further studied. The program could be beneficial to promoting the development of teachers and students using the concepts: "Successful teachers, Successful students." and "Knowledge and action are power." By using an online program, gaining access to the medium will be easier, more effective, quicker, and cheaper for the target population and will make it available for them anywhere and at any time. Research and Development (R&D) methodology, described by Sanrattana (2018), showed that any innovation, which is developed using R&D methodology, aims at developing "the individual" and "the work." The expectation is that when one has knowledge and is motivated to put that knowledge into action, it will create the power to work more efficiently. In addition, the concepts found in literature review are considered to be the vital origins of R&D methodology because the knowledge was used to develop the online program. Thus, the process of R&D methodology in this study originated with a review of the literature in the sequence of R1&D1... R2&D2... R3&D3... Ri&Di as follows:

R1&D1: A Review of the Literature The related literature was reviewed to discover "definitions, importance attributes or qualifications, ways of development, processes of development, and evaluation," which then led to arranging the projects in an online format, which consisted of a project to develop the set of teachers' learning manuals (6 manuals) and a second project for the teachers to apply of the results of their development to develop students, which consisted of practice manual (1 manual).

R2&D2: Use focused group discussion with the teachers at a school which is not in the experimental area which is Mahamakut Buddhist University, Lanna campus (10 teachers) to investigate any error to revise the manual.

R3&D3: Use focused group discussion with 15 teachers at a school which is not in the experimental area which is Mahamakut Buddhist University, Roi-et campus to investigate any error to revise the manual (like phase 1).

R4&D4: A Review of the Related Literature The related literature was explored to build 2 sets of research tools, which consisted of a post-learning test for the teachers and an evaluation of the students' critical thinking skills.

R5&D5: The Experimental Research This pre-experimental research was conducted with a one group pre-test/post-test design at the Faculty of Education, on the main campus of Mahamakut Buddhist University, which was randomly selected as the experimental area. The 15 full-time Thai, English, and Social teachers, who comprised the experimental group, were chosen by purposive sampling. There were 207 undergraduate students in the Thai, English, and Social teaching departments, who made up the target group. The study was conducted during the Second Semester of the Academic Year 2021. The experimental research was divided into two phases as described below:

Phase 1: The Self-development of the teacher research group The online self-learning was developed from the manual. The activities and time frame of the study were as follows: 1) the teachers in the research group were informed about the details of the study, including the pre-test (This step took two days.); 2) the teachers' skills were developed by using self-learning principles from the manual, which could be downloaded from the website created by the researcher, and steps were taken to make sure that the learning process was not influenced by the researcher and that no other individuals interfered (This step took one month.); 3) the teachers in the experimental group carried out error detection by examining the manual and making revisions and then assessed the post-tests (This step took two days.); and 4) the results of the teachers' post-test were analyzed and were compared to the standard 90/90 criteria, and then a t-test dependent was used to determine the results from comparing the pre-tests and post-tests (This step took two days.).

Phase 2: Applying the Results The teachers applied the results of their learning to further develop their students. The activities and time frames were as follows: 1) the details of the study were shared with the teachers in the research group and the critical thinking evaluation of the students' pre-test was examined (This step took two days.); 2) the teachers in the experimental group applied the results of their learning to develop the students' critical thinking skills without receiving any interference from the researcher or from others (This step took two months.);

3) the teachers in the experimental group carried out error detection by examining the manual and making revisions and then they assessed the students' post-tests (This step took two days.); and 4) the pre-test and post-test scores were analyzed and compared by using a t-test dependent (This step took two days.).

4.2 Research Tools

1. Employing the Teachers' Learning Test The test was a multiple choice test with four options, and its objective was to test the results of the teachers' learning before and after the experiment. The group of researchers developed the test from the definitions, the important aspects, attributes, the conceptual framework for development, and from evaluations. Its scope was in accordance with the cognitive domain found in Benjamin S. Bloom's The Revised Taxonomy (2001). It ranks thinking skills from low to high as follows: remembering, understanding, applying, analyzing, evaluating, and creating (Armstrong, 2010). The evaluation was created in Google form, and the following aspects were examined for quality:

1.1 To investigate the validity of the content, Rovinelli and Hambleton (1977)'s Indexes of Item-Objective Congruence (IOC) were used. Five experts in the fields of Curriculum & Instruction, and Educational Measurements & Evaluations checked the validity, and the results showed that the IOC for each of the question items had been higher than the set number of 0.50 (Chaichanawirote & Vantum, 2017).

1.2 The test was trialed with 30 teachers at schools outside of the experimental areas: Mahamakut Buddhist University, Isan and Roi-et campuses. An analysis of data indicated the following: 1) the index of difficulty for every question item had been at the standard level (0.20 - 0.80) and the power of discrimination value had been 0.20-1.00; 2) the KR-20 had shown a reliability coefficient of 0.92, which was higher than the set value in the criteria at 0.70; and 3) the index of difficulty for the whole test had been 49.81, which is considered to be appropriate.

2. Evaluating the Students' Critical Thinking Skills A 5-rating scale evaluation (i.e. highest, high, medium, low, and lowest) was used for the assessment. This evaluation was developed based on the study of attributes or qualifications of critical thinking skills from the perspectives of American Management Association (2019), Love (2019), Crockett (n.d.), Raudenbush (2017), and Todd (n.d.) and included a study of the evaluation framework of critical thinking skills by Sarigoz (2012), Tung and Chang (2009), and Khushbakht (2021). The evaluation was created in Google Form and examined the following:

2.1 Its content validity was tested by Rovinelli and Hambleton's method, which consisted of evaluation by 5 experts in the fields of Educational Administration, and Educational Measurements & Evaluations. The results of the data analysis showed that every question item had scored in IOC of more than the 0.50, which was set in the criteria. This meant that the questions in the adaptability skills evaluation could be adapted to assess anything related to the set objectives (Chaichanawirote & Vantum, 2017).

2.2 The evaluation was conducted with 30 students at the Isan campus of Mahamakut Buddhist University (a non-experimental area) to analyze the alpha coefficient of reliability following Cronbach's method. The analysis indicated that the alpha coefficient of reliability of the evaluation had been 0.97. After analyzing each part, the following data was found: 1) the problem-solving skills had been 0.89, 2) the learning for critical thinking skills development had been 0.87, 3) the critical thinking skills for making decisions had been 0.93, and 4) the behavioral indicators of having critical thinking skills had been 0.93. This alpha coefficient of reliability mentioned earlier was higher than the set number in the criteria, which was 0.70. This value confirmed the quality of the evaluation and that it could be used effectively (UCLA: Statistical Consulting Group, 2016).

4.3 Data Analysis

1. After the experiment, the results of the teachers' learning were compared with the 90/90 standard. The first 90 refers to a percentage of the average score for the whole group of teachers, whereas the second 90 refers to the percentage of the teachers, who had been able to pass every objective of the test (Yamkasikorn, 2008).
2. The results of the comparison of the teachers' learning pre-test and post-test and the students' critical thinking skills evaluation before and after the experiment were analyzed using a t–test dependent.

5. Research Results

From the procedures of R1&D1, "An Online Program to Empower Teachers' Learning to Develop Students' Critical Thinking Skills" was developed and included 2 projects. The manuals for each project are described below:

1. The Teachers' learning development project consisted of 6 sets of self-learning manuals, and each copy discusses the viewpoints of educational experts and institutes from the review of literature:

1.1 The definitions of critical thinking skills were obtained from Doyle (2019), Erstad (2018), Halpern (1998), Indeed Editorial Team (2019), Lau (n.d.), Michigan engineering (n.d.), Patterson (2017), Skills You Need (n.d.), and Tomaszewski (2019).

1.2 The importance of critical thinking skills was obtained from Browne, Freeman, and Williamson (2000), McDunnigann (n.d.), Regan (2015), University of Essex (2016), and University of West Florida (2018).

1.3 The attributes or qualifications of the indicators of critical thinking skills were obtained from American Management Association (2019), Love (2019), Crockett (n.d.), Raudenbush (2017), and Todd (n.d.).

1.4 The ways for the development of critical thinking skills were obtained from Alexander (2018), Bright Horizons Education Team (2021), College Success (n.d.), Hemphill (2018), Hurst (n.d.), NUI Galway (n.d.), Scott (2019), Struyk (2012), and Tan (2017).

1.5 The step model for developing critical thinking skills was obtained from Elmansy (2016), Milam (n.d.), Patterson (2020), Reasoninglab (n.d.), and Struyk (2012).

1.6 The evaluation of critical thinking skills was obtained from Sarigoz (2012), Tung and Chang (2009), and Khushbakht (2021).

2. The Project for the teachers to apply their learning to develop students consisted of a practice manual with instructions and a summary of the following important aspects: 1) the attributes or qualifications of critical thinking skills, which are expected from the students; 2) the framework for the development of critical thinking skills; and 3) the methods for the development of critical thinking skills. At the end of the manual, there was a self-evaluation for the teachers to assess how they had applied what they learned, to share their opinions on both the advantages and disadvantages of the manual, and to reflect upon the work.

From the procedures of R2&D2 to R5&D5, the following were created: 1) the teachers' learning manual, 2) a manual for the teachers to apply the knowledge that they had learned to develop their students, 3) the teachers' learning test, and 4) the critical thinking skills evaluation for the students. All four of these can be found on the following websites (Note: the original copies are in Thai.):

1) The Teachers' Learning Manuals: https://bit.ly/3OtcEEX
2) The Teachers' Self-Evaluation in applying what they had learned for student development: https://bit.ly/3OPpIUJ
3) The Teachers' Learning Test: https://bit.ly/3bzJcyi
4) The Students' Critical Thinking Skills Evaluation: https://bit.ly/3QSXydp

All the manuals, tests, and evaluations from the study led to the pre-experimental research with a one group pre-test/post-test design, which was carried out at the Faculty of Education, on the main campus of Mahamakut Buddhist University, which was randomly selected as the research area. There were 15 teachers from the departments of Thai, English, and Social Teaching, who had been purposively selected to be in the research group. In addition, there were 207 students, who were majoring in Thai, English, and Social Teaching, and who were also a target group of the study.

The results were as the researcher had hypothesized. "An Online Program to Empower Teachers' Learning to Develop Students' Critical Thinking Skills" with 2 projects and each with manuals was proven effective according to the following criteria. Firstly, the results of the teachers' post-test followed the 90/90 standard. The first 90 referred to the percentage of the average score of the post-test. It was found that the teachers had scored an average of 32.73 out of 36 (92.96%), which was higher than the 90%. The second 90 referred to the number of teachers who had passed the test. Of the 15 teachers, 92.22% of them passed every part of the test.

Secondly, the result of the 15 teachers' learning pre-test was an average of 28.20 with 2.68 standard deviation, while the post-test average score was 33.47 with a standard deviation of 1.85. When the data was analyzed using the dependent t-test, it was found that the post-test scores had been statistically significantly higher than the pre-test (t value = 17.54, p >0.05).

Finally, the results from the evaluation of the critical thinking skills of the 207 students were as follows: the average value before the experiment was 3.48 with standard deviation of 0.53, whereas the post-evaluation value was 4.26 with standard deviation of 0.28. When the data was analyzed using the dependent t-test, it was found that the students' average score after the experiment had been statistically significantly higher than before the experiment (t value = 32.87, p >0.05).

6. Research Discussion

As mentioned previously, the researchers recognized the importance of a "knowledge-based society," which is a strategic term that is similar to "post-modern society," "post- industrial society," "experiential society," "consumer society", "risk society," "media society," or "information society," as well as similar terms, which aim at diverting attention to a certain aspect. The aspects that are particularly highlighted by the term 'knowledge-based society' are knowledge and education (Poltermann, 2014). A knowledge-based society is a society that generates, shares, and utilizes knowledge for the prosperity and well-being of its people (Zhou, 2016). Moreover, it refers to a society in which the creation, dissemination, and utilization of information and knowledge has become the most important factor in production. In such a society, knowledge assets (also called intellectual capital) are the most powerful producers of wealth, and as such, they have sidelined the importance of land, the volume of labor, and physical or financial capital (Knowledge Society, n.d.). Due to the recognition of the importance of a "Knowledge-based society", the literature review thereby focused on exploring critical thinking skills from many different experts from around the world, who have published their works. The researchers, who conducted the examination, found that some of them are famous academicians, experienced practitioners, and institutions that are dedicated to studying and developing the matter. The information is also of great quality and is easy to understand and put into action. Moreover, there is a sufficient amount to systemize and study in order to acquire further benefits for the development of the educational innovation: "An Online Program to Empower Teachers' Learning to Develop Students' Critical Thinking Skills."

Given that the importance of having a knowledge-based society has been recognized within both wider and smaller circles, the application of this idea has been applied to promote the development of educational innovations using Research and Development methodology. It is, thereby, a lesson from the study, which the researchers have agreed is truly useful and deserves to be published for the greater good.

At the same time, the researchers also recognized the importance of "a technologically-based internet society" which describes a society in which information technology and the Internet have been combined to transform the habits of human beings with regard to creating information, seeking information, and disseminating information. Most people today, at work and at home, have immediate access to a set of technologies that can support the production of high-quality printed materials. A succession of technological innovations, such as large-volume photocopiers, transferable word processing files, high-capacity printers, and Internet-based file transfer, have changed the ways in which we produce and distribute documents. We used to call some of this 'desktop publishing', but its facilities have become so pervasive that we can no longer distinguish them with their own label (Susskind & Susskind, 2016). Its definitions are as wide or as small as the ones for the word "knowledge-based society," which is mentioned frequently. In this research as well as those of Arnandho and Sutheejariyawattana (2022), Chobjai and Sanrattana (2022), Dhanapañño and Sutheejariyawattana (2022), Namjaidee and Dhammapissamai (2022), Niruttimatee and Sanrattana (2022), and Promrub and Sanrattana (2022) the researchers applied the idea to the development of the educational innovation in an e-book form to serve as a way of learning, as a guideline for the teachers' practice, and as an online program, which can be disseminated to benefit the target population by publishing their research conveniently, quickly, and efficiently. Furthermore, the researchers have realized the following benefits of online learning: 1) added flexibility and self-paced learning; 2) better time management; 3) the demonstration of self-motivation; 4) improved virtual communication and collaboration; 5) a

broader, more global perspective; 6) more refined critical-thinking skills; and 7) new technical skills (Miller, 2019).

7. Recommendations

In this research, in addition to using R&D methodology to develop an educational innovation that focus on "knowledge-based society" and "the technology-based internet society" also emphasizes the concept of teacher development and then allows teachers to continue to develop with students, concept of knowledge and action is power, concept dissemination of innovations from research results to the practical use of the target population, and concept of online self-study. However, there are many more innovative development ideas that the researchers would like to present to be studied and applied in more variety of R&D methodology with the goal of obtaining research results that are useful for broader application of the target population.

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Appendix

The Students' Critical Thinking Skills Self-Assessment

The Indicative Qualifications of Critical Thinking Skills	Scale				
	5	4	3	2	1
Problem Solving					
1. I take the questions or problems that I am facing seriously.					
2. I record my learning because it helps me to understand the assignments.					
3. When I have problems, I can resolve them.					
4. I can support my decisions with the information that I have received.					
5. I can explain things in a logical manner.					
6. I can critique the information about that matter I have.					
7. I can revise my hypothesis of what is being considered.					
8. I can understand what is unclear.					
9. I can make decisions and make assumptions by myself.					
Learning to Develop Critical Thinking Skills					
10. When I read, I can understand the intention of the writer.					
11. When I encounter something, I can think logically.					
12. I can make connections between subjects.					
13. I can develop my thoughts with my research.					
14. I make certain that the information I use is adequate.					
Critical Thinking Skills for Decision Making					
15. I usually rely on more than one source of information before I make a decision.					
16. When facing a problem, I see more than one solution.					
17. I think about the results before I do something.					
18. I plan to collect information about the topics that are being discussed.					
19. I make a list to help me think about a problem.					
20. I prioritize things according to their importance.					
21. I listen to different opinions.					
22. I am open to different opinions when making decisions.					

23. I am aware that sometimes there is neither a right nor a wrong answer.					
24. When I have an assignment, I work with people to collect ideas.					
Behavioral Indicators of Critical Thinking					
25. Class discussions help me to better understand the reading assignment.					
26. Class discussions help me to deeply explore my thoughts.					
27. I participate in class discussions.					
28. I record my learning because it is a good learning activity.					
29. I participate in a meeting before the group presentations.					
30. I prefer a class in which students can discuss their opinions.					

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Community Empowerment as Socio-Economic Education of Tourism Villages Based on Local Wisdom

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Abstract
The village is an area that has a lot of potential resources, especially economic, natural or environmental, and socio-cultural aspects, which can be used as essential capital in development and the welfare of the community. Therefore, it is necessary to carry out research and community empowerment as socio-economic education of tourism village communities to open up job vacancies, especially for the younger generation and village independence. The study used Research and Development (R & D) methods and analysis by prioritizing qualitative data through interviews, observations, and focus group discussions on purposively selected informants, including village government, tourism village groups, youth groups, and business groups. The research location is in a new tourism village with uniqueness and local wisdom, namely Mergolangu Tourism Village, Kalibawang District, Wonosobo Regency, Banjarpanepen Village, Sumpiuh District, Banyumas Regency in Central Java Province of Indonesia. The results showed that tourist villages still have problems in institutional management, productive, creative, and innovative business development, and marketing promotion. So, it requires community empowerment as socio-economic education through various extension activities, training, mentoring, and partnerships on tourism management supported by stakeholders. Socio-economic education has implemented of empowerment program that could be a target to the younger generation as the successor to the village tourism management group.

Keywords: Tourism Village, Young Generation, Socio-Economic Education, Community Empowerment, Rural Development

1. Introduction

The village development has the potential resources, be it human, social, economic, cultural and natural, or environmental resources. It is essential and strategic to become the foundation for regional and urban development and even national development. Rural areas where people are born and raised and only busy during holidays because their citizens earn a living in cities or urbanization and abroad as migrant workers. The village has not maximally managed for resource potentials by the generation of farmers can be reduced, the land and agricultural products are less productive which does not generate significant income and welfare for the community. The village has the autonomy to manage budgets, communication processes, and development plans in a participatory manner. The village development has aspirations, needs, and resources. It can be utilized and developed into community work areas in business groups and village-owned enterprises.

Therefore, the initial requirements for development in rural areas are identifying, managing, and developing potential resources through the communication process of the participatory development concept, namely the involvement of all parties starting from the community and village government to plan programs, implement and evaluate development. The concrete form of participatory action is communication in empowerment programs as socio-economic education to answer the community's problems and develop potential resources.

The concept of participatory development is a process that actively involves the community in all critical decisions as a communication process of relating to life. Participatory development is a character by equal or egalitarian face-to-face dialogue, which requires reflection and action, and without hierarchical differences between people who are in discussion, acknowledging that both parties are both oppressors and oppressed need freedom (Bolzan, 2007; Carr, 2011; Geilfus, 2008; Kloppers & Fourie, 2018; Marzolla et al., 2012; Nygren, 2016; Prokopy & Castelloe, 2009; Rettie, 2016).

Empowerment programs were carried out as informal education for village communities, such as post-harvest product management training, improved product quality and standardization, and marketing agricultural products. Empowerment results can increase added value for agricultural economic products so that income and create jobs. The effects of empowerment will increase added value for agricultural financial products so that income and create jobs. The innovations include superior varieties with high nutrition, post-harvest technology, especially storage, and technology to increase added value and elevate the image of traditional food into a prestigious commodity, attractive to serve, and delicious and practically consumed.

The villages have the potential for tourism and agricultural products that can improve the community's economy, such as tourist villages that are the research location, including in the town of Mergolangu in Wonosobo District and Banjarpanepen Village in Banyumas Regency, Central Java Province of Indonesia. The tourist village must be concerned and support the development of eco-tourism and culture. Based on research carried out before the Covid-19 pandemic from October 2019 to February 2020, Mergolangu Village has a topography with cool air, beautiful natural scenery because forests and mountains surround it. The area's characteristics are around 9% as residential areas, and 14% are village forests. Then the rests are plantation areas and agricultural fields, and moor. The object of the tourist area, access to the nets, are challenging and interesting because they are still original community footpaths with uphill terrain and suitable for those who have hobbies of traveling, sports walking and jogging, and outbound.

However, the struggle to access tourism objects is paid off by the beautiful natural scenery and the friendly citizen. There are viewing posts to see the green and excellent pictures around the top of the hill, namely the Puncak Serangan, Bukit Tumenggung, Puncak Memean, Kalicoklat Waterfall, and Bat Cave. Meanwhile, the village of Banjarpanepen has potential in addition to agricultural products and fruits such as coconuts, durian and oranges, coconut sugar and organic palm sugar, natural river attractions, and cultural tourism sites past remains of Gadjahmada governor are not available. Still, many tourists have come to perform cultural rituals. The two tourist village locations can be a part of a tourism area based on local wisdom that needs developing programs. Thus, it requires a communication process of community empowerment programs as socio-economic education, especially regarding managing tourist village areas from various perspectives, from the managers or their institutions, infrastructure and facilities, promotion, and marketing.

Empowerment as socio-economic education is a deliberate effort to facilitate local communities in planning, deciding, and managing the local resources through collective action and networking, to have the ability and independence economically, ecologically, and socially. Rural development of agrotourism that utilize agricultural potential, and involves rural communities, can function as a communication process of community empowerment as socio-economic education in line with community-based tourism. The tourism village development will be carrying out participatory development communication so that the town will be able to manage and develop potential resources such as the economic, social, cultural, and authenticity of the environment through the empowerment program to increase the spirit, knowledge, and community skills (Ahmad & Abu Talib, 2015; Darmana, 2019; Parfitt, 2004; Ram et al., 2016; Ridderstaat & Croes, 2020; Sopanah et al., 2021; Sulaiman et al., 2016).

However, the development of tourism villages in Mergolangu Village and Banjarepen Village as the research location experienced a decline in tourist visits by 75% due to the Coronavirus (Covid 19) pandemic since March 2020 in Indonesia. Moreover, from the village and district levels, it has started to carry out social restrictions and communication to closing their areas by carrying out local quarantine, checking, and tightening the entry and exit of residents. The central and regional governments have appealed for social distancing, working and worshiping at home, quarantining people outside the city, urging them not to return home, and limiting public transportation. These are stated in several government policies in the form of health emergencies outlined in the Presidential Decree of the Republic of Indonesia Number 11 of 2020 concerning the Determination of Covid-19 Public Health Emergencies. Large-scale social restriction regulations have applicable in Government Regulation of the Republic of Indonesia Number 21 of 2020 concerning Large-Scale Social Restrictions in the Context of Accelerating Handling of Covid-19. Both decisions are based on Law Number 6 of 2018 concerning Health Quarantine.

Therefore, the Mergolangu Tourism Village and the Banjarpanepen Tourism Village require a tourism village need management communications strategy based on integrated local wisdom after the Covid 19 outbreak. Local organizations and understanding, which grow and develop in the community, need to be given vast space to express and articulate the community's various needs as community self-reliance and its active role in development, especially for the development of social welfare. Emphasized the need to use local personnel as a companion in implementing empowerment programs as socio-economic education with a moral-spiritual touch and monitoring and evaluating carried out continuously by government officials.

Communication in empowerment programs must be based on the needs of service recipients, in the sense that they are "bottom-up" and not "top-down." The group deliberations have activity plan will be produced, namely utilizing local resources, increasing the role of local institutions, increasing savings and loan businesses, and handling social welfare problems (Geissel & Michels, 2017; Gibson & Woolcock, 2008; Handoko et al., 2014; Quimbo et al., 2019; Sulaiman, 2013).

2. Research Method

The research used the qualitative method of Research and Development (R & D). The stages of research identified findings, formulated, improved, developed, produced, and tested certain products' effectiveness. Then research makes models, methods or strategies, procedures, and services superior, new, effective, efficient, productive, and meaningful. R & D methods are basic and applied research for improvement or renewal and expansion (extension) emphasizing novelty, creativity, and natural products. The research data analysis stage adopted the R&D analysis (Figure 1), namely (1) Analyzing potential and problems, (2) Product design, (3) Design validation, (4) Design revision, (5) Product testing, (6) Product revision, (7) Testing use, (8) Revision of products, (9) Production and strategies for the mass public (Gilbert, et al., 2012).

Research data comes from direct observation, in-depth interviews, and Focus Group Discussions (FGD) conducted during the Covid 19 pandemic from 2021 and March 2022, continued by analyzing documentation, research results, scientific journals, and studies online seminars. The research subjects have been determined by purposive sampling: the village government, tourism village administrators, activists, community leaders, and visitors. The research location is defined in a new tourism village area with uniqueness and local wisdom, namely in the Mergolangu Tourism Village, Kalibawang District, which is a project to become part of tourist destinations in Wonosobo Regency as a tourist area of Central Java of Indonesia. In addition, Banjarpanepen Village is a unique cultural and agricultural tourism village. It can be used as a tourist attraction that can be developed and promoted, aside from Baturraden, famous in Banyumas Regency in Central Java Province of Indonesia.

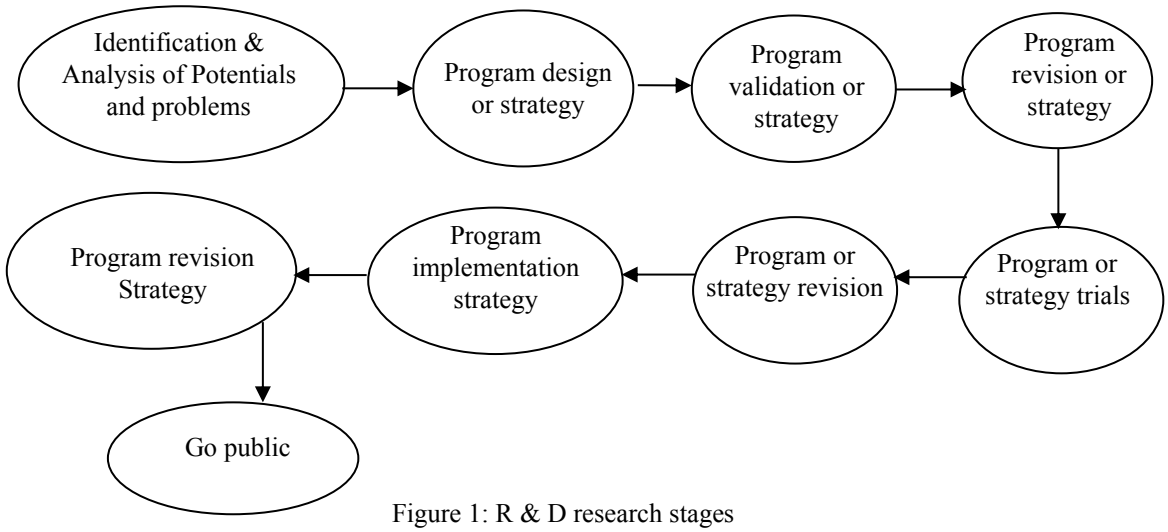

Figure 1: R & D research stages

3. Results & Discussion

3.1 Development of Tourism Villages based on Local Wisdom

Tourism village products based on potential authenticity and natural beauty such as cool, green and beautiful mountains as photo spots, campsites and outbound locations. Then unique and interesting rural food and drinks as processing natural ingredients such as coffee, brown sugar, and root foods that are boiled and made into chips. Mergolangu and Banjarpanepen tourist villages have natural tourism products, drinks and rural specialties which are a form of local wisdom that must be preserved and developed into the economic potential of the community.

Local wisdom is the identity and entity of a community or society that has long been inherited from generation to generation into customs, norms and culture which are believed to be guidelines for the interaction of socio-economic life. The local wisdom of each community will be different depending on the culture of the community which can change, assimilate, adapt and develop and can even be degraded. So that local wisdom needs to be preserved and developed, especially regarding a cohesive, productive, adaptive and innovative mindset and behavior for mutual prosperity (Astara et al., 2022; Fatmawati & Prasetya, 2021; Hamzah & Irfan, 2018; Jumaedi, 2021; Komariah et al. 2018; Sulaiman et al., 2022; Suryani & Irfan, 2016; Vitasurya, 2016).

The first location in Mergolangu Village is in Kalibawang District, Wonosobo Regency, Central Java Province. Mergolangu village has an area of approximately 597 hectares. The cool mountain air coupled with stunning natural scenery is the main potential of it. At first Mergolangu Village, was never visited by tourists, but now it is a tourism village. From 2020/2021, 20 thousand people have visited this village with an entrance ticket price IDR 5 - 10 thousand, and the results of the development of the tourism village can contribute to the village treasury. Mergolangu Village is a natural tourism village with 7,800 hectares consisting of mountainous destinations with forest tourism, national planting tours, and camping ground in the Mount Lanang area. Mount Lanang Tourism area can be categorized as a unique tourism place which is quite extreme.

The Mount Lanang Tourism Area consists of Sarangan Hill, Memean Hill, Mount Putri, Mount Bolong, Ponjen Hill, Kali Colat Waterfall, Kiai Tawengan Ancient Maqom, and Bat Cave. Village-owned enterprises of Mergolangu carry out tourism management. The development of natural tourism in Mergolangu Village is carried out by utilizing village funds that receive support. Mergolangu Village is one of the villages that received a good performance assessment in the Wonosobo Regency. In addition to tourism development, village funds are also used for village infrastructure development.

According to the village monograph data in 2021, the population in Mergolangu Village is 2124 people, with 1075 men and 1049 women. The majority of education levels are elementary school graduates 1496 people, junior high school 115 people, high school 63 people, Diploma 3 people and ten graduates. In 2021, the head of

Mergolangu Village and youth organizations began to establish a Tourism Awareness Group or Pokdarwis named the Sustainable Nature Tourism Awareness Group, which is interested in and cares about developing local tourism potential in the Tourism Village in Mergolangu Village. The majority of Margolawu residents work as farmers and breeders, where the leading commodities in Mergolangu Village are cassava and goat. The origin of Mergolangu's name is "Mergo," which means road, and "langu," which means unpleasant smell. Later Mergolangu is interpreted as a village that has a route that smells unpleasant.

The community can maintain and develop local resources, local wisdom, and culture to be used as socio-economic resources for the welfare of the community by involving the participation of all parties such as indigenous peoples, village government, youth organizations, women's groups, empowerment activists and tourism groups (Anam et al., 2018; Cox et al., 2014; Lubis et al., 2020; Pambudi et al., 2018; Setiawan et al., 2019).

The development in Mergolangu Village is carried out as much as possible not to damage the existing ecosystem, for example, the construction of substations following tree paths. Mergolangu Village can continue to preserve the forest in the village even though it is developing into a tourism village. The people of Mergolangu Village have high enthusiasm for participating in the planning process and village strategic projects. Thus, communication in empowerment programs for village development can be pursued independently by the community or in collaboration with external parties (government and private parties). Mergolangu Village has formed the Forest Village Community Institution (FVCI) as the institution in charge of forest utilization in collaboration with Forest Management and Conservation Service. The role of FVCI is preserving forests, including protecting forests from development that will destroy forests.

A hilly tourism object called Mount Lanang is a spiritual and cultural tourism object believed to have water to provide power and fertility for men. It has become the leading source for the village economy, increasingly providing benefits that residents can use. If people rely only upon non-governmental organizations, it may take a long time, while relying on outside investors are not accessible. The journey to the tourist location is indeed quite tiring because of the uphill terrain. Thus, residents have provided transportation services in the form of cars that can be used off-road. As the road access is still unpaved, it is steep, rocky, and slippery during the rainy season.

Mergolangu Village can become a natural tourism area (eco-tourism) through communication empowerment to support plantation potential and become part of new tourist destinations in Wonosobo Regency, a district known as a tourism area in Central Java at the national level. In general, Mergolangu Village has 1,819 people who work in the agricultural sector (farmers), merchants, migrant workers, drivers, and civil servants. However, there are still problems in Mergolangu Tourism Village, namely (1) Around 39% is still poor. (2) Agricultural production has not yet developed into a reliable, superior commodity but is only sufficient for family needs. (3) Road infrastructure development, including access to tourism sites, is still inadequate. (4) Development fund from the village budget still lacking in 2020/2021, around 814 million prioritized for infrastructure development, increasing village economic capacity and essential social services. (5) No institutions such as tourism awareness groups have yet to be formed, and there is still a lack of knowledge and skills in managing the development of tourism areas. (6) Communication in promoting the development of tourism areas and agricultural products has not been managed and implemented. (7) Village youth as human resources have not been empowered to become a group managing tourist areas.

The second location is Banarpanepen Village, a northern village in Sumpiuh Subdistrict, Banyumas Regency, Central Java Province. According to monograph data in 2021, the village area is 1,100.28 hectares with a residential area of 520 ha and a forest area of 520.28 ha. The total population of Banjarpanepen Village is 2,680 men and 2,549 women. The education level is 156 people did not complete elementary school, 1230 people graduated from elementary school, 1393 people graduated from junior high school, 2306 people graduated from Senior High School, 87 people from diplomas and 56 people from graduate school. Banjarpanepen is a village that has natural potential that can be developed into a tourism village. The nature potential of this village includes natural tourism, cultural tourism, and religious tourism. Natural tourism owned by Banjarpanepen

village has objects of Curug Klapa, Kali Cawang Curug Klapa, while Religious Tourism places are the past remain of Gadjah Mada "Watu Jonggol" and Mbah Batur past remain. Meanwhile, cultural Tourism places are Takiran 1 Sura, Calungan, and Lumping Horse. The ticket price is around IDR. 10.000, facilitated by parking services and culinary places around tourist sites.

There is much economic potential through communication in empowerment that can be developing in Banjarpanepen Village, especially in terms of tourism places, its beautiful nature, and abundant water sources. In addition, a business group is developing. It has become the characteristic of Banjarpanepen Village, the coconut trapper group that can tap 20 coconut trees, whereas four coconut trees can produce 1 Kg of Coconut Sugar. 1 Kg of coconut sugar currently costs IDR. 12,000 to 15,000. The organic sugar business group also sells sugar for IDR. 20,000 to 30,000 per kg to the collectors for export. Besides coconut tappers, pine trappers collaborate with Forest Management and Conservation Service, which owns the land and pine trees. The pine tappers tap the pine trees every two weeks, with the results being an accommodation by Forest Management and Conservation Service for IDR. 4,500 to 5500 per Kg.

The Gunung Emas tourism group in Banjarpanepen Village problem is that all economic activities have not been coordinated. Thus, it is still individual for each member, especially in product processing business units with tourist locations. Even though tourism and processed products such as coconut sugar and organic palm sugar have a remarkable impact on the economic improvement of the tourism group members and the community, the tourism group regeneration is still lacking because the management of groups is still managed by village leaders who are old.

The development of potentials and problems still faces challenges in Megolangu and Banjarpanepen tourism villages due to (1) the two tourism villages being recently promoted to the public around 2020/2021. Although many people have visited them for a long time, their nature is still not designed and labeled as a commercial tourist location by the village government. (2) The village government officials still manage the communication in the empowerment of village tourism groups. Thus, there is less regeneration to become managers of the village. Young people work outside the village (urbanization) and go abroad to become migrant workers. (3) The potential tourism village from agriculture and village-specific food processed products cannot be maximally developed. There is no comprehensive, sustainable and communication in empowerment programs from either the regional government or other parties such as the private sector, data activists, and universities. (4) The communication in empowerment programs is still not based on identifying and analyzing the community's problems, potentials, interests, and needs. The programs that have been implemented so far are mostly infrastructure.

Community empowerment programs as socio-economic education aimed at farmers are not suitable or not yet suitable for the situations and conditions that the farmers expect. Problems in tourism objects based on food security are village regulations, village social and cultural institutions, area and land ownership, capital systems, resource utilization, and sales systems. Local governments, practitioners, academics, and tourism experts need to carry out sustainable mentoring activities to support the dialogue forums, road access facilities, market for agricultural eco-tourism, and ego-tourism products (Đukić & Volić, 2017; Kerselaers et al., 2015; Muhtarom & Irawan, 2017; Suhel & Bashir, 2018; Thompson, 2020). In addition, the constraints of the coronavirus (Covid 19) pandemic, the development of tourism villages will stop, and there will even be a setback, which will result in a decrease in income and welfare of rural communities, for the Tourism Group and the economic business group. Since the Covid 19, with the instructions of social distancing and instructions for activities at home, the tourism sector has had the worst impact, especially for hotels, travel bureaus, culinary businesses, and restaurants.

3.2 Empowerment Programs as Socio-Economic Education of Tourism Village

The results of research activities range from literature and academic studies, the opening of access, and the process of interviews, observation, discussion, and documentation that produce programs and models for empowering tourism villages. The empowerment program and model identify and analyze problems and potential resources owned by the community, namely (1) Mergolangu Village, Wonosobo Regency, and

Banjarpanepen Village Banyumas Regency Human resources. Many young people are still leaving the village to find work in urban areas (urbanization) and become migrant workers abroad. The level of education is still relatively low. Many people graduate from elementary to junior high school. The tourism village group has formed with the head village's initiative, which has idealism and enthusiasm to promote village potential. However, the knowledge and skills for success and management of the tourism village groups are still not developed.

(2) Social, cultural, and very supportive resources such as Mergolangu Village, Wonosobo Regency, some hills and mountains have beautiful and fabulous views, including cultural sites. In contrast, water and mountain moss can provide strength and fertility for men. The village of Banjarpanepen, Banyumas Regency, is also characterized by its beautiful and natural rivers and hills. There are cultural sites in the form of ritual sites, or past remains of Gadjah Mada governor are often visited for Javanese cultural rituals. However, road infrastructure still has problems leading to hills and mountains, which are steep, rocky, and slippery during the rainy season. The arrangement and provision of tourist facilities still need to be improved and equipped, such as parking areas, food stalls, and bathrooms. Communication in empowerment for tourist attractions is still limited in number, knowledge, and managerial skills. Thus, they cannot provide more information about local tourism history, benefits, services, promotion, and marketing. Tourism must preserve, and the environment's cleanliness also needs to be maintained and preserved, such as the management of stalls for selling and garbage from visitors. Cultural characteristics can be formed, developed, and held that have been lost among the young generation of the village. Therefore, the cultural arts tradition can be preserved and become a unique and artistic stage for visitors at least once a month or in daily activities—major national.

(3) Eco-tourism can obtain the two locations from agriculture, especially crops other than rice plantations, pine forests, camping sites, typical rural food and drinks such as rice food with fried and grilled chicken and fish along with chili sauce, boiled food for cassava, corn and sweet potatoes as well as drink from young coconut water and palm sugar. These particular foods and drinks can be used as community commodities to open businesses that provide services to visitors and support the development of tourist villages. However, these have not yet developed in the village community. Thus, food stalls have not yet sold typical rural food and drinks.

Therefore, communication in empowerment programs as socio-economic education is a need in the form of counseling and training targeting the younger generation, business groups, and village tourism groups inlined. Several opinions assert that empowerment is an informal and non-formal education for a participatory, egalitarian and dialogical society. Empowerment as a medium of public education that does not recognize educational status and socioeconomic status. Empowerment increases motivation, inspiration, cohesiveness in institutions, knowledge, skills and socio-economic partnerships of the community so that they are independent and prosperous (Ahmed et al., 2010; Al-Qahtan et al., 2020; Bano et al., 2021; Brenyah, 2018; Bushra & Wajiha, 2015; Kushandajani, 2019; Laksono, 2018; Rahmadani et al., 2020; Saleh et al., 2022; Sulaiman et al., 2022; Tuames et al., 2020).

Designing community empowerment programs as socio-economic education carried out through several stages: (1) The research team conducted a preliminary study on the communication in the empowerment of tourism village communities by reviewing research results, scientific journals, and news in the mass media. Research teams and lectures have relevant to the communication in an empowerment course to obtain identification and analysis of problems and potentials in human resources, natural resources, and economic and socio-cultural resources of the community. The literature review and discussion results will be used for communication to open access to the location while getting license, interviews, observation, documentation, and dialogue with the Community and tourism village groups. Furthermore, the researcher agreed and invited the government and the community to dialogue designing programs and models for empowering tourism villages. (2) The researcher carried out dialogue on the results of a preliminary study with the village government and the community as business groups, community leaders, youth leaders, and village tourism administrators. The results are clarification and verification of the identification and analysis of problems, potentials, and prospects for the tourism village from the resources they have used as program planning and a model for empowering tourism villages that have agreed with the community. The Focus Group Discussion (FGD) implementation has made

deliberation a form of participatory communication relevant to empowerment as participatory development to plan programs and design, empowerment models. Therefore, the community will have high enthusiasm, concern, and responsibility because there is a bond and direct involvement from planning, implementing, monitoring, and evaluating programs and empowerment models.

The village government formally opens the dialogue design, but its implementation with an informal approach is dialogical, humanist, full of openness, intimacy, and kinship. Hence, there is no awkwardness and reluctance in aspiring, having communication to dialogue, and agreeing on empowerment programs together. The dialogue process was followed by socialization about the schedule and objectives of the activity and the preliminary study findings as material for deliberation. The forum was open, dialogue and aspirations were received from the community as deliberation participants, all of which were record as input or questions that were discussed to produce agreed-upon tourism village empowerment programs and would be implemented together with the support of the village government. The position of the research team is not only to identify and analyze and design programs but also to become facilitator and assistant through communication to designing, agree, and implement, and involve all parties or partners to make the tourism village empowerment program a success.

Participatory communication is key in research, study, design, and implementation of development programs with mutual respect, providing opportunities to aspiring in a dialogical and egalitarian manner, including computer-mediated communication through the website as a media for digital participation (Aminah, 2016; Anyidoho, 2010; Bessette, 2018; Enns et al., 2014; Kheerajit & Flor, 2013; Kyamusugulwa, 2013; Ollivaud, P., & Haxton, 2019; Valls-Donderis et al., 2013; Walther & Jang, 2012). Carry out studies with experts and practitioners to deepen and sharpen the program and design a model for empowering tourism village communities. Communication has created an implementation schedule, instructors, and assistants who will be involved in implementing activities. (3) Re-socializing the results of expert and practitioner studies to the tourism village community and village government to agree on the technique, schedule, and implementation of empowerment activities for the tourism village community. The communication process of designing and making a model for empowering tourism village communities can be illustrated in Figure 2.

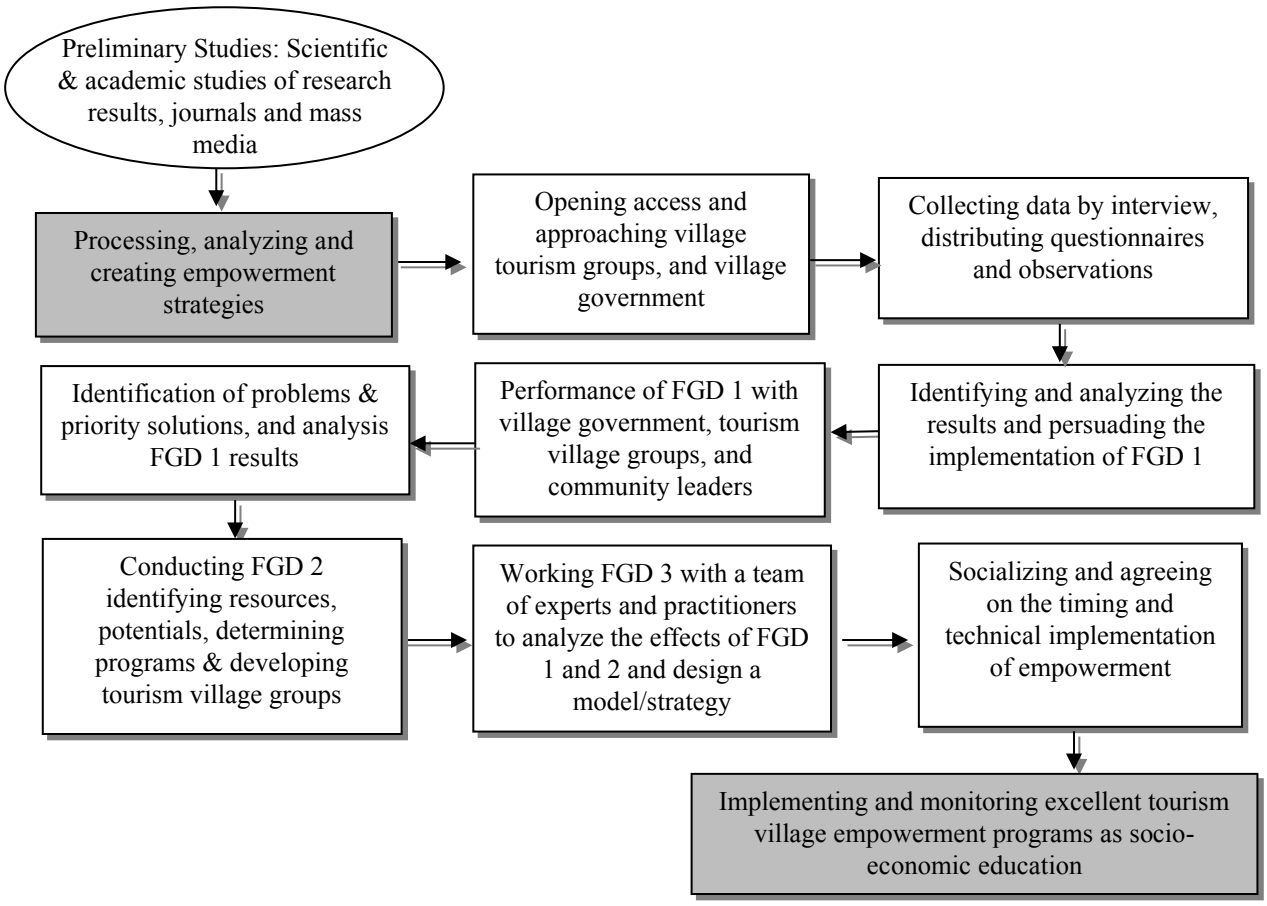

Figure 2: The communication process in the research stage

The communication in empowerment programs can be designed as follows: The first, material stage through communication to building motivation, awareness, and inspiration for entrepreneurial success and managing a tourism village. Eco-tourism can carry out activities by presenting activists, practitioners, and experts in entrepreneurship and working tourist villages. Phase 1 needs to implement an essential foundation to form the mindset, mental attitude, and character of the participants, in this case, the young generation in the village, so that they have strong enthusiasm and determination to manage the potential of village tourism and become entrepreneurs or business groups in the town. Next are to build awareness of the management, utilize and preserve the environment to become workplaces, generate income and welfare for the community while maintaining and protecting the environment.

The second stage has counseling and training on the mechanisms and procedures for making tourism villages empowerment programs such as communication techniques, discussion, lobbies, and negotiations, making decisions, and designing priority program activities based on analysis of the needs of the problems and potential resources owned by the community. Furthermore, counseling and training for village tourism group management start from management, membership, work programs, division of tasks, monitoring, and evaluation techniques, and development of integrated business units in village-owned enterprises.

The third stage is counseling and training on the administrative and financial management of tourism village groups that can record, analyze and report so that executive and economic order is created digitally. Next is training on improving the quality and quantity of food products, especially the innovation in processing typical rural food and beverage for the vendors in shops or stalls around tourist sites. So that increases and utilizes the economic potential of the community, especially women.

The fourth stage is the final program after developing and improving motivation, inspiration, knowledge, and ability to manage tourism village groups and food and beverage products that meet quality standards. Then there is counseling and training on promotional techniques and marketing of tourism villages and fantastic food and beverage products through social media. The main target is the younger generation in the town who are interested in computers and internet media to become promotional and marketing agents. Next is conducting counseling and technical training on cooperation or partnerships both internally and with external parties, with the government, private sector, banking, and universities. The association in question can be investment, capital loan, leasing, profit sharing, and sales or purchase contracts.

The government policy is one of the essential factors in the communication process to support the planning and implementation of empowerment or development in villages. The procedures must be able to adjust, and make corrections and modifications according to the demands and consequences of the times. The government must proactively initiate the communication process for community empowerment and involves other stakeholders such as civil society from academics, activists, and community groups, including stakeholders from private companies (Bhattacharyya, 2009; Cunha et al., 2020; Getz & Page, 2016; Cascante & Brennan, 2012; Rahmawati & Astuti, 2019; Schmeleva, 2021).

In the 2nd to fourth stages, as a communication process of activity, monitoring and evaluation of activities are carried out to measure the success of the target and fix if there are still deficiencies, so has made tourism empowerment program model was modified from Sulaiman (2020) in Figure 3.

The purpose of the tourism village empowerment program as socio-economic education is to utilize and develop all potential from human, environmental, economic, and socio-cultural resources of rural communities with village tourism groups and entrepreneurial groups. The benefits can open up job vacancies, especially for the younger generation and women, and to increase income for welfare and independence for the village government and the Community (Jones, 2005; Junaid et al., 2019; Mathie & Cunningham, 2010; Nel, 2017; Putri et al., 2020; Quimbo et al., 2018; Williams, 2007).

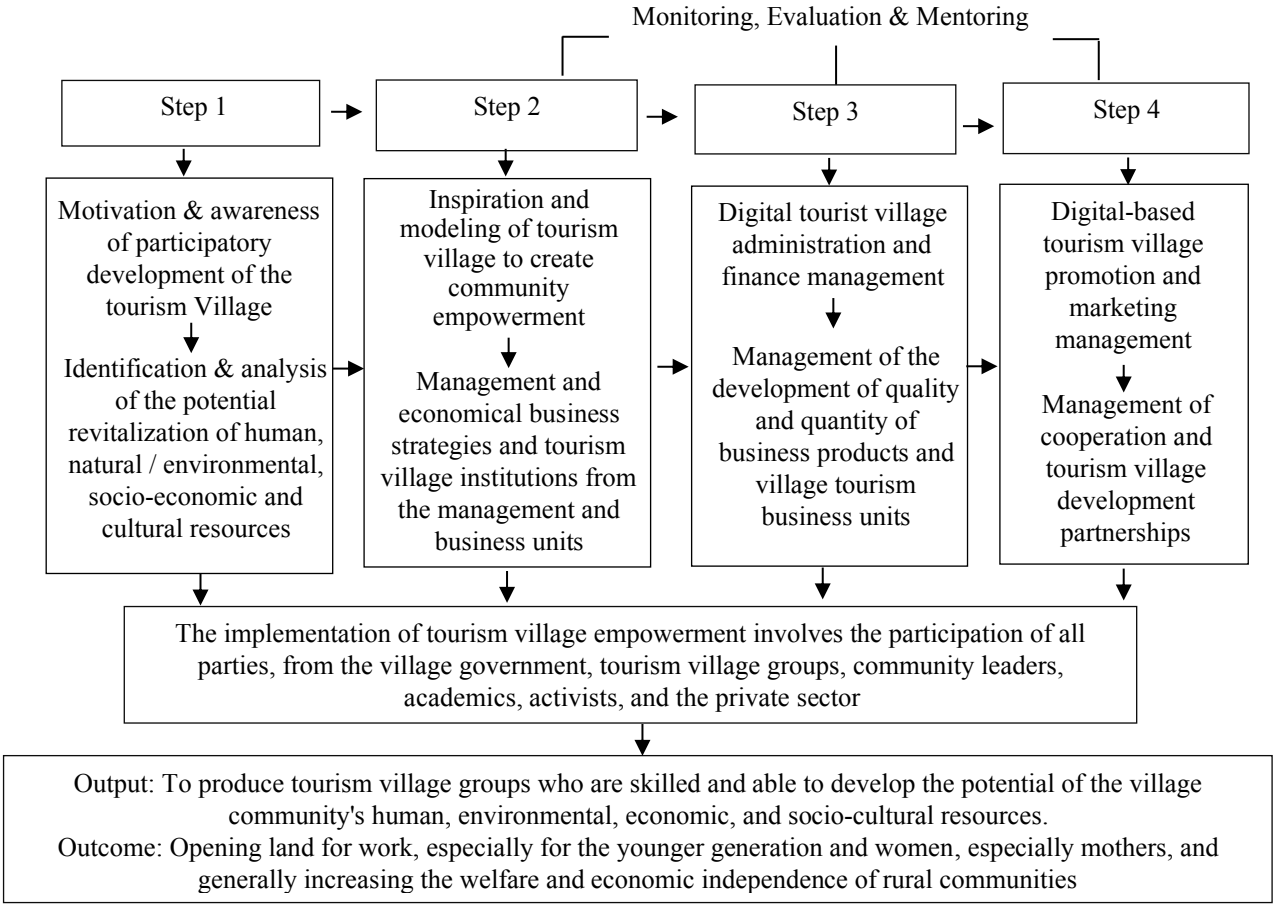

Figure 3: Empowerment Communication of socio-economic education

Source: modified from Sulaiman (2020)

4. Conclusion

Empowerment communication of socio-economic education is an actual implementation of participatory development, including developing tourist villages to open up job vacancies, especially for the younger generation. The tourism village would make poverty, unemployment, and urbanization because the village is an autonomous region to cultivate and develop potential economic, natural or environmental, and socio-cultural resources that can be us as essential capital in development and the community's welfare.

The socio-economic education program is designed, agreed upon, and implemented by involving all elements in the community, especially tourism village groups, youth groups, business groups, and village governments. Hence, it will build cooperation, togetherness, and belonging to advance the tourist village.

Community empowerment as a socio-economic education program has been carried out in several stages. The first stage provides motivation and awareness of the participatory development of tourist villages, followed by identifying and analyzing the potential revitalization of human, natural or environmental, socio-economic, and cultural resources. The second stage inspires and modifies community empowerment programs, management and economical business strategies, and village tourism institutions from the management and business units. The third stage is the digital administrative and financial management of tourism villages, quality development and quantity of business products, and village business units. The fourth stage is digital-based village promotion and marketing management, cooperation management, and village development partnerships.

Tourism villages should carry out empowerment that involves the collaboration of all stakeholders such as village governments, tourist village groups, community leaders, academics, activists, and the private sector. So that it can develop a skilled tourist village group and create the potential for environmental, economic, and

socio-cultural resources of the village community. The benefits of empowerment can open up job vacancies, especially for the younger generation and women, especially mothers, and generally improve welfare and economic independence for rural communities.

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Systematic Study of Student's Perception Towards Math through Teacher-Related Dimensions: A Case of COTs in Oman

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Abstract
Numerical explorations are accomplished to investigate the influence of student's perception towards Math which advances into academic dismissal in the preliminary level of higher education. The population under study are the students of seven Colleges of Technology across Oman. Data analyses were done using descriptive statistics of frequency counts and percentages obtained from the research questionnaire, while the hypothesis was tested using the statistical tools at 0.05 level of significance. This study examines the student's perception correlated with teacher-related factors. The structural equation modelling (SEM) is grounded on the three teacher-related dimensions that influence the student's perception towards Math namely 4 attributes relating to personality traits of lecturers, 6 attributes for teaching skills of the lecturer, and 2 attributes for instructional material used by the lecturers to impart the Basic Math needs for higher education. This analysis shows an overall reliability analysis for teacher-related dimensions to be 0.943 by applying Cronbach's alpha reliability test, and the SEM tool kit analysis of the model confirmed the hypothesis of the latent variables and the theoretical authenticity of the explored factors. The conclusions of this study might be useful to substantiate the importance of student evaluation on teachers done every semester and would be a component in reducing the dismissal of students at the initial stage of higher education in Oman.

Keywords: Structural Equation Modelling, Cronbach's Alpha Reliability Test, Perception Towards Math, Omani Education

1. Introduction

Education has always been the driving force that pushes every nation towards development, progress, and sustainability in a global arena. For this reason, every nation allots a huge budget to education to ensure its quality. In Oman, education is given for free for its citizens because the government believes that it has an obligation to provide the Omani youths with the opportunity to develop them with knowledge and skills so they can positively contribute to the society in the future. Educational institutions at different levels were established and built in the different regions of the sultanate to ensure everyone had access to education. For higher education, the government has put up seven (7) Colleges of Technology (CoTs) offering various degree programs in response to the demands and requirements of the labor market. The General Foundation Program (GFP) of the CoTs in Oman which includes Basic Math and IT for Foundation besides English courses are required to enter any degree programs.

These courses prepare the students with the basic skills relevant to the requirements of various higher education studies. However, for several students, Basic Math becomes a bottleneck for them to move forward on the educational ladder, and in worst cases if they are dismissed, it will impede them from pursuing any degree program. If several students are dismissed every semester year after year, in the long run the government may not be able to implement 100% "Omanization" in the different sectors in the country in the near future because of lack of qualified human resources and it will still depend on the technical and academic skills of expatriates.

General Foundation Program (GFP), in the Sultanate of Oman, is a non-credit program designed to provide academic assistance to students who have passed the required secondary education exit standards but have not yet succeeded in meeting the required academic standards of higher education (Carroll, Razvi, & Goodliffe, 2009). The program strengthens and enhances the students' abilities in English, Mathematics (Sivaraman, Al Balushi, Rao & Rizwan, 2012), Information and Communications Technology (ICT) skills, and general academic and study skills, so that students (of GFP) are as competent as the direct entry students in higher education institutions (HEI). For years of GFP's implementation in the seven (7) Colleges of Technology (CoTs) in the Sultanate, the program showed a positive impact on the academic successes of students in their higher education studies. However, there is now a growing concern regarding Student Dismissals due to the failure of passing Basic Math and IT for Foundation courses. This study aims to investigate the factors behind these failure cases due to Math courses to craft better policies and strategies to address this issue.

In a recent study in 2016 at one of the COTs in Oman, poor academic performance of Omani students in the post-Foundation level (tertiary level) is associated with student-related factors, teacher-related factors, family-related factors, and other social and environmental contributing factors. The study showed that student-related factors have the greatest impact on student performance (Alami, 2016). And in a separate study, it is said that student motivations have a direct relationship with academic achievement (Martin, Galen-tino & Townsend, 2014; Coleman & McNeese, 2009) and thus, also have an implication in student's poor performance which may lead to student failure. Parents and family are also critical in the student's academic achievement (Coleman & McNeese, 2009; Wilder, 2014; Al-Mahrooqi, 2012). It is also noted that other social and environmental factors such as peers, socio-economic status (SES) and living conditions were found to be also a factor (Al-Mahrooqi, 2012).

Furthermore, numerous studies also show that there is a strong relationship between teacher quality and improvement in student learning (Ambussaidi and Yang, 2019; Hill, Rowan & Ball, 2005). In teaching mathematics, a study on the impact of mathematics teacher quality on student achievement in eight-grade math performance in Oman and Taiwan showed that there exists a relationship between teacher quality indicators and student achievement. However, the same study also mentioned that these variables which affect student achievement in both countries differ in the education context, characteristics of students, and school factors (Ambussaidi and Yang, 2019). In a similar study, Hill, Rowan, and Ball (2005) concluded that teachers' mathematical knowledge has a significant relation to student achievement in first and third-grade students. The result was obtained through metrics that focus on content-specific mathematical knowledge and skills used in teaching mathematics. The finding supports initiatives to design policies that improve student math achievement by enhancing mathematical knowledge of teachers. The study proposed that programs that teach critical thinking and problem solving could be reinforced through focus on domain knowledge with strong emphasis on helping students understand the importance of how learning a new knowledge in various ways can affect their problem-solving abilities (Bransford, et al. 2004).

Moreover, Jurgen Baumert (2010), in a one-year study conducted in Germany with a typical sample of Grade 10 classes and their mathematics teachers, the study demonstrated that teacher's pedagogical subject knowledge was theoretically and empirically discernable from their content knowledge. Multilevel structural equation models uncovered a significant optimistic effect of pedagogical content knowledge on student learning benefits that was facilitated by the supply of cognitive activation and individual learning support. Nor Fadilah et al. (2010) determine the criteria important in measuring attitude towards mathematics using factor analysis.

The focus of this study is to measure the student teacher dimensions to improve the learning traits of Omani students and in particular be a vital part in relaying the students to higher education. To the best of our knowledge

there is no article using the SEM analysis for demonstrating student perception towards Math correlated with teacher-related dimensions has been published for Omani students.

2. Methodology

This article uses a survey method to analyze students' perception towards Mathematics through teacher-related dimensions. A formal questionnaire was developed by the authors based on expert opinion, experience, and guided by related research. The survey forms were circulated among the students who studied Basic Math course at the foundation level in the Colleges of Technology in the Sultanate of Oman with 12 items to be ranked. The SEM analysis is employed to model the study and the outcome is predicted through confirmatory factor analysis (CFA). According to Hair et al. (2010), SEM analysis is acceptable for 150 participants for determining less than seven constructs and modest communalities.

2.1. Participants

The respondents are the students of the College of Technology (COT) who are dispersed in the different regions of Oman. It was shared to the students of the seven COT branches with the help of lecturers. A total of 1909 respondents' rankings were considered in this analysis. The following (see Table 1) shows the details of geographic dispersion of the respondents. The gender respondents' (see Table 1) progress has been casted in the education and interest of Omani students, which asserted how more of young female Omani population is dominating the education society.

2.2. Data Collection

The survey questionnaire with twelve items associated with teacher-related dimensions was set with experience in teaching and academic excellence. The response was gathered on a 5-point Likert scale with twelve items listed (see Table 2). Rating 1 is for strongly disagree, rating 2 is for disagree, rating 3 is for neutral, rating 4 is for agree and rating 5 is for strongly agree. The percentage method is used to present the data collected in the frequency distribution table for the descriptive analysis. The mean and variance of the Likert scale gathered from the respondents are shown in Table 3. None of the values of the mean is less than 3.0 so all the criterion is important and all these affect the respondent's perception towards Math related to teacher's dimensions. While the inferential statistics of confirmatory factor analysis and structural equational modeling were used in the prediction analysis of student's perception of Math correlated with teacher-related dimensions.

2.3. Hypothesis

The model demonstrated in this study spins around the following propositions. The depicted teacher dimensions with the items in the survey questionnaire are correlated in the hypothesis.
H1: Items 1-4 (MTSTa1-a4) will have a significant influence on the personality traits (F1) of the lecturer.
H2: Items 5-10 (MTSTb1-b6) will have remarkable influence on the teaching skills (F2) of the lecturer.
H3: Items 11-12 (MTSTc1-c2) will have a great impact on the instructional material (F3) used by the lecturer.

3. Findings

The outcomes of this research were largely built on the quantifiable data gathered from the respondents using the questionnaire developed by the authors based on the expert opinion and experience in teaching and academic excellence in the Sultanate of Oman. The study consists of 1909 respondents as samples.

For the 12 items assessed here (see Table 4), the total alpha was 0.943, which is Excellent. Thus, this demonstrates the model's internal consistency and dependability. According to Nunnally (1978), a model's minimum level of reliability is determined by how it is utilized. In a study by Lance et al. (2006), it implies that the requirement for any measurement scale to have a Cronbach's alpha value greater than 0.70 is a myth. In Table 4, the Cronbach's

alpha values for the subscales are: 0.9 to 1.0 is marvelous, 0.8 to 0.9 meritorious, 0.7 to 0.8 middling, 0.6 to 0.7 mediocre and 0.5 to 0.6 miserable (Kaiser & Rice, 1974).
The first step in SEM begins with the validation of measurement model using Confirmatory Factor Analysis (CFA) (see Figure 1).

3.1. Evaluating the Model fit Summary

The capacity of a model to recreate data (i.e., usually the variance-covariance matrix) is described to as fit. A good-fitting model is one that is sufficiently coherent with the data and hence doesn't need to be re-specified. Before interpreting and analyzing the structural model's causal paths, a good-fitting measurement model is necessary. The fit indices refer to the investigator about the model fit, and the fit indices from AMOS are indicated in the subsequent two tables (see Figure 1, Table 5). A set of several relationships is represented by various equations in SEM tests. The data obtained for the exploratory factor analysis disclosed that the factor loadings vary between 0.57 to 0.92. As a result, the fit must be determined for the entire model rather than for a particular relationship.

3.2. Decomposition of Covariance and Correlations

The 'Standardized Regression Weights' present the regression weights that would have appeared, had the measured variables first been transformed to z scores - by subtracting the mean and dividing up by the standard deviation.

The scales of these amounts are utilized to detect variables that are unrelated to the factors. Variables with regression weights less than 0.5 are not well matched with the factors. All of the measured variables are aligned with their appropriate factors, according to the table (see Table 6).

The CR stands for 'Critical Ratio,' which is equal to the regression weight divide up by its standard error. Because this ratio's distribution seems like a Z distribution, CR values greater than 2 are considered significant at 0.05 level. All the statistics in each latent variable are significant in the table (see Table 6) since the CR for the variables is more than 2.

3.3. Path Analysis for testing Structural Model

Path analysis is the second step of Structural Equation Modeling (SEM), the multivariate procedure that, as defined by Ullman & Bentler (2012), "allows inspection of a set of associations between one or more independent variables, either continuous or discrete, and one or more dependent variables, either continuous or discrete" (p. 661). In SEM, calculated and hidden variables are dealt. Additionally, multiple regression and factor analysis are combined in SEM. Moreover, path analysis deals with understanding structural relationship among the latent variables as identified in the confirmatory factor analysis. In Figure 2, the estimates of path analysis of the model are figured to understand the relationship among the teacher dimensions to math students on study related variables. This supports the analysis identified by CFA analysis.

Arrows in path language indicate hypothesized causal relationships. A one-headed arrow points from the cause (independent variable) to the result (dependent variable).

Hypothesis
H0: The proposed model is a perfect fit for the study.

Disintegration of Correlations:
The unstandardized co-efficient estimates in Figure 2 explain the link between latent variables.

3.4. Structural equation modeling (SEM): Model fit assessment

Based on the obtained samples, structural equation modeling was performed to assess the model's appropriateness. As advised by Anderson & Gerbing (1988), the first step is to analyze the measurement model that is used to verify the survey instrument's reliability and validity, and then, analyze the structural model using AMOS version 18. When determining the causal relationship between variables and evaluating the model's compatibility, the structural equation model (SEM) is the most useful (Tobbin, 2011).

3.4. Significance tests of individual parameters

In the Table 7, the unstandardized coefficients and related test statistics are shown. The unstandardized regression coefficient represents the amount of change in the dependent or mediating variable for every unit change in the variable that predicts it. Moreover, Table 7 indicates the unstandardized estimate, its standard error (abbreviated S.E.), and the estimate divided by the standard error (abbreviated C.R. for Critical Ratio). While the probability value for the null hypothesis that the test is zero is displayed in the column P.

*** As a result, Chi square values with p = 0.000 do not indicate a good model fit. Nonetheless, a sample size of over 200 (1909 in this study) could impact Chi-Square statistics to imply a significant probability level (p=0.00), according to Schumacker & Lomax (1996).

Therefore, the goodness of fit measures can then be used to further interpret this model. Structural equation modeling determines whether the data fits a theoretical model (see Table 8). As shown in Table 8, the CFI, GFI, AGFI, IFI, and RMSEA were used to evaluate the model. The measurement model fit was estimated using common model-fit measures such as the comparative fit index (CFI), root mean square error of approximation (RMSEA), normed fit index (NFI), and incremental fit index (IFI). The model fit indices estimate from AMOS structural modeling are shown in the Table 8.

The following are the criteria for an appropriate model, according to Gerbing & An-derson (1992): RMSEA of 0.08 or less, CFI of 0.90 or more, and NFI of 0.90 or more. A chi-square goodness-to-fit (GFI) test can be used to assess the fit between the data and the suggested measurement model, with a probability of greater than or equal to 0.9 indicating a good fit (Hu and Bentler, 1999). The GFI in this study was 0.964, which is greater than 0.9, and the other metrics fit well: AGFI=0.932, CFI=0.977, IFI=0.978, NFI=0.975, and RMSEA=0.063 (Bagozzi & Yi, 1988). The model fit is supported by goodness of fit indices, and these highlighted indices demonstrate that the structural model fit is excellent.

4. Conclusion

This article reviews the teacher-related dimensions of the student’s perception towards Math. It was concluded with the structural equation modelling analysis that there is a significant influence between the student’s perception of the teacher-related dimensions towards Math. This shows the extent to which the proposed model analysis supports the already existing theory with the relationship among the variables considered in this article supported by the empirical data. The CFA and the path analysis helps teachers to measure the different dimensions to support the students in reducing the dismissal and improving the skills for higher education. Our research suggests the importance of teacher dimension i.e the personality traits, teaching skills and the instructional materials used in the class by the teachers play a significant role in building up the confidence level in the course. Among the three dimensions the teaching skills have a remarkable influence on students’ perception, so the teacher’s strategies which are based on their skills have the greatest impact on building up interests in students. Hence, it is also very important for the student to build a good rapport with teachers to develop their interest in the study of Math courses for their overall development into their alleyway to higher education. We see that teacher dimensions greatly influence the student’s perception towards Math. This research work would be of great importance for the teachers, education directors, scholars, strategy creators, parents and stakeholder as well to build strategies that improve the teacher-related dimensions to achieve good relations with students to improve Math education.

4.3. Figures and Tables

Table 1: Data Presentation of the Respondents.

Variable	Frequency	Percentage
Geographic Dispersion		
Al Musanna	**12**	**0.7%**
Ibra	**90**	**5%**
Ibri	**55**	**3%**
Muscat	**22**	**1%**
Nizwa	**75**	**4%**
Salalah	**6**	**0.3%**
Shinas	**1649**	**86%**
Total	**1909**	**100%**
Gender		
Female	**1095**	**57%**
Male	**814**	**43%**
Total	**1909**	**100%**

Table 2: Teacher-related Factors' Dimensions.

ITEMS	Measurement	Item Name	Dimensions
1	The lecturer has a good relationship (establishes good	MTSTa1	Personality traits of lectures (F1)
2	The lecturer is smart, confident, and firm in making decisions.	MTSTa2	
3	The lecturer imposes proper discipline and not lenient in	MTSTa3	
4	The lecturer is open to suggestions and opinions.	MTSTa4	
5	The lecturer explains the objectives of the lesson clearly at the start of	MTSTb1	Teaching skills (F2)
6	The lecturer shows mastery of the subject matter.	MTSTb2	
7	The lecturer is organized in presenting the subject matter by	MTSTb3	
8	The lecturer uses various strategies, teaching aids/devices	MTSTb4	
9	The lecturer speaks clear English and his/her instructions are	MTSTb5	
10	The lecturer prepares well thought-out, valid and reliable assessments.	MTSTb6	
11	The lecturer uses various kinds of instructional materials such as	MTSTc1	Instruction materials (F3)
12	The lecturer designs the instructional materials easy to	MTSTc2	

Table 3. Mean and Variance of the Teacher-related Dimensions.

Dimension	Item Name	Mean	Variance	Mean per Dimension	Variance per Dimension
F1	MTSTa1	4.01	0.83	3.93	0.88
	MTSTa2	3.94	0.87		
	MTSTa3	3.81	0.88		

	MTSTa4	3.97	0.94		
F2	MTSTb1	4.00	0.86	3.88	0.91
	MTSTb2	3.93	0.85		
	MTSTb3	4.06	0.75		
	MTSTb4	3.65	1.08		
	MTSTb5	3.72	1.14		
	MTSTb6	3.92	0.79		
F3	MTSTc1	3.72	1.06	3.76	1.00
	MTSTc2	3.79	0.94		

Table 4: Result of reliability analysis for Teachers related factors dimensions.

Dimensions	Number of attributes	Cronbach's alpha
Personality traits of lectures	4	0.845
Teaching Skills	6	0.913
Instruction Material	2	0.807
Overall reliability analysis for TEACHERS RELATED dimensions	Cronbach's alpha	0.943
	No. of Items	12

Table 5: Chi-Square and Standardized RMR.

Computation of degrees of freedom	
Number of distinct sample moments	78
Number of distinct parameters to be estimated	29
Degrees of freedom (78-29)	49
Chi-square and Standardized RMR	
Chi-square	418.669
Degrees of freedom	49
Probability level	.000
Source: Primary data. Results computed by the package – AMOS	

Table 6: Standardize Regression Weights.

Maximum Likelihood Estimates - Regression Weights							
Variables/Indicators			**Regression Weights**				**Standardized Regression Weights**
			Estimate	**S.E**	**C.R.**	**P**	**Estimate**
MTSTa4	<---	F1	1.000				.834
MTSTa3	<---	F1	.688	.027	25.654	***	.663
MTSTa2	<---	F1	1.023	.024	42.431	***	.868
MTSTa1	<---	F1	.960	.024	40.097	***	.820
MTSTb5	<---	F2	1.000				.848

Maximum Likelihood Estimates - Regression Weights							
MTSTb4	<---	F2	.915	.027	34.401	***	.811
MTSTb3	<---	F2	.843	.022	38.909	***	.817
MTSTb2	<---	F2	.942	.023	41.456	***	.828
MTSTb1	<---	F2	.906	.023	39.199	***	.870
MTSTc2	<---	F3	1.000				.852
MTSTc1	<---	F3	.908	.024	37.519	***	.894
MTSTb6	<---	F2	.882	.022	40.015	***	.789
Source: Primary data. Results calculated by the package – AMOS				*** - p- value less than 0.001			

Table 7: Significance Test.

Path coefficients in SEM							
Variables/Indicators			Unstandardized co-efficient		C.R	P	Standardized Regression Weights
			Estimate	S.E.			
F1	<---	F3	.729	.024	30.835	***	.809
F2	<---	F3	.415	.030	13.892	***	.429
F2	<---	F1	.617	.034	18.305	***	.575
MTSTa4	<---	F1	1.000				.804
MTSTa3	<---	F1	.687	.027	25.596	***	.571
MTSTa2	<---	F1	1.025	.024	42.400	***	.856
MTSTa1	<---	F1	.962	.024	40.105	***	.820
MTSTb5	<---	F2	1.000				.783
MTSTb4	<---	F2	.903	.026	34.119	***	.728
MTSTb3	<---	F2	.826	.022	38.163	***	.798
MTSTb2	<---	F2	.926	.023	40.884	***	.841
MTSTb1	<---	F2	.901	.023	39.267	***	.814
MTSTc2	<---	F3	1.000				.889
MTSTc1	<---	F3	.887	.024	36.384	***	.747
MTSTb6	<---	F2	.880	.022	40.313	***	.830
Source: Primary data. Results calculated by the package – AMOS							

Table 8: Fit indices of measurement models.

Measure	Estimate	Threshold	Interpretation
CMIN	348.976	--	--
DF	51	--	--
CMIN/DF	6.843	--	***
CFI	0.977	>0.90(Hu & Bentler, 1999)	EXCELLENT
GFI	0.964	>0.90 (Hair et al., 2006)	EXCELLENT

AGFI	0.932	>0.90 (Hooper et al., 2008)	GOOD FIT
NFI	0.975	>0.90 (Hu & Bentler, 1999)	EXCELLENT
IFI	0.978	>0.90 Approaches 1	EXCELLENT
SRMR	0.019	<0.08 (Hair et al., 2006)	EXCELLENT
RMSEA	0.063	0.05 - 0.10 (Hair et al., 2006)	GOOD FIT
Results for Default model compared with the Standards			
Source: Primary data. Results computed by the package – AMOS			

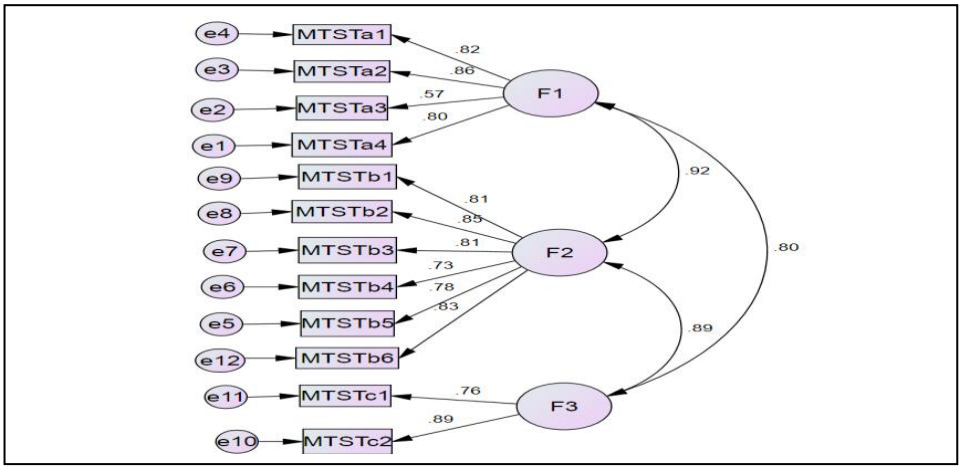

Figure 1: Confirmatory Factor Analysis for Teachers related Dimension by Math students.

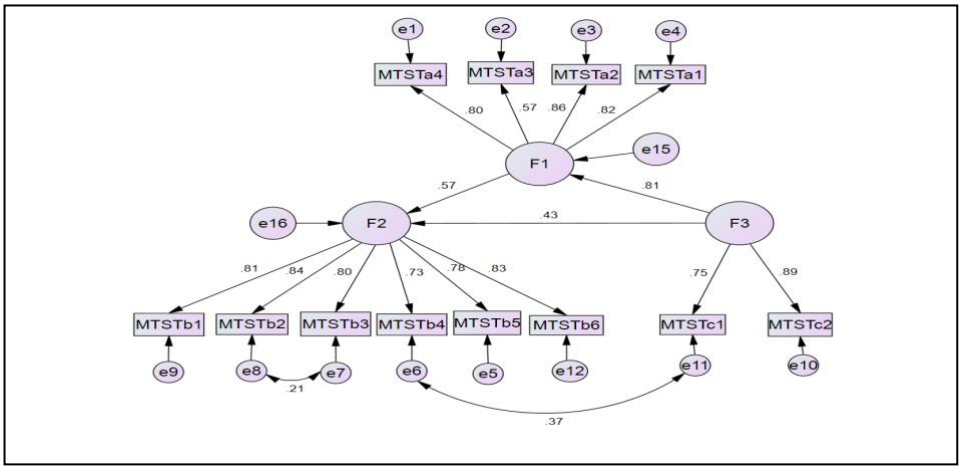

Figure 2: Path Diagram for Structural Model Showing Unstandardized Estimates of Factors Contributing to Math Students on Study Related Variable.

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Investigation of the Effects of Teachers' Participation in Sportive Recreational Activities on Assertiveness and Hopelessness

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Abstract
This study was carried out to examine the effect of sportive recreational activities, in which female teachers teaching in different branches, participate on assertiveness and hopelessness. In order to determine the effects of assertiveness and hopelessness, the method of applying pre-test and post-test to the participants was followed in the study. Assertiveness and hopelessness levels of the participants were collected using the "Beck Hopelessness" and "Rathus Assertiveness" scales. Descriptive statistics and ANOVA test were used in the analysis of the data. As a result of the research, it was determined that there was a statistically significant difference between the first test and post-test mean scores of the hopelessness and assertiveness levels of the sedentary women in the experimental group who performed recreational activities, while there was no significant difference between the first-test and post-test mean scores in the control group. In addition, it was determined that sedentary female teachers who participated in regular recreational activities for twelve weeks had a significant decrease in hopelessness levels and an increase in assertiveness levels. In this context, it can be said that directing sedander female teachers to sportive recreational activities will be more efficient in coping with hopelessness and increasing the sense of assertiveness, and will contribute to the education processes.

Keywords: Hopelessness, Assertiveness, Recreational Activities, Sedentary Women Teachers

1. Introduction

Today, individuals who spend most of their lives working in front of the computer in the office may have some physical and psychological problems in the long term. From a physical point of view, in addition to diseases such as obesity, cholesterol and diabetes caused by a sedentary lifestyle (Jin et al., 2018), it can also bring mental problems such as psychological reluctance, low motivation and hopelessness (Tobin, Leavy & Jancey, 2016). Despair, which is defined as the lack of a positive perspective towards the future and feeling inadequate in the way of self-healing or getting better (Ryba, 2008), can lead to negative situations such as isolation from society, lack

of communication and shyness, which is the opposite of assertiveness, depending on the process. However, features such as greater autonomy, dominance in human relations, being at peace with oneself, commitment to a purpose in life, and a significant decrease in hopelessness levels can often be observed in individuals who do regular physical activity compared to those who do not (Edwards, Ngcobo, Edwards & Palavar, 2005; Hacicaferoglu & Ozturk, 2020; Hacicaferoglu, Gunel & Duyan, 2018; Kirkcaldy, Shephard & Siefen, 2002; Maltby & Day, 2001). In this respect, it can be said that physical activities are important in increasing the hope levels of individuals (Gunel & Hacicaferoglu, 2021; Scheier & Carver, 1985). It should not be forgotten that sports organizations, recreational activities and sports facilities are needed for the realization of physical activities (Hacicaferoglu, Gundogdu & Hacicaferoglu, 2012; Hacicaferoglu, Gundogdu, Hacicaferoglu & Yucel, 2014; Ozturk, 2016).

The concept of hopelessness is expressed as a measure of psychological well-being (Cashin, Potter, & Butler, 2008; Dunn et al., 2019). Despair can express feelings of a pessimistic view of the future. In this respect, individuals with a high level of hopelessness may have negative paradigms for both the moment they live and any future situation. It can generally be seen in individuals who do not have full control over their own lives or who believe that they do not have the resources available to improve their psychological state (Palmer & Connelly, 2005). The concept of assertiveness was first used in the literature with the studies conducted by Wolpe and Lazarus (1966). It is stated that the rights and feelings of individuals fall within the scope of assertiveness, which is accepted by the society. Assertiveness is also known as a multi-faceted concept in which both verbal and non-verbal behaviors related to certain situations are effective (Galassi & Galassi, 1978). The concept of assertiveness is one of the important factors in the psychological well-being of individuals, just like hopelessness. For this reason, individuals' being assertive in any matter and seeking their rights are related to thinking more positively for the present and for the future. In the literature, it has been determined that individual or collective participation in recreational activities contributes to the increase of assertiveness, extraversion and psychological well-being, and to the reduction of mood disorders such as depression and anxiety (Shaw, 2000; Zabriskie & McCormick, 2000).

The concept of sportive activities or recreational sportive activities has become increasingly popular today and constitutes an important part of the concept of recreation as a leisure time activity that has become widespread in society. In this direction, the time that has the potential to be evaluated without any pressure is evaluated within the scope of "leisure time" activities (Shivers & Delisle, 1997). Recreational sportive activity can generally be defined as any bodily movement which is produced by the contraction of skeletal muscles and puts the energy decrease in individuals over the basal level (Kenefick & Cheuvront, 2012). In some studies on participation in sports activities and exercise, it is emphasized that when individuals do physical activities regularly, there are significant benefits for them both psychologically and physically (Barnett, Smoll & Smith, 1992). Individuals participating in any sportive recreational activity can be more socially competent and improve in physical appearance, as well as having a more positive perspective on physical activity after completing the recreational activity exercise program (Waldron, 2009). In addition, some studies in the literature have reported that participating in sportive recreational programs reduces anxiety and tension in individuals, increases body image, and improves psychological well-being (Donger, Ozkartal & Sarigoz, 2016; Kim, June, & Rhayun, 2002; Mavrovouniotis, Argiriadou & Papaioannou, 2010).

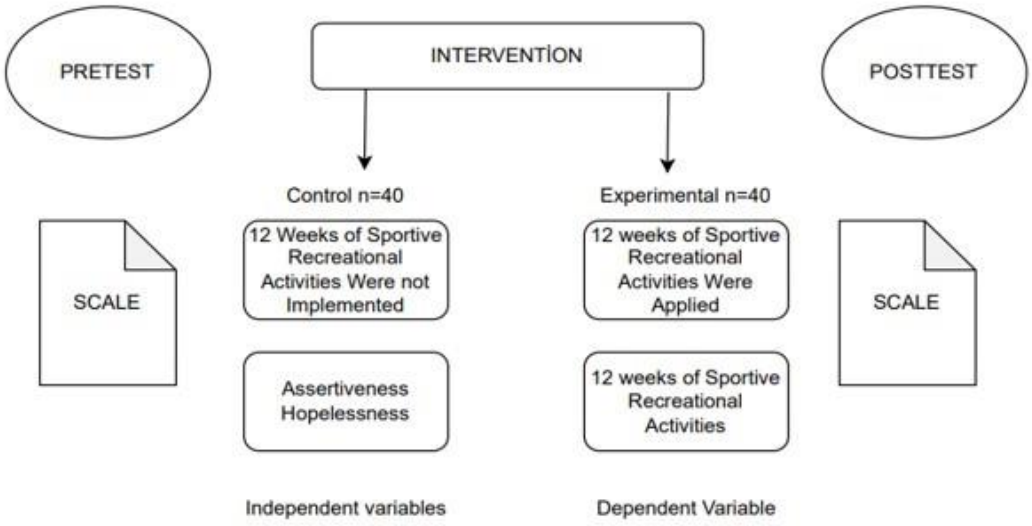
Individuals participating in recreataional sports activities can provide designated recreational activity opportunities for them to gain a certain physical, psychological and social value from their environment. In this context, recreational activities have important contributions to meeting the needs of individuals to realize themselves as a civilized person in their social lives (Hanani, 2017). There are many studies on assertiveness and hopelessness in the literature. However, it has been observed that there are very limited studies on female teachers who have professional experience in sports and recreational activities in different fields, addressing the levels of assertiveness and hopelessness at the same time. In this study, it was aimed to examine the effects of sportive recreational activities on the assertiveness and hopelessness levels of sedentary female teachers.

2. Material and Method

2.1. Model of the Research

The research was conducted according to the experimental research design, pre-test and post-test design, which is one of the quantitative research designs with a randomized control group (Hussen, 2010). The procedures of the study include the selection of the participants, the sportive recreational participation process, pre-test and post-test analysis. In line with these analyses, an answer will be sought to the question of whether the weekly sportive recreational activities of the participant sedentary women have a significant effect on assertiveness and hopelessness.

2.2. Pattern of the Research



2.3. Population and Sample

The population of the research consisted of female teachers, aged between 25 and 35, residing in the city center of Antalya and working in state educational institutions, with different professional branches. The sample of the study consists of 40 volunteer sedentary female teachers, who were selected from the universe by simple random sampling method and were women working in different educational institutions who had never participated in sportive-reactive activities.

Table 1: Descriptive findings regarding the participating individuals.

Variables	Experimental group (N=40)		Control Group (N=40)	
	$\bar{x}$	Ss	$\bar{x}$	Ss
Ages of Participants	28.35	3.06	28.18	2.43
Participants' Height (cm)	1.61	0.04	1.64	0.04
Weight of Participants (kg)	61.25	3.39	61.23	3.84
Body mass index((kg/m^2)	38.04	2.26	37.40	2.00

The sedentary office workers in the experimental group who participated in the study consisted of women with n=40, Mage =28.35±3.06, and those in the control group had n=40, Mage =28.18±2.43 values.

2.4. Research Process

Before starting the exercises, detailed information about the exercise program was given to the female teachers who participated in the sportive and recreational activities. In addition, it was informed that the records would be kept strictly confidential and an informed consent form was signed before the event. Attention was paid to ensure

that the demographic values of the sedentary women in the experimental and control groups were close to each other and that the participants did not know each other. In addition, a health report was requested from the women in the experimental group, stating that there was no harm in participating in fast-paced walking, and their participation in sportive recreational activities with sports content was ensured. The women in the experimental group participated in all of the recreational activities that took place regularly for a period of 12 weeks. The women in the control group did not participate in any recreational activities. They continued their daily routine lives. The women in the experimental group, who participated in regular recreational activities, were given 60-minute brisk walking exercises 3 days a week for 12 weeks. The tempo speed of the walks determined for the subjects participating in these exercises was fixed at 50-70%. They walked 3 km for 60 minutes in the first 3 weeks, 4 km for 60 minutes in the 4^{th}, 5^{th}, 6^{th} weeks, 5 km for 60 minutes in the 7^{th}, 8^{th}, 9^{th} weeks, and 6 km for 60 minutes in the 10^{th}, 11^{th}, 12^{th} weeks. The women in the experimental group were given a 15-minute warm-up exercise and then a 10-minute cooling-off exercise before performing the walking exercise. Warm-up exercises included jumping rope, rotation jumps, front leg stretches, kneeling hip stretches. Cool-down exercises were performed with whole body muscle stretches. The intensity of the exercises applied to the subjects was determined as a result of the heartbeat count within 15 seconds from the carotid artery in the neck of the participants, immediately after the end of the recreational activity, according to the heartbeat reserve method (Karacan & Gunay, 2003). The control group was not included in any exercise program and was asked to continue their daily routine life. Responses to measurement tools are anonymous.

2.5. Data Collection Tools

The Rathus assertiveness inventory was developed by Rathus (1973). Turkish validity and reliability study of the scale was carried out by Voltan (1980). The scale, which consists of a total of 30 items, is used with 6 grades, ordered from -3 to +3. The total score to be obtained from the scale is calculated between -90 and +90. -90 denotes the shyness of individuals at the highest degree, and +90 denotes the highest degree of assertiveness. The value of r=.92 was obtained by using the reliability coefficient Pearson product-moment correlation formula, adopting the test-retest method. In addition, using the Spearman-Brown equation, the reliability coefficient obtained from the student's inventory results was found to be r =.77 (Voltan, 1980).

Beck Hopelessness Scale was developed by Beck, Rush, Shaw & Emery (1974) and adapted into Turkish by Seber, Dilbaz, Kaptanoglu & Tekin (1993). The scale is a scale that shows the extent to which individuals have positive and negative feelings about their own future. The scale is a 20-item true/false self-report measure. 11 items were coded for the answers given about the hopelessness measures of the individuals. 9 of these 11 items were coded for wrong answers about the concept of hopelessness. In general, the hopelessness score regarding the opinions on hopelessness was calculated between 0 and 20. In the current study, the Cronbach's alpha value was determined as (α=86). Beck Hopelessness Scale is an important scale in terms of validity and reliability. It is a 20-item scale consisting of true and false questions that evaluate the degree of pessimism of individuals or the pessimistic view of the person towards the future (Durak, 1994).

2.6. Statistical Analysis

In order to determine the assertiveness and hopelessness levels of working sedentary women, the data obtained from the scales used in the current study were coded with numerical expressions for data entry and data analysis. The data were analyzed through a statistical analysis program. Descriptive statistics were used to determine the mean and standard deviations of variables such as age, height, weight and body mass index (BMI) of the experimental and control groups participating in the study (Table 1). Two-way repeated measures analysis of variance (ANOVA) was used to compare the groups in terms of assertiveness and hopelessness levels, and the level of significance was determined as .05. BMI = Weight(kg) / Height(m)^2 formula analysis was used to determine the body mass index of the subjects.

3. Findings

In this part, the statistical values of the data obtained from the participants are included.

Table 2: Statistical descriptions for two-way repeated measurements in terms of assertiveness level of participants

		Imperishableness							
		Pre-test		Last-test					
Working Groups	N	$\bar{x}$	ss	$\bar{x}$	ss	sd	F	p	η2
Experimental group	40	25.68	4.76	28.50	4.48	3	3.802	.012*	.089
Control Group	40	22.10	8.57	23.98	6.20	117			

*p<.05

When comparing the sedentary women in the experimental/control group (pretest/posttest) in terms of assertiveness levels, it was found that there was a statistically significant effect at the 95% confidence level, and the effect level was moderate ($F_{(3-117)}$=3.802; p< 0.05; η2=.089). According to this result, it was seen that the assertiveness level of the participants in the experimental group increased with more points in the post-test than the first test measurements after the sportive recreational exercise program was completed. In addition, it was determined that the participants in the experimental group had higher assertiveness levels than the female participants in the control group. It can be said that 8.9% of the change in the assertiveness levels of sedentary women in the experimental group was due to the positive effect of sportive and recreational activities.

Table 3: Statistical Descriptions for Two-Way Repeated Measurements in terms of Hopelessness Level of Participants in Experimental and Control Groups

		Hopelessness							
		Pre-test		Last-test					
Working Groups	N	$\bar{x}$	Ss	$\bar{x}$	Ss	Sd	F	p	η2
Experimental group	40	21.04	5.19	17.35	4.48	3	4.150	.008*	.096
Control Group	40	21.28	6.18	21.75	4.34	117			

*p<.05

When the participant (pre-test/post-test) sedentary women in the experiment/control group were compared in terms of their self-esteem levels, it was found that there was a statistically significant effect at 99% confidence level and the effect level was moderate ($F_{(3-117)}$=4.150; p <.01; η2=.096). According to this result, it was determined that the hopelessness levels of the experimental group decreased statistically after the completion of the sportive recreational exercise program, according to the first test measurements. Compared to the participants in the control group, it was determined that the post-exercise hopelessness perceptions were statistically lower after the exercise. In this context, it can be said that 9.6% of the change in the hopelessness levels of the sedentary women in the experimental group is due to the positive effect of recreational activities.

4. Discussion

Based on the findings of this study, in which the effect of the exercise program including sportive recreational activities on the assertiveness and hopelessness of sedentary female teachers was investigated, it was determined that there were significant differences in the assertiveness and hopelessness levels of sedentary women participating in the sportive activity exercises within the scope of the Rathus Assertiveness Inventory after completing the 12-week exercise program that lasted for 12 weeks and gradually increased each week. In the current study, it was determined that while the assertiveness levels of the experimental group who completed the sportive and recreational activity program increased significantly, there was no statistically significant effect between the pre-test and post-test scores of the control group. It is thought that the increase in assertiveness levels

of sedentary women working in any occupational group with sportive recreational activities is an indicator of the increase in women's communication power and socialization skills. In addition, it can be said that with the increase in the assertiveness levels of the participants, their feelings of shyness decrease. Although some physical activities are of different intensities (low or moderate), they can be said to have a curative effect on depressed individuals (Teychenne, Ball & Salmon, 2008). In addition, it is stated that many sports activities contribute to positive developments in the communication and social integrity of individuals (Hacicaferoglu & Ozturk, 2020). It has been determined that scientific sports education is a very functional teaching model in order to develop assertiveness, which is directly related to human and individual responsibility (Gutierrez, Garcia-Lopez, Hastie & Calderon, 2013). Garcia-Lopez & Gutiérrez (2015), Nojedehi, Aghdasi & Shojaei (2015) and Rani (2019) stated in their research that the assertiveness levels of individuals involved in active sports were higher than those who did not do sports. In the studies of Elliot, Kennedy, Morgan, Anderson & Morris (2012) and Fox (1999), it was stated that regular participation in physical activities contributed to significant decreases in hopelessness, depression and suicidal tendencies in individuals who adopted a sedentary lifestyle. Despite this situation, in the research conducted by De La Torre, Manzano, López-Serrano & Ruiz-Ariza (2021), it is seen that the physical activities performed should be long-term, and that short-term sportive activities do not have an effect on assertiveness.

It was determined that the hopelessness levels of the female participants who participated in the sportive activity exercises within the scope of the Beck Hopelessness Scale and who were in the experimental group decreased significantly after completing the sportive recreational activity program. It was determined that there was no change in the hopelessness levels of the control group between the pre-test and post-test scores. The experimental group, which consisted of mostly sedentary women working in an office environment, experienced a significant decrease in the hopelessness of their daily life together with physical activities. In this context, it can be said that if individuals make doing sports and/or take part in sportive recreational activities, their pessimistic perspective will change. In addition, it is thought that their motivation will increase and this will reflect positively on their job performance. In this context, it can be said that sedentary women participate in activities as a team without competition during the exercise program implementation and their socialization has an effect on the decrease in hopelessness levels with sportive recreational activities. Nixdorf, Frank & Beckmann, (2016) determined in their study that individual athletes had higher depressive and hopelessness levels than team athletes. In addition, it is stated in the literature that there is a highly inverse relationship between physical activity and hopelessness levels, and that as physical activity level increases, individuals' hopelessness levels decrease significantly (Ali, Azam & Alam, 2020; Hembree, 2000; Taliaferro, Rienzo, Pigg, Miller & Dodd, 2009; Valtonen et al. , 2009). Another study showed that individuals who did more physical activity had a significantly lower hopelessness level than individuals who did less physical activity (Cashin, Potter & Butler, 2008; Caver, 2012; Page & Tucker, 1994). Voltanen et al., (2010) stated in their study that physical activity reduced the level of hopelessness even after it continued for a while and was interrupted.

4.1. Conclusion And Suggestions

Based on the findings of this study, in which the effect of the exercise program including sportive recreational activities on the assertiveness and hopelessness of sedentary female teachers was investigated, it was determined that there was a significant increase in the assertiveness levels of female teachers from different education branches who do not do any physical activity in their lives with regular sports and recreational activities (walking, warming-up and cool- down). It was observed that there was a significant decrease in hopelessness levels. In this direction, it can be said that thanks to the regular physical activity of female teachers who are experts in different education branches, their shyness decreases, and their communication and socialization, that is, their assertiveness levels, have a positive effect. In addition, it is seen that with the decrease in their hopelessness levels, their motivation will increase and it will help them to lead a more willing and energetic life. In this context, it is recommended that working women take part in sports and recreational activities at regular intervals in office environments. It is beneficial for employers to make arrangements within the scope of workplace recreation for their personnel without discriminating between men and women. It is recommended that they make the necessary arrangements regarding this.

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Character Education Design in Practicum Class of Students of Fine-Art Education

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Abstract
Students of fine-art education may have developed in creative circumstances however, it is important to grow character enculturation. The study is aimed at designing character education for students of the fine-art education department. The study uses the descriptive research approach. Research data are obtained from interviews with lecturers and students of the practicum classes to get information on character education models. To identify the character types that are needed, questionnaires are dispersed to students. Data collection is also conducted by observation to find the design of character education for students during the practicum learning process. The objects of the study are character values for practicum learning for students of the fine-art department. Research findings show nine-character values that can be identified; namely honesty, discipline, hard work, creativity, independence, competitiveness, communicativeness, environmental concern, and responsibility. The character education process includes all activities in the practicum class from preparation (for practicum devices), making the art work, art work appreciation, wearing practicum attires, communication ethics, and use of learning facilities by lecturers and students.

Keywords: Instructional Design, Character Education, Character Values, Fine-Art Practicum

1. Introduction

The education construction is today confronted with disruptive phenomena. Changes in the educational desks are so fast that everywhere education is only worried about holistic cognitivism. The impact is that the running of education, at the university especially, emphasizes more on intellectual growth and rational thinking, without understanding the meaning of comprehensive education. At a certain point, an education system like this has an advantage for the purpose of building the Indonesian people who are qualified and able to compete in the globalization era; however, it must not be allowed to ignore the gap between intellectual education and emotional education (character education).

The concept of character education is multi-discursive depending on the contexts of the definition and the benefits that will be gained from the definition. What is certain is that every individual has the ability to interact and transact although everybody has a different cultural background. This is caused by the human characteristics that are (1)

accommodative, (2) associative, (3) adaptable, (4) flexible, and (5) willing to share. This point of view suggests that the diversities of human thoughts contain a pluralistic element that is full of character values. In the context of building a strong education system, character values become the axis that ties the interaction and socialization among individuals and community groups in their daily life wherever and whenever they are.

Characters cannot be equalized with the concept of diversity among the tribes and cultures that become the characteristics of the Indonesian society since characters. This is because characters emphasize values of good deeds such as politeness, justice, responsibility, and hard work. Character education then is concerned with matters that support ideologies; namely faith in one God, social justice, work opportunity, human rights, ethical principles, quality of products and other relevant matters. Character education also covers the understanding and valuing of the individual's cultures as well as the respect for and curiosity of the ethnical cultures of other people.

The university is an educational unit running the higher education that cannot be absent from the implementation of character education. There are things that are related to bad characters such as academic dishonesty often happening. For example, cheating in exams, plagiating others' works in the fine-art classes, and other such things often happen so that supervision of examinations is done tightly. This also happens in other countries such as Thailand; one of the main problems of education in Thailand universities is academic dishonesty (Young, 2013). Dishonesty often occurs due to the absence of shame feelings (Hamzah et al., 2020).

Character education in the higher education is a continuation of that in the schools especially in educational study programs. This is shown by Farida, (2012); Schwartz, (2000); Silay, (2013) and Stallions & Yeatts, (2003) in that character education in the higher education is the as that in the school-level education. This is supported by Dharmawan, (2014) and Kuh & Umbach, (2004) that character education must continuously be conducted from the basic-level education to higher education.

In the United States of America, approaches to character education have undergone many changes in the last few centuries. Historically, character education in the universities in America begins with liberal arts education emphasizing moral and civics education. As is shown by Lucas, (1994); Morrill, (1980); and Rudolph, (1962), institutions of higher education in the United States of America in the 19th century were strongly committed to promoting students' morals and characters. Liberal arts education in the university routinely offers classes of ethics and moral values as parts of the core curriculum. The university management starts the program in the form of small courses. The purpose of the small courses is to integrate all students into the community by sending them to the society as members of the community who are morally and ethically responsible (Mc Bee, 1980; Pascarella & Terenzini, 1991; Sloan, 1980).

It is for this reason that each study program in the university needs to have a character-development program that is in accordance with the vision and missions of the study program. Character education that is given from childhood to the university level will be able to develop a nation generation who has excellent (General Directorate of Higher Education, 2011). The character education processes are mainly integrated into the learning of pedagogic competencies; there are even special activities for students in the forms of workshops. However, the development of social values and personalities in the dimension of education (character education) has not run as well including the one in the Fine-art Study Program (FASP), the Faculty of Languages and Arts (FLA), Yogyakarta State University (YSU).

FASP FLA is one of the art fields of study at YSU. This study program is aimed at producing master's candidates of teachers of fine-arts from the basic elementary level (Primary School) up to the middle-level schools (High School) as well as Vocational School. Because the basis is teaching and education, character learning is directed to pedagogic and professional competencies in fine arts. Although it is different from the fine-arts study program of the Yogyakarta Institute of Indonesian Arts (YIIA), it is a fact that the "artist" atmosphere is carried away into FASP FLA and is even more extreme than that of YIIA students.

In line with the previous discussion, it is important that education character is integrated into classroom learning. Thus far, in the writer's continuous observation, character education has not been made into a policy. There are

many factors that become the backgrounds why character education in arts education has not been practiced well. First, many of the lecturers hold the opinion that character education given in the students' previous schools is quite adequate. Second, most students and lecturers view that fine-art learning is identical with the attributes of artists who automatically have sensitive feelings. Third, the learning method in the practice classes tends to emphasize on the works that are produced. These have made "free" behaviours become lasting habits.

Reviewed from the learning atmosphere in the FASP, FLA, YSU, at the present time, it can be assumed that the good national values (characters) for teacher candidates have become part of students' life. Many environmental conditions support the development of good characters such as the balanced ratio of male and female students, the campus environments that uphold character values, and good classroom conditions. It is, however, true that things are still far from being satisfactory. The present study is aimed at discussing the planning of the practice learning for students of fine-art study programs.

2. Method

The study was descriptive research. The sources of the research data were fifth-semester students of FASP, FLA selected by the purposive sampling procedure. This purposive selection of the research subjects was made considering the number and study lengths of the students. To obtain more complete data, the study made the involvement of lecturers of FASP, FLA who were regarded as knowledgeable in character education.

Data were collected by the techniques of interviews, questionnaires, and observation. The interviews were in the form of in-depth interviews subjected to lecturers and students of the practicum classes in group or individual sessions using an interview guide. Once questionnaires were given to 75 students to obtain responses of students concerning choices of characters for character education in the practice learning in FASP. Meanwhile, the observations were used to obtain data on the practices and models of characters in the FASP practice learning. Observations were of the participative observation with the intention to acquire the realistic happening and behaviours in students (students' characters), conduct assessment of particular aspects of characters, and give responses or feedbacks to students' comments or questions. Data were analyzed using the interactive model of Miles and Huberman (1994: 12). The data analysis was carried out in three phases of data reduction, data presentation, and conclusion drawing.

3. Results and discussion

3.1 Results

In general, character education has been given to FASP students since they were in the first semester albeit in its basic forms such as polite behaviours and respecting lecturers and classmates. In the practice, lecturers have not devised specific lesson designs for the teaching learning processes. In this relation, it can be concluded that character education in the FASP practicum classes has not been implemented. This is acknowledged by Hartiti, Maruto, Prihadi, Kasian, and Zuhdi (FASP lecturers) in discussion forums that are held regularly. This is caused by such factors as students' backgrounds, advances in technology, and instructional processes that have not emphasized the educational aspects.

First, FASP students come from a large variety of cultural backgrounds. This has an impact on students' ways of living and learning. On a larger scale, this diversity is also their basis for their ideas and initiative to be working in the field of fine arts.

Second, at present, FASP students enjoy the classroom facilities and the Internet. It is in fact the responsibilities of the educational management to provide students with supporting facilities; the use of the Internet, however, has been the profound medium for students to satisfy their social needs with classmates inside and outside campus. This has made them busy with their cellphones so that they are often not too concerned with their environments. A negative impact of this has been their minimum interaction with their lecturers and classmates. This does not happen only outside their classes but it is also carried in during classroom learning processes.

In relation to the use of cellphones in the class, lecturers often remind them of the proper use of cellphones; they even ask their classmates to remind them, but this does not run well since there is no written rule or regulation about it yet. From this problem, it can be concluded that character education is not merely to be lectured since it has something to do with the thought and personality values of individual students. A need is felt to issue a distinct regulation complete with penalty for breaking it in order to decrease unfavourable characters for the sake of education. This can be done, for example, by the implementation of "hidden curriculum."

Third, academic aspects are important in determining the success of the student's study; in this case, education character is one. Academic satisfaction can be seen from various educational aspects such as teachers' qualities, interaction between teacher and students, classroom atmosphere, reputation of the institution, etc. All this can impact or influences on the quality of students' life. In relation to academic facilities, what happens in the practicum classes of FASP is that students feel dissatisfied with the inadequacy of facilities. This is acknowledged by Fauziah, Didosius, and Vidia, students of the 2017 academic year. They state that the inadequate provision of facilities has resulted in unconducive learning atmospheres. This condition has also caused students to be egoistic, no respect of the able students towards the unable students. For this reason, a clear regulation is needed in the matters of using the existing facilities for the common use of all the students.

Based on the data obtained from the open questionnaires to 75 students and interviews with 35 students, information can be gathered that character education is important to be implemented in the fine-art practicum classes. From the questionnaires that are given to three practicum classes, nine aspects of character education are regarded as compulsory to be practiced in the classroom learning of FASP. They are (1) honesty; 59 students (78.7%) state that honesty values need to be implemented in the practicum classes since honesty is not only pronounced orally but it must also be realized in the art products; (2) Discipline; 64 students (85.3%) state that values in discipline help them in completing the class assignments on the appointed time; (3) hard work; 58 students (77.3%) state that in order to produce satisfactory products, hard work is needed; (4) creativity; 68 students (90.7%) state that creativity values are strongly tied to the processes of producing art products. An art work must be individual and becomes the trademark of the artist; (5) independence; 56 students (74.6%) state that the values of independence must be implemented in instructional activities of the practicum classes. Being independent does not mean that, in working together, students are not allowed to imitate or be helped; but, it means that one's work must not be completed entirely by other students; (6) competitiveness; 45 students (60%) state that the values of competitiveness need to be implemented in the practicum classes. The remaining 40% of the students do not want competitiveness to be practiced in class for the reason that it does not bring in good effects. Working in arts needs processes. If it is always subjected to competition, students who have high motivation to work but their products are not satisfactory may lose their motivation since they are never given good grades by the lecturers. Meanwhile, in the assessment, subjectivity often occurs. Many students argue that, among them, they need to uphold tolerance values, gender equality, and respect over colleagues' works to promote common achievements so that space for improvement is open for improvement of their knowledge; (7) communicativeness; 64 students (85.3%) state that values of communicativeness need to be practiced in the practicum classes. In the practicum class, students tend to work in silence. It happens that students who are good at work often are not able to communicate their concepts of work. They need to practice the techniques to communicate; (8) environmental concerns; 57 students (76%) state that concerns on the environment must be practiced in the classes. So far, according to students and lecturers, students have not had concerns over the campus environments. They write things everywhere, throw trash in wrong places, do not care dirty classrooms, lie down on the desks, and so on; and (9) responsibility; 62 students (82.7%) state that students' attitudes towards responsibility values are low. This is shown, among others, by the ways they use facilities such as returning the tools that they borrowed from their friends or from the campus.

Data obtained from classroom observations also show some unfavourable attitudes and behaviours of students as teacher candidates. These unfavourable attitudes, in the process of producing art works, are shown in four groups. *First*, many students are not on time in joining classes. They do not dress properly nor do they make up their face. They look sleepy in class. They like to mock other students who dress properly and politely. Habits of not coming to class on time and not dressing properly have an impact on their readiness to join classes. These students do not prepare the materials and tools to be used to work in the practicum classes. Eventually, they end up with asking

for, or even forced to get, these materials from classmates, especially girl students. *Second*, attitudes that are not so polite are often shown by boy students in class. They often say things that are not appropriate to their classmates. This often has negative impacts on some of the girl students. These improper attitudes often occur when lecturers are not in the practicum classes (studios) or when they do independent activities. *Third*, in their practicum activities, FASP students often experience blockage in finding ideas to produce art works. This results in behaviours that are not in line with character education. For example, they will often disturb other students who are busily and attentively doing their work. This is caused by, among others, their unpreparedness for various references needed to do their work. They also do not pay full attention to what the lecturers assign them to do so that they often forget what they need to do to come to class. Fourth, many students like to delay the completion of their fine-art works. This is not so far because of their inability to finish their assignment, but many of them would prefer to spend their time playing online games on the free Internet programs. Eventually, the students' habits of delaying instructional assignments result in the students' low creativity and achievement. This is because working on art works cannot be done within pressured time since it needs full affective exercise and honesty.

3.2. Discussion

Character values of honesty, discipline, hard work, creativity, independence, competitiveness, communicativeness, concern for the environment, and responsibility are ones that must be possessed by fine-art teacher candidates. These nine-character values are related to teachers' ethics to be modelled by their students that can be presented as the following character values. (1) Trustworthiness. This character can be understood as being able to be trusted (honest). An honest individual is one that can be trusted. A person who has the characteristics of being honest, integrative, and reliable has the good ethics to always guard the things for which he is responsible including learning and art working. If these character values are well implanted in students, no external supervision is needed. Lecturers and students will keep feeling secure. (2) Respect. This is a character value that refers to being concerned about other people. People who have this character value will always do good things for other people and pay respect to other people without regarding differences in cultures, races, and religions. They have high tolerance so that other people will not have the heart to cheat or do harm to them. (3) Responsibility. This character value is owned by persons who feel responsible for things they need to take care of. This character is also the one that often makes people to work hard and as well as possible in order to achieve their objectives. Without high responsibility, people will be inclined to do things in accordance with their own wishes. (4) Fairness. This character is owned by people who always search for justice without being influenced by their personal egoism. The concept of justice is often subjective; however, every human being is actually equipped with the fundamental standards of justice. By prioritizing the values of justice, one is always led to consider other people in acting and behaving without ignoring his own self. (5) Caring. This character is tightly related to the processes of art production, i.e. emphatic feelings. An individual who has the character of caring will always use feelings in order to have empathy for every happening. In the contexts of art production, refined feelings will help in producing art works that are full of expression and imagination. (6) Citizenship. The character value of citizenship can be understood as that which motivates the person to be a good member of a group. This is often found in classes with many students. This character value is also closely to other value dimensions such as responsibility. Ina teaching learning process, students with this character always obey rules and regulations and adapt to what they are supposed to do without much direction (Rynders, 2006).

Efforts of character education in implanting these character values in students can be packaged FASP academic activities. Examples of such treatments are presented in the following.

3.2.1 Implanting Appreciative Attitudes towards Art Work.

Fine-art students are identical with the art works they are proud of and every time they will appreciate other people's art works as well as their own. Art work appreciation should be done both before and after creating the work. The primary function of art work appreciation in the teaching learning process in the practicum class is related to the importance of finding ideas and sources of inspiration. There are many ways that can be conducted in order to find works to be appreciated; among others, (1) visiting exhibition galleries inside and outside the campus, (2) making use of the technological advances that, presently, are very close to students such as *Google* in

the Internet, (3) looking at art catalogues and magazines which contain entries of art works, and others. In addition to these techniques, there are several important points related to character education in these appreciative activities; namely: appreciating other people's works, thinking critically, and avoiding plagiarism.

Art works are creations of humans (artists) who have the competencies as a grace of God the Almighty. In art works, one can also find messages produced by ways of brilliant ideas and hard work of the artists. By implanting the students' awareness of this gift, in the process art-work appreciation, students will make priority the appreciation and respect toward every art work even if the work is not of their liking. An impact of this attitude can be, for example, showing an art work that is made on campus, and not folding or throwing it away.

Appreciating other people's work is not only in the form of taking good care of the physical form, but it can also be shown by giving criticisms and feedbacks. This can be done in writing and comments. The presence of feedbacks and criticisms will add to the perfection of other people's art works and, at the same time, satisfaction on the part of the viewers who have given the feedbacks and criticisms.

Critical thinking is not the same as ordinary thinking. In many cases, critical thinking is always related to creativity. By critical thinking, an art appreciator will be able to discern the in-depth meaning of the work being appreciated. In the same way, students, as art work appreciators, will be able to be highly selective in picking out art works that they will use as sources of inspiration.

Plagiarism of art works often happens in different varieties from that of written work. In art work, it is legal for one to repeat other people's works as closely as wanted, as long as the label *copyright* is written in the identity. Plagiarism that happens on an art work is imitating other people's work up to 100% identical including the signature of the artist for the purpose of acquiring a high sale price. It is in this frame that students, through the activities of appreciating other people's works, will have the habits of being honest to themselves as well as to other people. Students, who are intellectuals, must be in the habits of working by using own thinking and art ideas. However, it does not mean that students are blocked from working collaboration in the process of producing art works. Basically, collaboration in the making of art works becomes a medium for exchanging ideas and safe-guarding solidarity and cooperation among students. Collaboration processes can also elevate creativities and, eventually, motivation in producing art works. It is nevertheless true that activities of helping one another must have their own limitations.

In relation to the foregoing discussion, it can be understood that through the implanting of appreciative attitudes towards art works together (lecturers and students) and continuously, togetherness and tolerance values among students and lecturers will be automatically formed. In the same way, the implanting of honesty values, by always giving appreciation to art works as learning outcomes, will build aesthetic awareness and, eventually, students will do their work in the expected ethics.

As a proses of learning about the character values of appreciating other people's works, thinking critically, and avoiding plagiarism, the instructional process in the practicum class of the FASP students can begin with the writing of ideas/thoughts first. This phase of the learning activities must be given a separate credit so that students will be encouraged to do it well. It is also through this learning phase that new ideas will be born through the media of various techniques and materials.

3.2.2 Strengthening the Aspects of Ethics in Search of Aesthetics.

Conceptualizing education as a practice in aesthetics has long been tested. Alexander Gottlieb Baumgarten is the first figure who tries to prove it. In the year 1962, Friedrich Schiller, and later continued by Johann Friedrich Herbart, European experts in educational theories (Coriand, 2003), has also shown the success in using aesthetics for moral education. In the present-day educational discourses, however, aesthetic education is not at all seen as being able to as a bridge for character education. In the findings of research in fine-art education, it is suggested that the concept of aesthetics is once again regarded as important to be enlivened.

A lot of procedures need to be conducted in order to obtain an art work that is in accord with the learning indicators. Before starting their work, students need to carry out an imagining process intensively and comprehensively for the objective of producing a good art work. Subsequently, in the process of making the art work, students need space, time, and tools. Furthermore, in the final activities, students need evaluation. In all these processes, lecturers act as facilitators who underline and strengthen students' imagination by connecting between ethics and aesthetics. It is because all of the principles of aesthetics contain ethical aspects that are based on harmony that exists in nature.

In relation to imagination, the process of art production and lecturers' evaluation always have a large opportunity to push the presence of attitudes that will motivate and students' behaviours. If the imagination, working, and evaluation processes run well, the behaviours that follow will also be good, and vice versa. In order to avoid negative attitudes and bad behaviours, in this present study, there are several things that can be done in the learning processes of the fine-art practicum classes.

3.2.3 Communicative Ethics in Class.

Communication plays an important role in the learning strategies. Therefore, it needs to be studied and practiced in order to achieve the learning objectives.

One of the character values that needs to be developed is communication ethics among students, between students and lecturers, and among lecturers. Students have the opinion that maintaining communicative ethics in the learning processes is a necessary thing. The following activities can be done:

1) Implementing 2S2G (smile, say hello, polite, genteel).
2) Confining online communication between students and lecturers using social media for urgent things.
3) Wearing proper and decent clothes in campus areas (the use of practicum costumes will be discussed separately).
4) Safe-guarding distances of relation (professional attitudes) between students and lecturers, especially between male lecturers and girl students.
5) In case lecturers make mistakes, students giving corrections in a polite way.

According to the foregoing discussion, character education in communication ethics must be done well. Communication processes use language, movements, and signs that have specific meanings. R. Wayne Pace, Brent D Peterson, and M. Dallas Burnett divide communicative activities into three main purposes: to secure understanding, establish acceptance, and motivate actions. Securing understanding means ensuring that communicative messages are received and understood. Once messages have been secured, the receiver must be ensured to establish acceptance and, finally, efforts will be taken to motivate actions (Effendy, 2009). Meanwhile, according to Laswell, good communication must answer the questions of who says what in which channel to whom with what effect (Effendy, 2009). In addition, making communication must undergo strategies that are built through analytical steps of directing to and focusing on the purpose and putting it on the correct and clear path in order to achieve the determined purpose.

3.2.4 Dressing Ethics.

The fine-art practicum classes involve varieties of activities that require great care as not to make messy conditions. In their practicum activities, students need to wear costumes that are comfortable to wear but conducive to support their activities. In accordance with research results, one strategy in implanting character education in students is habituating them to wearing practicum attires. The costumes are designed in such a way to be suited to the needs and activities of the students.

Some reasons for students to wear special attires to work in the practicum class are:

1) The special practicum costumes will support cleanliness, comfort, safety, and fluidness of the practicum proceeding.

2) Wearing the special practicum costumes trains students in discipline and order of rules and regulations set in the practicum class.
3) The special practicum costumes motivate students to improve their work ethics to be more professional and educated.
4) Wearing the special practicum costumes is a good choice since the type and material of the clothing are not lavish.

In the same line with this finding, many research studies have shown the effectiveness of wearing uniform in practicum classes, especially in teacher training institutions. For example, Ansari, Shepard, & Gottfried (2022) found that students would be likely to attend school better when wearing uniform. This indicates that uniform might have influence on student's behaviour.

Nathan et al. (2021) state the aim of wearing special costumes is for students to develop the characters of the teacher candidates to be disciplined, obey rules and regulations, show dignity through habituation, reduce economic gaps, have the sense of belonging, build the sense of unity, have a distinguishing marks from other groups of students, look neat and orderly, and use as a filter from behaviours that do not reflect teachers.

Budiyati (2010) adds to this list the elevation of work spirit. Wearing special costumes is scheduled for certain days of the weeks. It can promote the feelings and spirit of discipline. It can also promote neatness and pleasantness. Special costumes develop the sense of unity in the wearers and can be used as a leashing tool. People who wear costumes will automatically be guided to behave in certain expected behaviours that reflect the characters of the institution that assigns the costume.

3.2.5 Safe-guarding Facilities.

Campus facilities are provided for in order to support the running of the teaching learning processes. These are objects and articles that become a common assets that must be carefully taken care of by campus members. As part of their character education, students have the responsibility of using and taking care of facilities correctly and properly in accordance with the accompanying standard operational procedures. Students must be made aware that campus facilities are common belongings and a system of students' representation must be applied in managing the turns in using them for each class session.

In the efforts of maintaining effective uses of facilities, sanctions need to be set up for violations of use. Such sanctions should be reasonable and agreed on by everybody. Examples of conditions of use are:
1) Students who violate the rules of use clean the facilities or replace them when damages are done.
2) Sanctions can be in the forms of apology, fine, replacement, or special assignment.
3) Points can be deducted from grade scores.

Other effective ways in order to safe-guard the use of facilities consist of the management assigning a students' unit in each class to be responsible for the safe use of campus facilities. This is done in view of the considerations, among others:
1) Developing the values of responsibility in students and implanting awareness to maintain facilities together.
2) Elevating students' roles in independently accommodating the instructional needs for every class.
3) Realizing a just classroom ecosystem.
4) In taking turns of the responsibility, upholding the discipline values and training students to obey the existing rules.
5) Teaching students not to depend on other people.

3.2.6 Evaluation of Character Education by Lecturer and Classmate

Evaluation in the implementation of character education in the practicum class must be done jointly by lecturers and students. In relation to the need for evaluation of characters by students'' classmates, oftenly called peer tutors, a total of 74.7 % students state that such evaluation is needed with some considerations, namely: (1) the media for

giving criticisms and comments of attitudes and behaviours that are regarded as unfavourable; (2) evaluation is intended to enhance learning needs and motivate talent development of teacher candidates; (3) to obtain alternative thoughts and perspectives from students; (4) peer tutors are regarded as more effective (in giving assessment) than lecturers. Classmates become the parameter before evaluation is made by the institution or lecturers. Evaluation from classmates can be used by lecturers to know and monitor students; (5) to elevate critical attitudes, sense of caring, and tolerance towards other people; and (6) as medium for self-correction and self-understanding.

Effectiveness of peer assessment in character education has been well documented in research (e.g. Anita Wijayanti, 2017). Peer assessment is explained as follows: (1) Self-assessment and peer assessment that has become parts of evaluation in the 2013 curriculum is regarded as the most effective evaluation in the curriculum in building students' characters. (2) Characters that are developed from these evaluation techniques will give a positive impact on the development of students' personalities. When self-actualization has been established, intellectual development (knowledge and skills) will also be improved. (3) Self-assessment and peer assessment can be applied in all subject-matter learning and will give contribution to understanding of concepts in the lessons.

Another source of reference showing that the use of peer assessment is effective for character education is a study by Kartono. He states that the benefits of using peer assessment are, among others: 1) improving learning achievement; 2) elevating learning collaboration by way of peer feedbacks; 3) facilitating students to cooperate in the process of understanding instructional materials; and 4) letting students to give comments on the behaviours of their classmates.

4. Conclusion

Based on the discussion above, character education in communication ethics must be carried out properly. The communication process uses language, gestures, and signs that have certain meanings. The goals that can be achieved by doing so are to secure understanding, build acceptance, and motivate action. Securing understanding means ensuring that communicative messages are received and understood. Once the message is secured, the recipient must be ensured to establish acceptance and, finally, efforts will be made to motivate action. Good communication must be able to answer the question of who said what, through which channel and to whom with what effect. In addition, communication must go through strategies that are built through analytical steps, namely directing and focusing on goals and putting them on the right and clear path to achieve the goals that have been determined.

Nine-character values are found that can be implemented in the fine-art practicum classes, namely: honesty, discipline, hard work, creativity, independence, competitiveness, communicativeness, environmental concern, and responsibility. These character values can be developed within the frame of integration in the practicum classes in the forms of: (1) the appreciation of students' art works. This can be done before students begin working or after they finish producing their works. The main function of the activities of appreciating students' works is to support students' efforts in searching for ideas and sources of inspiration and obtain satisfaction after producing their works. (2)

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Online Program to Develop Teachers to Enhance Students' Adaptability Skills

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Abstract
This research aimed to develop an online program for the development of the teachers' skills to enhance the students' adaptability. The research materials consisted of the teacher's learning manuals and teacher guidelines for student development. Based on the Research and Development (R&D) methodology, the implication of the R1&D1 and the R4&D4 steps, six sets of teacher's learning manuals, and one workshop manual were obtained. Then the R5&D5, the one group pretest-posttest experimental research methodology, was used with 15 teachers and 324 students in the Faculty of Education of Mahamakut Buddhist University, Isan Campus. These groups of samples were randomized to adequately represent the population of the main campus of Mahamakut Buddhist University and its other campuses. It was observed that the online lessons developed for this research could significantly increase the teacher's post-test scores that meet the reference criteria of 90/90. As for the students, their post-test scores on adaptability skills were significantly higher than the scores observed in the pre-test. This showed that the online programs developed in this research are effective educational innovations. This result ascertains that the findings from this research can be disseminated for the benefit of the target population from all campuses of Mahamakut Buddhist University.

Keywords: Adaptability skills, Online program, Self-learning, Research and Development (R&D)

1. Introduction

The advancement of science in today's world brings about many positive changes to the present day's life. Each country must adapt to the changes that occur all the time and be prepared to face some unanticipated incidences. These technological changes have put Thailand in both internal and external challenges. To cater to these changes, it is required that serious education reforms be accelerated. The first major driving force is the Digital Revolution which has played an important role both in daily life and in the business world. The impact that digital revolutions have a comparable impact on society as industrial revolutions of the past. Moreover, the "Internet of Things (IoT), which allows devices or household gadgets to be connected to the Internet, enables people to control the use of various devices even when they are away from home. As a result, lifestyles and transactions have changed drastically and rapidly. In the industry, robots are increasingly being used in industry. In particular, artificial intelligence (AI) robots will take on the role of humans and the functioning pattern of industry and energy will be changed accordingly.

Therefore, education management must be adapted to keep up with the technological revolution. People should be aware of the fact that some conventional occupations will disappear amidst the emergence of many newly developed careers. Inevitably, learning style will also change in the way that the learners are trained to self-study learners who take care of their learning and learning evaluation. Learning is directed to a life-long stage and is not limited only to classroom teaching. Thai people are required to have the essential skills for the 21st century, which include learning and innovation skills, media and technology skills, and occupational and life skills (Office of the Education Council, 2018). Since the emergence of Thailand 4.0, Thai people are required to have adaptability skills to help them learn to live in harmony with the changing world. Thailand 4.0 has been developed by the government to drive the country's economy out of the middle-income trap to become a high-income country. Accordingly, Thai education should prepare its people to cope with the mutual changes driven by the Digital Revolution (Office of the Education Council, 2017).

Adaptability which is also known as learnability, is the skills of the future that helps students adapt to new situations, environments, and programs as well as learn new skills quickly. It expands the students' capacity to handle change and the effects extend beyond employment. Students with adaptability are more likely to participate in class, enjoy school, have higher self-esteem, and be more satisfied with life (Extended Notes, 2019). Martin, Nejad, Colmar, Liem, and Collie (2015) conducted research into the importance of adaptability skill development among students. They examined whether adaptability plays a role in promoting perceived control among students. They investigated whether adaptability reduces the experience of constructs that are known to be detrimental to; students' academic and non-academic development, academic anxiety, disengagement, performance-avoidance (i.e., where students are motivated by the desire to avoid disappointing others), and self-handicapping (i.e., sabotaging one's chance of success to have an excuse in case of failure). The results showed that when students were more adaptable, they also tended to perceive that they had greater control over their academic outcomes. In turn, greater perceived control was associated with reduced levels of the four detrimental outcomes.

Adaptability is a soft skill that means being able to rapidly learn new skills and behaviors in response to changing circumstances. In a world that is going to continue to throw new situations for leaders to navigate, the need for adaptability in the workplace - to learn and unlearn - is critical to future success (Wheatley, 2021). Therefore, adaptability in the classroom is the most important quality that every teacher must possess. Adaptability is a teachable skill that gives them the ability to handle unexpected situations without evident frustration. In addition, teachers can reinforce this skill by educating students on setting achievable goals, scaffolding, and other classroom activities (Darvell, 2021).

Martin, Collie, and Nagy (2021) provided codes of conduct for developing students' adaptability. It was advised that the teachers adjust students' behavior, thinking, and feelings to help them navigate disruption. For example, to adjust the students' behavior the teachers may need to seek out information and resources, or asking for help, and adjust attitude by thinking about the new task differently. Emotional adjustments can be done by minimizing negative feelings, or shifting the focus to positive feelings when engaged in unfamiliar activities.

Adaptability is an important skill that teachers can develop for their students. There have been many suggestions available online about how to develop students' adaptability. The research team believes that it is important to carefully review various works of literature about the issues related to definitions, importance, characteristics or attributes, development guidelines, development steps, and the concept of assessment. Different scholars may refer to each of the above elements of adaptability quite differently. However, putting these varieties of perspectives together to form the scope of learning will enhance the power of learning more deeply and broadly. Bringing those diverse perspectives into a systematic and research-based action should help obtain a set of knowledge that can be used for teacher learning. The teachers then can apply the learned knowledge for the development of their students' adaptability skills, which is one of the key skills of 21st-century education. Students at the higher educational level also need training on adaptability skills because they are seeking knowledge and experience. It is an age that is developing skills for life and society. Particularly in this research, the students from three departments, the Teaching Thai Language Department, English Language Teaching, and Social Studies of the Faculty of Education, Mahamakut Buddhist University, Isan Campus were selected as the research participants. The first researcher was a teacher who used to teach at that university and the second researcher is still a teacher there.

Therefore, the researchers studied different literature relating to adaptability skills in a variety of issues and perspectives to adequately obtain a set of knowledge needed for the development of the online program to develop teachers who would, in return, use the learned knowledge for the development of their students' adaptability skills. Sanrattana (2018) postulated that the Research and Development (R&D) methodology be used in to help create educational innovation for teacher learning. Then the teacher can bring that learning result to the development of the students. The working principle behind this thinking is that teachers should be well trained to earn enough knowledge before placing that knowledge into practice (action). This can be described via this pattern of "Knowledge + Action = Power" or as the saying goes, "Make Them Know What To Do, Then Encourage Them Do What They Know."

2. Literary Review

To obtain an adequate foundation for the development of the online program for teachers' development and the enhancement of the students' adaptability skills, the researchers examined several concepts and schools of thought about adaptability skill development. The diversifying perspectives were derived from academic or research perspectives, and work experience perspectives. The researchers systematically put these ideas together based on research methodology to form valid content for the teachers' training. There were 6 areas of content included in the research as follows:

1. Definitions of adaptability skills were based on the perspectives of Cjones Skills Weekly (n.d.), Cleverism (n.d.), Esoft Skills Team (n.d.), Half (n.d.), Martin (2012), Oliver and Lievens (2014), Prince (2012), Reddy (n.d.), and Smith, Sorokac and Widmaier (n.d.),
2. Importance of adaptability skills which were based on the perspectives of Agrawal (2016), Collie and Martin (2016), ERM Academy (n.d.), Ferguson (2011), Half (n.d.), Reid (2018) The Conversation (2018), and Thurlings, Evers and Vermeulen (2015),
3. Characteristics of the indicators of adaptability skills were based on the perspectives of Alessandra (2016), Boss (2015), Chron Contributor (2020), Keating (2018), the University of Bradford (n.d.), and Whitehall (2018)
4. Guidelines for the development of adaptability skills were based on the perspectives of Baker (2014), Half (n.d.), Leading Effectively Staff (2021), Life Simplified (n.d.), Oyster Connect (2019), Prince (2019), Reddy (n.d.) Vanderbloemen (n.d.), and Williams (2017)
5. Model for the development of adaptability skills which were based on the perspectives of Berger and Johnston (2015), David (2019), J-Pierre (2019), and Newell (2016)
6. Assessment of adaptability skills which were based on the perspectives of Kane (2019), Brent, Sidney, Robert, Gabriel, Michael, and Andrea (2013), Workable (n.d.), the University of Alberta (n.d.), and Zorzie (2012)

From the 6 areas of perspectives mentioned earlier, the researchers put the suggestions that were about: "principles/concepts/techniques/methods/activities" as the "research inputs." The suggestions focusing on the creation of the model of the development were marked as the "research process." Finally, the ideas that are about characteristics or attributes of adaptability skills were reckoned as the "research output." When putting them all together, the whole idea of the knowledge from the review of the literature resulted in a systematic concept of the input-process-output model.

It is a systematic concept that represents a wide range of options for the teachers to apply to their students as they deem appropriate after the teacher development session. It is considered a conceptual framework for the learning and implementation of teachers shown as below:

Table **1**: The systematic approach of academic or theoretical alternative proposals for teachers' learning and implementation

Input Suggestions Principles / concepts / techniques / process / activities for developing adaptability skills	**Process Suggestions** Procedures for developing adaptability skills	**Output Suggestions** Characteristics or expected qualities of students with regard to adaptability skills
Baker (2014) 1. Adjust as you go versus waiting until half-time 2. Vision long term and plan short term 3. Take some risk and move forward without all the data 4. Minimize the knee-jerk reactions 5. Know where you are on the change curve 6. Put the oxygen mask on yourself first 7. Get aligned with the change **Half (n.d.)** 1. Learn from others 2. Find the silver lining 3. Be willing to make mistakes 4. Ask questions **Leading Effectively Staff (2021)** 1. Be curious 2. Don't get too attached to a single plan or strategy 3. Create support systems 4. Understand your own reaction to change 5. Immerse yourself in new environments and situations **Life Zemplified (n.d.)** 1. Accepting 2. Learning 3. Creating 4. Suggesting 5. Being receptive 6. Being spontaneous 7. Embracing 8. Altering 9. Volunteering **Oyster Connect (n.d.)** 1. Intellectual flexibility 2. Being receptive 3. Creativity 4. Adapting behavior **Prince (2019)** 1. Look for opportunities to try new things that will keep you learning 2. Research suggests that people who are able to come up with solutions to a problem are better able to cope with problems than those who can't 3. Research suggests that people who are able to come up with	**Berger and Johnston (2015)** 1. Ask different questions 2. Accept multiple perspectives 3. Consider the bigger picture 4. Experiment and learn **David (2019)** 1. Redefine your motivation 2. Observe and learn 3. Ask questions 4. Prepare alternative solutions 5. Make easy transitions 6. Stay calm and confident 7. Acquire new skills 8. Set small goals 9. Find the upside 10. Be willing to make mistakes **J-pierre (2019)** 1. Stop whining) 2. There's no 'right' and 'wrong' 3. Improve your coping mechanism 4. Be open to change 5. Have the whole alphabet for your plan 6. Engage in a positive self-talk 7. Stick to your natural inclinations 8. Think big 9. Don't blame yourself 10. Learn how to balance your life 11. Stop waiting **Newell (2016)** 1. See it. Acknowledge change is needed 2. Own it. Take ownership of the situation 3. Solve it. Develop your action plan 4. Do it. Execute the change	**Alessandra (2016)** 1. Flexibility 2. Vision 3. Attentiveness 4. Versatility 5. Self-correction **Boss (2015)** 1. Adaptable people experiment 2. Adaptable people see opportunity where others see failure 3. Adaptable people are resourceful 4. Adaptable people think ahead 5. Adaptable people don't whine 6. Adaptable people talk to themselves 7. Adaptable people don't blame 8. Adaptable people don't claim fame 9. Adaptable people are curious 10. Adaptable people adapt 11. Adaptable people stay current 12. Adaptable people see systems) 13. Adaptable people open their minds 14. Adaptable people know what they stand for **Chon Contributor (2020)** 1. Prepare alternative solutions 2. Make easy transitions 3. Keep calm and confident 4. Acquire new skills 5. Diversify your knowledge **Keating (2018)** 1. Adaptable leaders have flexible ways of thinking 2. Adaptable leaders plan ahead 3. Adaptable leaders are curious **University of Bradford (n.d.)** 1. Intellectual flexibility 2. Receptiveness 3. Creativity **Whitehall (2018)** 1. A willingness to experiment

Input Suggestions Principles / concepts / techniques / process / activities for developing adaptability skills	Process Suggestions Procedures for developing adaptability skills	Output Suggestions Characteristics or expected qualities of students with regard to adaptability skills
solutions to a problem are better able to cope with problems than those who can't **Reddy (n.d.)** 1. Tune in to know the situation 2. Try different situations 3. Listen more 4. Practice emotional intelligence 5. Only for naturally flexible employees 6. For very organized employees 7. Consider the bigger picture 8. Take wide variety of perspectives into consideration 9. Create a balanced life 10. Just stop waiting for right time and situation **Vanderbloemen (n.d.)** 1. Be more spontaneous 2. Be calm and accepting when unexpected changes happen 3. Learn how to alter your schedule when changes happen 4. Find someone you admire with high adaptability and learn from them 5. Volunteer in a role that requires extra-ordinary flexibility in order to grow in this area **Williams (2017)** 1. Being open-minded) 2. Asking for help 3. Measuring the pros and cons 4. Being solution-oriented 5. Prioritizing what's important to you 6. Being flexible		2. Unafraid of failure 3. Resourcefulness 4. Able to see the big picture 5. Engaged in positive self-talk 6. Curiosity 7. Being present ***AND*** The expected adaptability skills of students on this skill assessment form can be found in the appendix and on the website: https://bit.ly/3An4Tfq (In Thai original)

3. Research Objectives

The purpose of this research was to conduct research with Research and Development (R&D) methodology that would enable the effective online program to develop teachers who would, in turn, use the learned knowledge to enhance students' adaptability skills. This online program consists of a teacher's learning development project and a teacher project that brings learning outcomes to improve student adaptability skills. There was a set of self-learning modules for the teachers and a practical manual for teachers to use as a guideline for student development.

4. Research Hypothesis

The researcher had studied the relevant literature from various perspectives before binding the obtained knowledge to the making of the research manual and conducting the quality inspection. The manual was used in an educational institution randomly assigned as an experimental area based on the R&D methodology. This research's operation was believed to yield effective educational innovations. The research hypothesized that the developed manual would be effective based on the following reference criteria. 1) The teachers had the post-development test score with standard criteria of 90/90 and had a statistically significantly higher mean score than the pre-development,

and 2) The students' score of the adaptability skills tested after development was significantly higher than before development.

5. Research Methodology

5.1. Concept and procedure

This current research involved the development of an online program to develop teachers and enhance students' adaptability skills based on the Research and Development (R&D) methodology through the viewpoint of Sanrattana (2018). It was reckoned as a research methodology that helped produce effective educational innovation that can be used for teachers' learning. Then the teacher can bring that learning result to develop their students. The working concept behind this research paradigm was "Knowledge + Action = Power," which can be explained that the teachers should be equipped with a proper level of knowledge (Knowledge) and they are encouraged in the later step to put that knowledge into practice (Action). The application of knowledge creates power (Power), which can be the ability to generate positive changes on the student side. The above paradigm can be briefed as a saying goes, "Make Them Know What To Do, Then Encourage Them Do What They Know."

The key element of the R&D methodology is the careful review of related literature. Particularly this research provides sufficient knowledge for the development of an online program that consists of a project and a learning module. The project consisted of a learning manual for teacher self-study and a module-based manual for teachers' practices. Therefore, the steps of the R&D methodology used in this research start from the study of related literature as R1&D1, R2&D2, R3&D3, and Ri&Di as detailed in the sections below.

R1&D1: This step involved studying works of literature relating to definitions, significance, characteristics or attributes, development guidelines, development processes, and assessment. The review of these areas of literature led to the creation of an online program for teachers' learning and students' adaptability skills development that consisted of 1) Teacher Learning Development Program, consisting of 6 sets of manuals for teachers' self-learning, and 2) Teachers' practical guide for student development.

R2&D2: At this step, the focused group discussion technique was used with 10 lecturers from Yasothon Theological Seminary which was a campus of Mahamakut Buddhist University but not the experimental area to be used in the real research. This step was to investigate the questions' manual glitches both in terms of clarity and usefulness of the content, appropriateness of the language used, the attractiveness of the content presented, etc.

R3&D3: At this step, a focused group discussion technique was applied with 15 lecturers, 8 from Lanchang Campus, and 7 from Lanna Campus. These participants were from other campuses of Mahamakut Buddhist University but were not the real experimental area. This process was to check for defects in the manual both in terms of clarity and usefulness of the content, the appropriateness of the language used, the attractiveness of content presentation, etc.

R4&D4: Study additional relevant literature to create 2 sets of research tools: 1) Teacher Knowledge Test, and 2) Student Adaptability Skills Assessment Form.

R5&D5: A Pre-experimental research trial was conducted on Mahamakut Buddhist University, Isan Campus that was an experimental area. The trial was done in the second semester of the academic year 2021 and divided into two phases.

Phase 1: Teachers' self-development. At this step, the experimental group of teachers conducted self-learning online via the teacher manual. The activities and the duration of the online learning were: 1) Explain details about the research to experimental groups' teachers and pre-test. This process took 2 days, 2) Teachers' online learning. This self-learning was without interruption from the researchers or other third parties, taking about 1 month, 3) Teachers' post-test and correcting the errors on the manual, taking about 2 days, and 4) Analyze the results, the teacher's post-test was compared

with the standard efficiency value of 90/90. Then the pre-test and post-test results were analyzed using t-test dependent, taking about 2 days.

Phase 2 Exploitation of self-study results. This stage involved using the teachers' skills obtained from online learning to develop the student's adaptability skills. The activities and their designated time are as follows: 1) Clarify the details of the research to the research participants and complete pre-testing on adaptability skills, taking 2 days; 2) Teachers who were in experimental groups used the learning outcomes to develop adaptability skills for students without intervention from the researchers or other people, taking 2 months, 3) The teachers from eh experimental group checked and corrected the manual errors and post-test, taking 2 days, and 4) Comparing the pre-test and post-test results using t-test dependent. with t-test dependent. This step took 2 days to be completed.

5.2. Research Tools

1. The Teacher's Learning Test: This test was multiple choice questions with 4 options, which was intended to test the teachers' learning outcomes before and after the experiment. The content of the test was based on the definitions, the importance, the characteristics, the development guidelines, and the assessment. The characteristics of the exam were based on the cognitive domain theory of Benjamin S. Bloom's The Revised Taxonomy (2001). The questions included in the test were designed to test the learners' adaptability skills ranging from lower-order thinking to higher thinking skills, which included remembering, understanding, applying, and analyzing, evaluating, and creating, respectively (Armstrong, 2010) was an online google form assessment that was assessed for quality:

1.1 Content Validity was tested using the Index of Item-Objective Congruence (IOC) of Rovinelli and Hambleton (1977). The analysis by the five experts, who were professors in the areas of Curriculum and Teaching, and Measurement and Evaluation showed that all test questions had an IOC value of more than 0.50 (Chaichanawirote & Vantum, 2017).

1.2 Trial test was conducted with 30 teachers from Mahamakut Buddhist University, Lanna Campus, and Roi-Et Campus, these people were not the targets in the real experiment. The result revealed that 1) All exam questions were tested with the index of difficulty between 0.20 to 0.80, and the power of discrimination between 0.20 to 1.00. 2) The KR-20, which represents the confidence coefficient, was rated at the level of 0.92, which was higher than the specified rate that had been set at 0.70 or higher, 3) The test difficulty was rated at 48.43, which was an appropriate range of difficulty score.

2. Students' Adaptability Skills Test Form: The test was a rating scale ranging from *the highest, high, moderate, low, and the lowest*. These questions were based on the characteristics or attributes of adaptability skills which were derived from the perspective of various scholars including: Alessandra (2016), Boss (2015), Chron Contributor (2020), Keating (2018), the University of Bradford (n.d.), and Whitehall (2018). The assessment of adaptability skills was based on the ideas of: Kane (2019), Brent et al. (2013), Workable (n.d.), the University of Alberta (n.d.), and Zorzie (2012). The tests were conducted using google form and the obtained data were used for the following validity inspections.

1.1 Content validity was examined using the Index of Item-Objective Congruence (IOC) of Rovinelli and Hambleton (1977). The analysis by the five experts, who were professors in the areas of Educational Administration, and Measurement and Evaluation fields. The results of the data analysis revealed that the IOC values of all questions were above the 0.50 threshold. It shows that the questions in the adaptability skills assessment of students used in this research can be applied to what they want to measure or meet the objectives that they want to measure (Chaichanawirote & Vantum, 2017).

1.2 Trial assessment was conducted with 30 students from Mahamakut Buddhist University, Roi-Et Campus which were a different group of participants in the real experiment. It was shown that the alpha coefficient of reliability of the entire questionnaire was 0.96. In an itemized analysis, the following dyads show the areas of the test contents and the scores they were rated for; Learning aspect, 0.79, self-actualization=0.76, Attitude: 0.85, Interpersonal relationship: 0.82. Problem-solving and decision making: 0.88, and Knowledge of special ability: 0.79. All of these alpha coefficients of confidences were higher than 0.70, thus indicating that this quality of student development assessment could be used properly in the experiment (UCLA: Statistical Consulting Group, 2016).

5.3. Data Analysis

1. The post-test scores of the teachers' learning outcomes match the standard criteria of 90/90, where the first 90 means the percentage of the mean scores of the whole group of teachers from the proficiency test. The latter 90 means the percentage of teachers who were able to pass the test according to all objective criteria (Yamkasikorn, 2008).
2. T-test-dependent analysis was used to compare the teachers' learning outcomes and the adaptability skills of the students in the pre-and post-test.

6. Results

The implementation of the R1&D1 research process resulted in the creation of an online program for teacher development to enhance students' adaptability skills. There were two projects, each consisting of the following manuals.

1. Project for the development of the teachers' learning: This project had 6 self-learning manuals, each reflecting the perspectives of the academics as described below.

1.1 Manuals for the study about the definitions of adaptability skills based on the perspectives of Cjones Skills Weekly (n.d.), Cleverism (n.d.), Esoft Skills Team (n.d.), Half (n.d.), Martin (2012), Oliver and Lievens (2014), Prince (2012), Reddy (n.d.), and Smith et al (n.d.).

1.2 Manuals for the study about the importance of adaptability skills based on the perspectives of Agrawal (2016), Collie and Martin (2016), ERM Academy (n.d.), Ferguson (2011), Half (n.d.), Reid (2018) The Conversation (2018), and Thurlings et al (2015).

1.3 Manuals for the study of the indicators of adaptability skills based on the perspectives of Alessandra (2016), Boss (2015), Chron Contributor (2020), Keating (2018), and the University of Bradford (n.d.), and Whitehall (2018).

1.4 Manuals for the study of the developmental guidelines of adaptability skills based on the perspectives of Baker (2014), Half (n.d.), Leading Effectively Staff (2021), Life Simplified (n.d.), Oyster Connect (2019), Prince (2019), Reddy (n.d.) Vanderbloemen (n.d.), and Williams (2017).

1.5 Manuals for the study of the model for the development of adaptability skills based on the perspectives of Berger and Johnston (2015), David (2019), J-Pierre (2019), and Newell (2016)

1.6 Manuals for the assessment of adaptability skills based on the perspectives of Kane (2019), Brent et al (2013), Workable (n.d.), the University of Alberta (n.d.), and Zorzie (2012).

2. Students' Learning Development Project: The key elements included in the manual of this project were; 1) Characteristics of adaptability skills expected from the students, 2) Guidelines for adaptability skills development, and 3) Steps to the development of adaptability skills. At the end of the handbook, there is a teacher's self-assessment on how to apply suggestions from each of the above guidelines to actual teaching. The last section of the manual was about the teachers' reflections on the strengths and weaknesses of the manuals and the areas of the models that teachers thought should be improved.

The completion of R2&D2 to R5&D5 resulted in a teacher's learning guide and a manual for knowledge implication to develop the students' adaptability skills. The websites given below are the links to the teacher's learning outcome test and the student's adaptability assessment form (note: originally written in Thai).

1) Link for teachers' self-study manual https://bit.ly/3unT7gO
2) Link for the evaluation form for the teachers' choices of student development https://bit.ly/3NK2K0a
3) Link for the Teachers' learning summative test https://bit.ly/3aefj6l
4) Link for the students' adaptability skills evaluation form https://bit.ly/3P4oKEk
   (For the English version, please see the appendix sections)

The research tools such as manuals, tests, and assessments obtained from the completion of the R2&D2 to R5&D5 phases were placed on experimental research. The pre-experiment research involved using one group pretest-posttest design with the samples from the experimental area, Mahamakut Buddhist University, Isan Campus. The participants were 15 full-time teachers drawn equally from the Thai Teaching program, English Teaching program. and Social Studies program. A total of 324 students were recruited from the three programs, each with a number of 90, 171, and 63 students, respectively.

The research results were under the set assumptions. The online program for the teacher's development to enhance students' adaptability skills consisted of 2 projects: (1) Project for Teachers' Learning Development, equipped with 6 sets of learning manuals, and (2) Project for knowledge implication for student development, equipped with 1 workshop manual. These interventions matched the specified criteria. Therefore, they can be disseminated for the benefit of the target population which are the teachers and students in the fields of Thai Teaching program, English Teaching program. and Social Studies program at the main campus of Mahamakut Buddhist University and its other campuses across the country.

1. The post-test score of the instructors in the experimental group met the standard of 90/90. The first 90 standard criteria show the percentage of the mean scores of the post-test. it was found that the average post-test score was 33.47 out of the total point of 36 (92.96%), which is higher than the specified threshold of 90 percent. The latter 90 in the above dyad represents the percentage of instructors who can pass the test through all objectives. It was found that 94.44 percent of the 15 teachers were able to pass the test through all objectives, the number is higher than the specified threshold of 90 percent.
2. The results from the pre-development test of 15 teachers showed a mean of 29.47, S.D. of 2.20, while the scores for the post-development test were presented with a mean of 33.47, S.D. of 1.13. The t-test-dependent analysis showed that the teachers' mean score after development was higher than before development with the significance at the level of 0.05 (t value = 7.483, $p > 0.05$).
3. The results from the adaptability skills assessment of 324 students before development were shown with the mean value of 3.59, S.D. of 0.27, while the score tested after the experiment was with the mean of 4.08, S.D. of 0.24. When analyzing the t-test dependent, it was found that the students' mean after development was higher than before development with the significance at the level of 0.05 (t value = 42.830, $p > 0.05$).

7. Discussion

Table 1 presents various systematic viewpoints and alternative proposals for teacher learning and knowledge implementation. The researchers regarded the "development guidelines," from the perspective of; Baker's view (2014), Half (n.d.), Leading Effectively Staff (2021), Life Simplified (n.d.), Oyster Connect (2019), Prince (2019), Reddy (n.d.) Vanderbloemen (n.d.), and Williams (2017). The combination of the suggestions from the above scholars resulted in a collection of more than 50 suggestions. The results of the frequency analysis of the teacher's self-assessment questionnaire showed that the teachers had applied "principles/concepts/techniques/methods/ activities" to develop the students' adaptive skills at the moderate to the highest level while few cases were reported to have applied at a low level. The first 10 propositions that were most applied to the students' adaptability development were; 1) Getting aligned with, 2) Accepting, 3) Being flexible, 4) Learning from others, 5) Embracing, 6) Learning, 7) Quitting following the rules, 8) Volunteering, 9) Being receptive, and 10) Considering a wide variety of perspectives, respectively.

The researcher presented the "Model of Development Process," based on the viewpoint of Berger and Johnston (2015), David (2019), J-Pierre (2019), and Newell (2016). The analysis of the frequency distribution of the instructors' Self-assessment on how to apply those suggestions to students showed that one of two of the instructors had applied all of the suggestions in the model for the student's development. This showed that the professors in the experimental group each had their own independent decision on the implication of the model. But it was noted that no teacher had adapted the concepts of the given perspectives when exploiting them with their students. This may be because each of the perspectives given in the model had different concepts that cannot be applied together.

Simply, it may be because the teacher found it more convenient to choose one viewpoint rather than having to interact with it with many other points of view.

The pieces of perspectives and suggestions that were included in the model and the processes of this research were selected from well-known authors and, most importantly, these data are available on the internet. This proves that the internet can be a good source of learning as a saying goes, "*The Internet Is Knowledge and Knowledge Is Power"* (Bolutife, 2019). Some research addressed the use of the internet among the higher education student that "learning, especially in the context of higher education, means creating, storing, sharing and using knowledge in a complex way, both for personal and societal benefits." Therefore, knowledge management is possible both at home and in universities. Students are in favor of the Internet and integrating it into their studies and research to increase their knowledge, not just to communicate with peers. However, a study that involved the behaviors of the use of the internet among students all over the world suggested that the Internet facilitates learning and the spread of information. However, at the present, the internet is not efficiently used. The internet is not only an efficient tool that helps learners acquire knowledge but also the creation of valuable knowledge (Florina, Alexandra, & Lucian (2014).

These aforementioned values of the internet confirm the usefulness of developing the "online program for teacher development to enhance students' adaptability skills." Based on the R&D methodology, the researchers focused on studying literature related to adaptability skills. For this purpose, a large number of perspectives were obtained from the Internet and used systematically in this research, which resulted in the creation of proper manuals that were used for the development of both the teachers and the learners.

8. Suggestions

The knowledge presented on the internet is up to date and splendid as presented in Aydemira, Benzerb, Karahanc, and Akmençed (2013), and Essential Education (2019). This scholar agrees that the internet allows unlimited access to information which is the main advantage for both teachers and students in their in-depth study of their class contents. To obtain more data, internet users should learn to use other search engines in addition to the regular google search. The alternative search engines include; Academic Search Engines such as Google Scholar, Microsoft Academic, Educational Resources Information Center, ResearchGate, Bielefeld Academic Search Engine, Connecting Repositories, and Semantic Scholar (Post University, 2020)

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Appendix

The student's Adaptability Skills Self-Assessment Form.

Characteristics or indicators of adaptability skills	Levels of opinion				
	5	4	3	2	1
Learning					
1) I tell myself to keep learning.					
2) I enjoy the new method of learning at the university.					
3) I like to learn something new before other friends.					
4) I continually learn some new skills to prepare for a job.					
5) I can quickly imagine things based on my existing knowledge.					
6) I read the passage to prepare for the class.					
Self-Actualization					
7) I am proud of myself.					
8) I know what is important to me and I based my decision on good reasons.					
9) I have a clear and meaningful vision of my life.					
10) I know that life is about change and it sometimes does not follow our wishes.					
11) I know how to regain my confidence after having lost it.					
12) I can identify my weak points when working with others.					
Attitude					
13) Usually, I live my life in a good way.					
14) I believe that there will always be a solution to the problem.					
15) I have a good sense of humor and I can still laugh when having a problem.					
16) I understand that new experiences and learning make me grow up.					
17) I do not waste time sitting on things that are out of my control.					
18) Failure gives me chance to create innovation.					
Interpersonal Relationship					
19) I am open to connecting with other people.					
20) I know that flexibility is important when contracting with others.					
21) I know what other people are thinking.					
22) I based my interaction with others on trust.					
23) I adjust myself when having to be with other people.					
24) I accept new members and the team’s ways of working.					
Problem-solving and decision making					
25) I learn new methods for problem-solving.					
26) Students usually have different problem-solving methods.					
27) I can manage myself and prioritize things even under depression.					
28) I have my way to manage changes and deal with the unexpected.					
29) I can control my emotion when facing some depression.					
30) I can gather resources under depressing or new situations.					
Knowledge about Talents					
31) I can talk freely about my gift and talent.					
32) I know the skills that I will need for my future job.					
33) I know what other people in the university are expecting from me.					
34) I know what my skills level is when compared to peers and the university.					
35) I know which perspectives of behaviors are proper to perform in the university.					
36) I never stop with one success but keep on finding other successes proactively.					

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Recognizing a New Environmental Education Phenomenon with Science Mapping Techniques: Eco-Anxiety

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Abstract
As awareness of global warming and ecological deterioration increases, the phenomenon of "eco-anxiety," which is a result of the negative effects of ecological crises on human mental health, has begun to take more place in our lives. Ecological problems disproportionately affect children, who are more susceptible to the economic, social, and health problems caused by the environmental crisis. For this reason, environmental educators, who have an active role in coping with eco-anxiety, need to know this phenomenon better. At the same time, research in the field of education on eco-anxiety is very important as it will reveal the points to be considered and the steps to be taken in the environmental education processes. This study aims to present a simple and understandable roadmap to those who want to research the concept of eco-anxiety, which is still very new but still popular. In this direction, books, scientific publications, and internet resources dealing with the concept of eco-anxiety were analyzed, and the findings were presented using visual and scientific mapping methods.

Keywords: Eco-Anxiety, Scientific Mapping, Visual Mapping, Environmental Education, Climate Change

1. Introduction

It is known that people start to show some signs of fear and anxiety due to the news about environmental problems in daily life (Taylor & Murray, 2020). Today, this phenomenon is known as “eco-anxiety.” The concept of eco-anxiety explains a general phenomenon that includes anxiety about the ecological crisis. Studies emphasize that eco-anxiety is a comprehensive phenomenon that should be considered as an inseparable whole with many ecological emotions, and psychosocial and mental processes (Pihkala, 2020).

The problems caused by ecological crises play a major role in the development of eco-anxiety. Eco-anxiety may be experienced as much more than a mild concern for some people, as ecological problems often cause health problems, economic problems such as unemployment problems, and sometimes social problems related to injustice (Hrabok, Delorme & Agyapong, 2020).

The phenomenon of eco-anxiety is a concept that is just beginning to be understood but is also popular. Public opinion surveys reveal that eco-anxiety is not well-known as a concept, but the concerns it contains are known by

many people (Sitra, 2019). It can be said that the interest and studies on the concept of eco-anxiety have increased considerably recently (Jensen, 2019; Clayton, 2020). However, this increase is still insufficient considering the frequency and importance of the issue in public opinion, so much more data and research on the phenomenon of eco-anxiety is needed.

It is possible to come across studies examining the effects of eco-anxiety and climate change on human health. The common aspect of these studies is the anxiety problems caused by the environmental crisis. Eco-anxiety, which was first studied by psychologists, started to be the subject of multidisciplinary research over time, and with its increasing popularity, it has also been studied by eco-psychologists, eco-therapists, and sociologists, anthropologists, and ethnographers (Connor, 2016; Lockie, 2016). However, studies in the field of educational research and environmental education are quite limited.

Children are the most sensitive group to economic, social, and health-related problems caused by environmental damage caused by climate change. Children will inherit not only this nature but also possible ecological crises within this whole system (Whitehouse, 2013). For this reason, environmental educators need to be well acquainted with many possible eco-anxiety processes to better understand their own and their student's experiences.

When people care too much about climate change but feel there is nothing they can do to prevent it, they may begin to avoid it as a psychological defense. In such cases, environmental education is perhaps the best helper that people can benefit from against ecological crises and the problems they cause (Manning & Clayton, 2018). Therefore, environmental educators have important duties. Above all, environmental educators need to understand what kind of phenomenon they are dealing with when confronted with eco-anxiety and other forms of ecological emotion.

The fact that many terms are used in studies conducted in different fields regarding the concept of eco-anxiety further complicates the concept. It is thought that new research that will help clarify the concept and new multidisciplinary studies that will provide more information about the processes can clear many confusions in this sense.

The size and complexity of the current literature on a concept can make it difficult for readers. The huge amount of scientific knowledge available can sometimes intimidate researchers. Bibliometric analysis studies, on the other hand, will help to make an effective and systematic reading on a subject in a short time. Because such studies reveal the characteristics, changes, and developments of scientific products made for the research area examined with a clear projection.

Bibliometric studies prepared by using science mapping techniques have the feature of a guide prepared with the help of visual maps for authors who plan to conduct academic studies on certain disciplines, subjects, or concepts. Researchers can access information such as the most cited studies on the subject, the most productive authors, the most cooperating institutions and countries, and which academic journals should be followed most, most shortly. Bibliometric analysis studies are very valuable not only for academics and readers working in the relevant field but also for policymakers, universities, and institutions that make strategic plans on that subject. It is very important to support bibliometric analyzes with simple tables and correct visuals to be more understandable. This research aims to present a bibliometric analysis of academic studies dealing with the concept of eco-anxiety, using scientific mapping techniques and visual elements.

Eco-anxiety poses some challenges in terms of environmental education. To overcome these negativities, some preventive updates are needed in the curriculum. Environmental educators need to be aware of the anxiety about ecological problems and the many possible mental states and emotions that may develop in children (Pihkala, 2020). Since ecological concerns have the potential to be transferred from teachers to students, eco-anxiety is a phenomenon that should be handled carefully in environmental education processes. Especially in the field of environmental education, much more scientific research is needed to determine the factors that cause eco-anxiety in students and teachers, to have more information about the phenomenon, and to make more concrete suggestions.

When the literature is examined, no empirical research has been found that investigates how educators perceive eco-anxiety in students, what strategies they apply to respond to it, or how effective these strategies are. In addition, the number of other eco-anxiety studies conducted within the scope of environmental education is quite limited. In this context, it is thought that this study is valuable in terms of being a simple and understandable aid to researchers in future studies on the concept of eco-anxiety, a new but trendy concept.

2. Method

In this research, the science mapping method and the visual mapping technique, which is one of the techniques used in this method, were used. There are many software and websites that provide the visual and scientific mapping. These software and online tools, on the other hand, need the information from scientific databases to analyze (Chen, 2017). In this study, Web of Science was used as a database, CiteSpace and Excel as software, Google Ngram Viewer, Carrot2 Clustering, and WordCloud Generator were used as online tools.

First, the analysis of the books scanned in the Google search engine was made. Ngram Viewer, provided by Google, is a platform that presents the frequencies of the books published on a subject over the years with the help of graphs. The software is limited to the books Google scanned through 2019. This online graphical tool gives the number of books containing a keyword in chronological order (Sparavigna & Marazzato, 2015; Roth, 2016).

Published scientific articles, as well as printed books, provide important data to researchers when performing bibliometric analysis. Scientific databases are the easiest and fastest way to access these resources. After the related books were scanned, in the second stage of the research, the word "eco-anxiety" was scanned in Web of Science, one of the databases that scan high-quality scientific publications, and 72 scientific publications containing this concept were identified. Then, a data set was created by downloading the imprint information of these publications. Using these data, findings regarding the type, index, category, research areas, author, country, journal, keyword, and citation information of the publications were obtained. These findings were presented using tables, bar charts, treemap charts, cartograms, and word cloud visualization techniques.

In the third and last part of the findings, Carrot^2 online software was used to analyze the internet resources that include the word "eco-anxiety." Carrot², which can scan texts and small document collections on websites and cluster the results according to their relationships, is an open-source clustering engine that offers visualization in the form of foam tree maps (Carrot2 Clustering, 2022).

3. Results

In this section, the findings related to the books used in the research, scientific publications obtained from the web of science database, and internet resources will be presented with the help of some visual and scientific mapping techniques.

3.1. Findings on printed books

The word "eco-anxiety" was scanned in the Google Ngram Viewer, which is an auxiliary tool for bibliometric studies, and the findings are given in Figure 1. Accordingly, it is seen that the concept of eco-anxiety has become very popular in recent years and has begun to take place more in books.

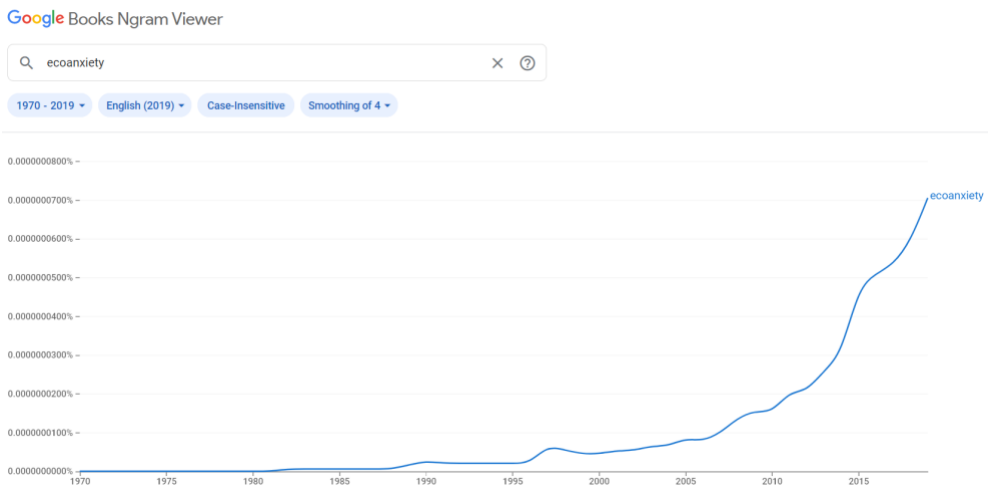

Figure 1: Number of books on eco-anxiety by years (Google Ngram Viewer)

3.2. Findings on Web of Science publications

The word "eco-anxiety" was scanned on the Web of Science and scientific publications containing this concept were identified. First of all, the distribution of the related publications by years was examined. The obtained results are presented in Figure 2. Accordingly, the frequency of using the concept of eco-anxiety in scientific publications, just like in printed books, has increased considerably in recent years. Most of the studies dealing with the concept of eco-anxiety have been conducted after 2020. According to these findings, it can be said that the concept has high popularity in scientific studies.

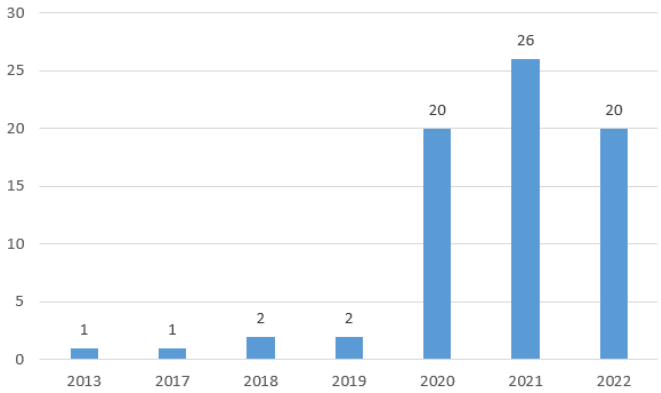

Figure 2: Number of publications on eco-anxiety by years (Web of Science)

In the search mode in the Web of Science database, 72 scientific publications dealing with the concept of eco-anxiety were identified. 71 of these studies were written in English and 1 in French. Document types of publications are given in Figure 3.

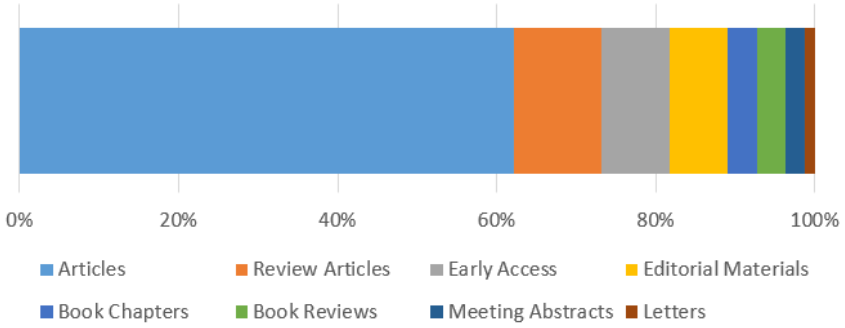

Figure 3: Eco-anxiety publications' document types

It can be said that most of the 72 identified scientific publications are articles. In the study, the indexes in which the publications dealing with the concept of eco-anxiety were scanned were also determined and given in Table 1. It has been observed that some publications are scanned in more than one index at the same time.

Table 1: Number of publications on eco-anxiety by indexes

Web of Science Index	Record Count
Social Sciences Citation Index (SSCI)	45
Science Citation Index Expanded (SCI-EXPANDED)	29
Emerging Sources Citation Index (ESCI)	14
Arts & Humanities Citation Index (A&HCI)	8
Book Citation Index – Social Sciences & Humanities (BKCI-SSH)	3
Conference Proceedings Citation Index – Science (CPCI-S)	2
Book Citation Index – Science (BKCI-S)	1

When Table 1 is examined, it is seen that most of the identified publications were published in journals scanned by the Social Sciences Citation Index and Science Citation Index Expanded. Web of Science also classifies publications according to categories and research areas. A scientific publication can be in more than one category and research area at the same time. The Web of Science categories of the publications identified in the research was visualized with the treemap chart and presented in Figure 4.

Figure 4: Number of publications on eco-anxiety by categories

It has been found that in the publications related to eco-anxiety, a total of 31 different categories have been studied. The most studied categories are environmental sciences (15 publications), psychology multidisciplinary (13 publications), religion (11 publications), psychiatry (10 publications), environmental studies (9 publications), pediatrics (9 publications), public environmental occupational health (9 publications) However, it is seen that the category of educational research (3 publications) is not among the top 10 categories with the most publications. On the other hand, the research areas of the articles were also examined and the findings were shared in Figure 5 with treemap chart visualization.

Figure 5: Number of publications on eco-anxiety by research areas

It has been concluded that publications on eco-anxiety have been studied in 23 different research areas. The most widely published fields of study are psychology (24 publications), environmental sciences ecology (18 publications), religion (11 publications), psychiatry (10 publications), pediatrics (9 publications), and public environmental occupational health (9 publications). Similarly, there are only 3 articles in the field of educational research. When examined from this aspect, it can be said that the number of articles on educational research dealing with the concept of eco-anxiety is limited.

3.2.1. Findings on top-publishing authors

The authors who mostly discussed the concept of eco-anxiety in their studies were identified with the CiteSpace software, and the top 5 authors who made the most publications on the concept of eco-anxiety are given in Table 2.

Table 2: Top 5 authors with the most publications on eco-anxiety

Authors	**Record Count**
Panu Pihkala	8
Charles Ogunbode	3
Navjot Bhullar	2
Marc Eric S Reyes	2
Claire Henderson-Wilson	2

72 publications examined within the scope of the research were produced by 181 different authors. When Table 2 is examined, it is seen that the most popular author is Panu Pihkala (8 publications), who conducts research in the field of environmental theology. Other popular authors are Charles Ogunbode (3 publications), Navjot Bhullar (2 publications), Marc Eric S Reyes (2 publications), and Claire Henderson-Wilson (2 publications). Four other popular authors are researchers in psychology and health. From this point of view, it is possible to say that educational researchers are not among the most popular authors in the field of eco-anxiety.

3.2.2. Findings on authors' countries

The countries of the authors of the publications used in the research have been analyzed. Accordingly, it has been determined that the articles dealing with the concepts of eco-anxiety were prepared by researchers from 37 different countries. In Figure 6, the countries of the authors have been shown on the world map with the cartogram visualization technique.

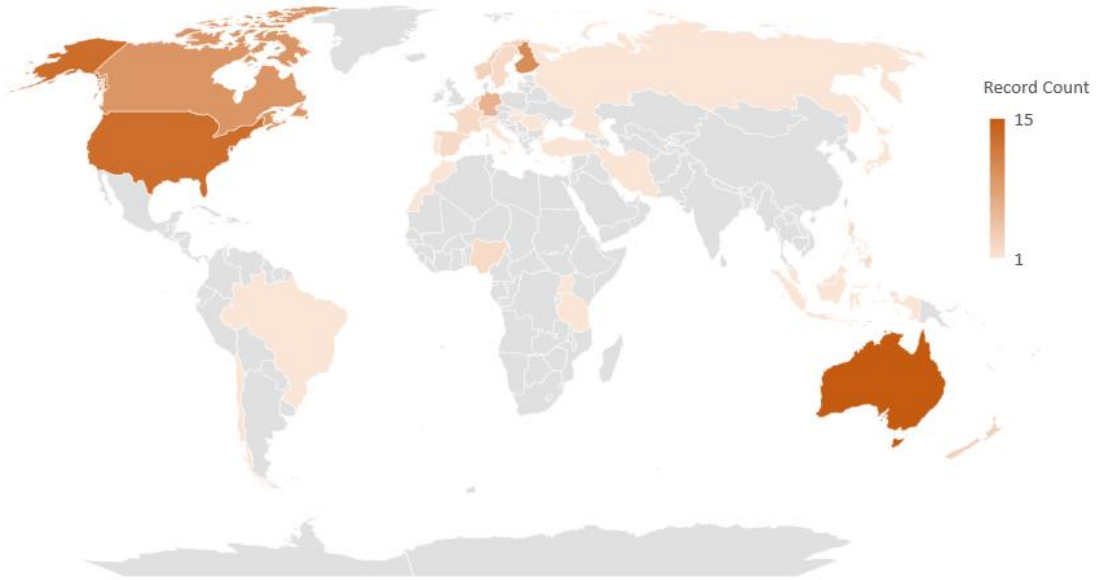

Figure 6: The countries of the authors of the publications

The countries of the authors that have published the largest number of articles addressing the concept of eco-anxiety are listed as follows: Australia (15 publications), the USA (13 publications), England (10 publications), Finland (10 publications), Canada (9 publications), Germany (6 publications). It can be said that the articles dealing with the concept of eco-anxiety were mostly published by authors from the Americas and then from the European continent.

3.2.3. Findings on top-publishing journals

The journals in which the most published scientific publications dealing with the concept of eco-anxiety were determined and given in Table 3.

Table 3: Top 5 journals with the most publications on eco-anxiety

Publication Titles	**Record Count**
International Journal of Environmental Research and Public Health	7
Religions	5
Child and Adolescent Mental Health	4
Journal of the American Academy of Child and Adolescent Psychiatry	4
Sustainability	3

It was observed that the studies identified within the scope of the research were published in 53 different journals. It was concluded that the ones that published the most among these were the journals in the fields of health, child, environmental research, religions, and psychiatry. It is possible to say that there is no journal within the scope of educational research among the popular journals in the field of eco-anxiety.

3.2.4. Findings from the most cited articles

Within the scope of the research, the 10 most cited articles from the publications containing the concept of eco-anxiety were determined with the CiteSpace software. The authors, names, journals, and citations of the articles are given in Table 4.

Table 4: Top 10 most cited articles

Authors	**Years**	**Articles**	**Journals**	**Citations**
Clayton, S. Manning, C. Krygsman, K.	2017	Mental health and our changing climate: Impacts, implications, and guidance	Washington, DC: American Psychological	24

Speiser, M.			Association and ecoAmerica	
Cunsolo, A. Ellis, N. R.	2018	Ecological grief as a mental health response to climate change-related loss	Nature Climate Change	23
Pihkala, P.	2018	Eco-anxiety, tragedy, and hope: Psychological and spiritual dimensions of climate change	Zygon	21
Clayton, S.	2020	Climate anxiety: Psychological responses to climate change	Journal of Anxiety Disorders	19
Clayton, S. Karazsia, B. T.	2020	Development and validation of a measure of climate change anxiety	Journal of Environmental Psychology	19
Pihkala, P.	2020	Anxiety and the ecological crisis: An analysis of eco-anxiety and climate anxiety	Sustainability	19
Hayes, K. Blashki, G. Wiseman, J. Burke, S. Reifels, L.	2018	Climate change and mental health: Risks, impacts and priority actions	International Journal of Mental Health Systems	12
Cunsolo, A., Harper, S. L. Minor, K. Hayes, K. Williams, K. G. Howard, C.	2020	Ecological grief and anxiety: the start of a healthy response to climate change?	The Lancet Planetary Health	11
Burke, S. E. Sanson, A. V. Van Hoorn, J.	2018	The psychological effects of climate change on children	Current Psychiatry Reports	11
Usher, K. Durkin, J. Bhullar, N.	2019	Eco-anxiety: How thinking about climate change-related environmental decline is affecting our mental health	International Journal of Mental Health Nursing	9

When Table 4 is examined, it is seen that the most cited publication is related to climate change and mental health issues. The most popular articles were published between 2017-2020. From this point of view, it can be said that the word eco-anxiety appears as a very new concept in the literature. The most cited authors were Susan Clayton (62 cites), Panu Pihkala (40 cites), and Ashlee Cunsolo (34 cites).

3.2.5. Findings on the most used keywords in publications

The keywords of the articles addressing the concept of eco-anxiety were analyzed and the 50 most used keywords were visualized with the word cloud technique and presented in Figure 7.

Figure 7: Word cloud of 50 most used keywords in publications

It was determined that a total of 202 different keywords were used in 72 publications used in the research. A word cloud was created with the first 50 most used words from these words. The most prominent keywords are as follows: climate-change (11), grief (8), ecological (7), impacts (5), health (5), eco-anxiety (5), and anxiety (5).

3.3. Findings on Internet resources

The contents in which the concept of eco-anxiety is mentioned in internet resources were analyzed with Carrot2 software and the results are shared in Figure 8.

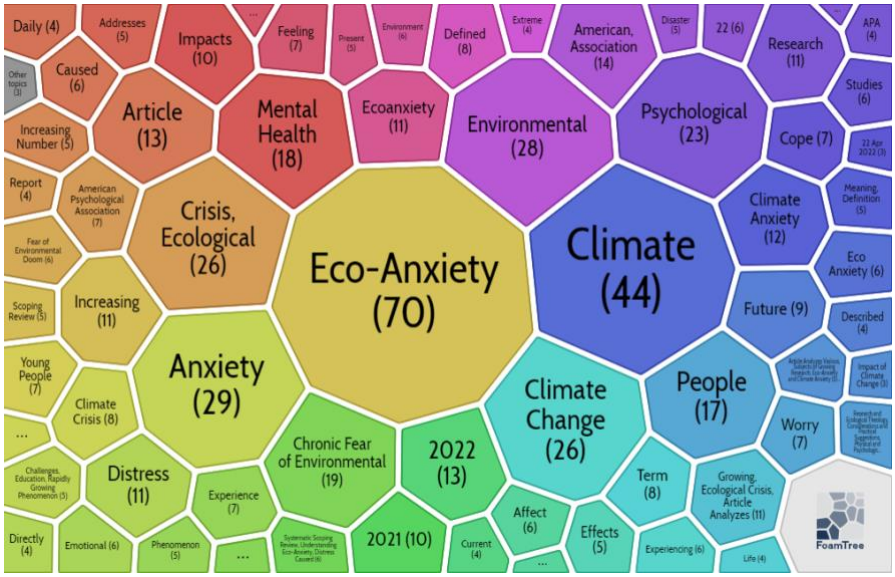

Figure 8: Foam tree map for clusters of internet resources

When the resulting foam tree map is examined, the main cluster (70 docs) consists of documents that include the concept of eco-anxiety in internet resources, and the largest clusters closely related to it are listed as follows: climate (44 docs), anxiety (29 docs), environmental (28 docs), climate change (26 docs), crisis-ecological (26 docs), psychological (23 docs).

4. Discussion and Conclusion

The phenomenon of eco-anxiety creates some difficulties in environmental education processes. For this reason, it is important for educators and academics to know well the eco-anxiety situations that develop in individuals due to environmental problems and to know how to approach individuals who experience this problem in environmental education processes. For this, much more research and new information about the phenomenon of eco-anxiety are needed.

Exploring the relationships that develop between learning and the phenomenon of eco-anxiety is very valuable in terms of environmental education. However, when the literature is examined, it is seen that the number of educational researchers is very low among the studies dealing with the issue of eco-anxiety. There is an urgent need for more scientific studies on this subject both in terms of teacher training processes and to provide a more effective environmental education.

This study was carried out to provide convenience and to save time for researchers who are interested in the phenomenon of eco-anxiety before they conduct new studies. In this context, a summary map of eco-anxiety studies was created from the findings obtained and shared in Table 5 to be a guide for future research.

Table 5: The summary map of eco-anxiety phenomenon studies

	1	2	3	4	5
Research categories	environmental sciences	psychology multidisciplinary	religion	psychiatry	environmental studies
research areas	psychology	environmental sciences ecology	religion	psychiatry	pediatrics
Authors	Panu Pihkala	Charles Ogunbode	Navjot Bhullar	Marc Eric S Reyes	Claire Henderson-Wilson
Countries	Australia	USA	England	Finland	Canada
Journals	International Journal of Environmental Research and Public Health	Religions	Child and Adolescent Mental Health	Journal of the American Academy of Child and Adolescent Psychiatry	Sustainability
Articles	Mental health and our changing climate: Impacts, implications, and guidance	Ecological grief as a mental health response to climate change-related loss	Eco-anxiety, tragedy, and hope: Psychological and spiritual dimensions of climate change	Climate anxiety: Psychological responses to climate change	Development and validation of a measure of climate change anxiety
Keywords	climate change	grief	ecological	impacts	health
Clusters	climate	anxiety	environmental	climate change	ecological crisis

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Stress Sources of Hockey Referees and the Emotion-Centered Approaches that they Use to Cope*

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Abstract
The aim of this study is to examine the stress sources of hockey referees and the emotion-centered approaches that they use to cope with these stress sources according to demographic characteristics. For this purpose, 69 of the 150 hockey referees who were active in the 2021-2022 Indoor Season constituted the sample of the study. The data of the study were collected by adapting the items of the Stress Scale developed by Erdem (2015) for wrestling referees to hockey referees. Descriptive statistics and non-parametric tests were used in the analysis. The findings showed that according to averages; hockey referees think "wrong decision" as the most, and as for ranking; "verbal attack by the coach," "verbal attack by the players," "verbal attack by the spectators," "threat of physical attack by others" and "attempt by the referees higher category than you to influence your decisions during the competition" as sources of stress; it points out that they use a "positive cognitive approach" as a coping method. However, stress sources are by gender and referee category; methods of coping with stress also differ according to age, marital status and refereeing category. As a result, it is possible to say that hockey referees use positive cognitive approach to cope with wrong decision-making, the threat of physical and verbal attacks and performance concerns that stress them; the refereeing category is both a source of stress and a determining demographic variable in coping with stress.

Keywords: Coping with Stress, Emotion-Centered Approaches, Hockey, Referee, Sources of Stress

1. Introduction

In daily and business life, many events and situations are encountered that push people to stress. This event that causes stress and the reactions given to the situations are important in order to get rid of the negativities that stress may create and cope with stress. Stress is also inherent in sports, especially where competition is high, and affects actors who share the environment.

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According to Mason (1975), stress is the response of the organism to an internal situation (stress), to an external event (stressor) or a reaction to experience resulting from the process between a person and the environment (as cited in Aldwin, 2007). Stress causes a negative emotional response which can include cognitive, behavioral, physiological, and biochemical changes in order to change the situation that creates stress or adapt to its effects (Williams et al., 2018). Situations and events that are the source of stress and push people to stress cause negativity as mental health, performance, satisfaction, attention, various diseases, disabilities, etc. (Voight, 2009). It is also an influential element in psychological well-being in the sports environment (Didymus et al., 2021a). Although there are many sources of stress, individual, competitive and organizational factors are generally emphasized in the sports literature (Didymus et al., 2021b). Fear of physical harm by players, coaches, spectators, and fear of failure and appearing inadequate can be given as examples of these factors (Dorsch & Paskevich, 2007).

Coping with stressful events consists of learned behavioral responses that successfully reduce stress by limiting the importance of dangerous or unpleasant situations. The ability to cope with stressful events during sports events is an integral part of successful performance (Anshel & Anderson, 2002). According to Lazarus and Folkman (1984), coping is a dynamic process of cognitive and behavioral interventions to deal with internal or external demands that challenge or exceed an individual's resources (Bathla & Yadav, 2017). In the literature, many methods and approaches to cope with stress are mentioned. One of them is emotion-centered approaches. In the approach; the focus is on using thoughts or emotions to feel better when performing the task (Anshel & Weinberg, 1996). There is an emotional regulation or reconsideration of the stressful situation (Ekmekçi, 2008). It includes positive cognitive approach, negative cognitive approach and behavioral approach. These refer to positive thoughts and continuing the task, not continuing the task due to negative thoughts, and behavioral responses to the source of stress (Erdem, 2015).

Refereeing is one of the most challenging and laborious tasks within the field of sports (Diotaiuti et al., 2017) and a key position in sports organizations (Martínez-Moreno et al., 2021). They are responsible for managing the game well and ensuring fair play (Werger, 2017). This depends on the decisions to be made are fast and accurate; hence it is stressful. Stress can affect concentration and focus; the best performance is not possible without them (Bayston, 2011). Referees who also have the best performances are also indicated to have a great ability to cope with stress (Blumenstein & Orbach, 2014). For this reason, it is considered important to determine the methods of coping with stress in order to eliminate the stress sources and negativities that may have a negative effect on the good performance of the referees and it is thought that they can contribute to the refereeing literature. Based on this idea; referees in hockey, one of the most popular sports in many countries and one of the olympic sports, were discussed.

This research aimed to examine the hockey referees' stress sources and the emotion-centered approaches they use to cope with these stress sources according to demographic characteristics. In this direction, the following questions were answered:

- What are the stress sources for hockey referees?
- What is the importance ranking of the hockey referees' stress sources?
- What are the hockey referees' emotion-centered approaches that they use to cope with stress sources?
- Do hockey referees' stress sources and emotion-centered approaches they use to cope with differ according to gender?
- Do hockey referees' stress sources and emotion-centered approaches they use to cope with differ according to marital status?
- Do hockey referees' stress sources and emotion-centered approaches they use to cope with differ according to age?
- Do hockey referees' stress sources and the emotion-centered approaches they use to cope with differ according to the refereeing category?
- Do hockey referees' stress sources and the emotion-centered approaches they use to cope with differ according to the refereeing year?

2. Method

69 of the 150 hockey referees active in the 2021-2022 Indoor Season constituted research sample which was designed as descriptive and quantitatively.

Demographic characteristics of the referees are shown in Table 1.

Table 1: Demographic Characteristics of Hockey Referees

Variables		N	f	%
Gender	Female	16	16	23.2
	Male	53	53	76.8
Age Range	18-22 years	10	10	14.5
	23-27 years	16	16	23.2
	28-32 years	11	11	15.9
	33 and over	32	32	46.4
Marital Status	Married	38	38	55.1
	Single	31	31	44.9
Refereeing Category	Candidate Referee	14	14	20.3
	Provincial Referee	40	40	58.0
	National Referee	8	8	11.6
	International Referee	7	7	10.1
Refereeing Year	1-3 years	43	43	62.3
	4-6 years	17	17	24.6
	7-9 years	7	7	10.1
	10 years and over	2	2	2.9
	Total	69	69	100

The data of the study were obtained through Google Forms between 23-25 December 2021. As a data collection tool, a personal information form and a version of several items adapted to hockey referees of Stress Scale which was developed by Erdem (2015) for wrestling referees were used. In the first part of the Stress Scale, which consists of two parts, 20 items are aimed at the stress sources of the referees; in the second part, there are 16 items on methods of coping with stress. The sub-dimensions of stress sources; the threat of physical and verbal attack (4 items), the presence of others (5 items), performance concern (5 items), wrong decision (3 items) and error in mechanics (3 items) are evaluated in the 5-point likert type as 1=Not Stressful at all, 5=Extremely Stressful. Methods of coping with stress consist of the sub-dimensions of positive cognitive approach (9 items), negative cognitive approach (4 items) and behavioral approach (3 items) and are evaluated in the 5-point likert type as 1=Never, 5=Always. Internal consistency coefficients of the scale in stress sources sub-dimensions are .758 for the threat of physical and verbal attack, .741 for the presence of others, .736 for performance concern, .750 for wrong decision, .672 for error in mechanics, in sub-dimensions of stress coping methods are .787 for positive cognitive approach, .726 for the negative cognitive approach and .655 for the behavioral approach (Erdem, 2015). The cronbach alpha values in this research are; α (threat of physical and verbal attack) = .797, α (presence of others) = .746, α (performance concern) = .784, α (wrong decision) = .796, α (error in mechanics) = .700, α (positive cognitive approach) = .830, α (negative cognitive approach) = .833 ve α (behavioral approach) = .702. In the analysis of the data; due to descriptive statistics and lack of normal distribution of data, Mann Whitney-U tests were used in bilateral comparisons from non-parametric tests, Kruskal Wallis H tests were used in more than two comparisons and manual Mann Whitney-U tests were used to determine the source of the difference.

3. Results

The findings of the study are presented in the form of tables below:

Table 2: Stress Sources of Hockey Referees According to Sub-Dimensions

Sub-Dimensions	N	$\bar{X}$	SD	Min.	Max.
The Threat of Physical and Verbal Attack	69	1.99	.80083	1.00	4.00
The Presence of Others	69	2.04	.78311	1.00	4.60
Performance Concern	69	1.77	.74198	1.00	4.00
Wrong Decision	69	2.29	.90075	1.00	4.67
Error in Mechanics	69	2.10	.93777	1.00	5.00

In Table 2, the stress sources of the hockey referees participating in the study according to the sub-dimensions are given. Accordingly; in order of, wrong decision ($\bar{X}$ = 2.29), error in mechanics ($\bar{X}$ = 2.10), the presence of others ($\bar{X}$ = 2.04), the threat of physical and verbal attack ($\bar{X}$ = 1.99) and performance concern ($\bar{X}$ = 1.77) sub-dimensions are seen to be a source of stress.

Table 3: Importance Ranking of Stress Sources of Hockey Referees

Stress Sources	1. Importance	2. Importance	3. Importance	4. Importance	5. Importance	Ranking
Verbal attack by the coach	19	12	5	8	8	**1**
Verbal attack by the players	3	12	13	7	5	**2**
Verbal attack by the spectators	3	7	13	9	6	**3**
The threat of physical attack by others	3	3	4	8	9	**4**
Deciding on a penalty	2	-	2	3	2	14
Making conflicting decisions	4	5	5	1	2	8
Making the wrong or erroneous decision	7	8	1	3	2	6
Being in the wrong place or position on the field	2	1	2	2	2	15
Presence of Referee Delegate or Refereeing Commission	4	1	3	1	5	10
Having problems with partners	3	1	2	4	4	11
Too frequent changes in the rules	-	1	3	2	2	16
Thinking that there will be an objection after the competition	-	1	-	1	-	19
Lack of on-site guidelines and regulations	-	4	1	3	3	13
Field arrangement and other elements that do not have a duty in the competition area	1	-	2	-	2	18
Evaluation score by the first referee	2	1	3	5	4	9
Being criticized by others	-	-	-	-	-	-
Not feeling physically and psychologically ready	5	2	4	2	1	12
Showing yellow and red cards	1	1	1	1	2	17
To be assigned to competitions with high difficulty	1	8	2	4	3	7
Attempt by the referees higher category than you to influence your decisions during the competition	9	1	3	5	7	**5**

According to Table 3, where the importance of the stress sources of hockey referees is seen; the top five sources of stress are verbal attack by the coach, verbal attack by the players, verbal attack by the spectators, the threat of physical attack by others, attempt by the referees higher category than you to influence your decisions during the competition.

Table 4: Hockey Referees' Methods of Coping with Stress Sources According to Sub-Dimensions

Sub-Dimensions	N	$\bar{X}$	SD	Min.	Max.
Positive Cognitive Approach	69	4.10	.70461	1.11	5.00
Negative Cognitive Approach	69	1.64	.67710	1.00	5.00
Behavioral Approach	69	2.97	.84741	1.00	5.00

Looking at the methods of coping with stress sources of hockey referees; they have used positive cognitive approach the most ($\bar{X}$ = 4.10) and the least negative cognitive approach ($\bar{X}$ = 1.64).

Table 5: Mann Whitney-U Test Results on Stress Sources and Coping Methods of Hockey Referees by Gender

	Sub-Dimensions	Gender	N	Mean Rank	Sum of Ranks	U	p
Stress Sources	The Threat of Physical and Verbal Attack	Female	16	48.22	771.50		
		Male	53	31.01	1643.50	212.50	.002**
	The Presence of Others	Female	16	49.72	795.50		
		Male	53	30.56	1619.50	188.50	.001**
	Performance Concern	Female	16	42.31	677.00		
		Male	53	32.79	1738.00	307.00	.093
	Wrong Decision	Female	16	48.72	779.50		
		Male	53	30.86	1635.50	204.50	.002**
	Error in Mechanics	Female	16	46.63	746.00		
		Male	53	31.49	1669.00	238.00	.008**
Coping Methods	Positive Cognitive Approach	Female	16	35.50	568.00		
		Male	53	34.85	1847.00	416.00	.909
	Negative Cognitive Approach	Female	16	40.19	643.00		
		Male	53	33.43	1772.00	341.00	.231
	Behavioral Approach	Female	16	39.78	636.50		
		Male	53	33.56	1778.50	347.50	.272
		Total	69				

*p<0.05, **p<0.01

According to the gender of the referees, while there was a significant difference in favor of female referees in the sub-dimensions of stress sources, the threat of physical and verbal attack, the presence of others, wrong decisions and error in mechanics (p<0.01); no differences were found in the sub-dimension of performance concern and sub-dimensions of coping methods (p>0.05).

Table 6: Mann Whitney-U Test Results on Hockey Referees' Stress Sources and Coping Methods by Marital Status

	Sub-Dimensions	Marital Status	N	Mean Rank	Sum of Ranks	U	p
Stress Sources	The Threat of Physical and Verbal Attack	Married	38	37.80	1436.50		
		Single	31	31.56	978.50	482.50	.195
	The Presence of Others	Married	38	34.13	1297.00		
		Single	31	36.06	1118.00	556.00	.689
	Performance Concern	Married	38	36.63	1392.00		
		Single	31	33.00	1023.00	527.00	.451

	Wrong Decision	Married	38	35.36	1343.50		
		Single	31	34.56	1071.50	575.50	.869
	Error in Mechanics	Married	38	36.51	1387.50		
		Single	31	33.15	1027.50	531.50	.484
Coping Methods	Positive Cognitive Approach	Married	38	39.43	1498.50		
		Single	31	29.56	916.50	420.50	.042*
	Negative Cognitive Approach	Married	38	33.93	1289.50		
		Single	31	36.31	1125.50	548.50	.620
	Behavioral Approach	Married	38	34.61	1315.00		
		Single	31	35.48	1100.00	574.00	.855
		Total	69				

*p<0.05, **p<0.01

According to the marital status of the referees; while there was no difference in the sub-dimensions of stress sources and in the sub-dimensions of negative cognitive approach and behavioral approach in coping (p>0.05), a significant difference was found in favor of married ones in positive cognitive approach in coping methods (p<0.05).

Table 7: Kruskal Wallis H Test Results on Stress Sources and Coping Methods of Hockey Referees by Age

Sub-Dimensions		**Age**	**N**	**Mean Rank**	**df**	**χ^2**	**p**
Stress Sources	The Threat of Physical and Verbal Attack	18-22 years	10	26.15			
		23-27 years	16	35.31			
		28-32 years	11	38.36	3	2.464	.482
		33 years and over	32	36.45			
	The Presence of Others	18-22 years	10	40.65			
		23-27 years	16	32.16			
		28-32 years	11	33.55	3	1.186	.756
		33 years and over	32	35.16			
	Performance Concern	18-22 years	10	41.80			
		23-27 years	16	33.03			
		28-32 years	11	34.86	3	1.423	.700
		33 years and over	32	33.91			
	Wrong Decision	18-22 years	10	41.35			
		23-27 years	16	31.81			
		28-32 years	11	33.00	3	1.552	.670
		33 years and over	32	35.30			
	Error in Mechanics	18-22 years	10	37.40			
		23-27 years	16	31.56			
		28-32 years	11	35.05	3	.697	.874
		33 years and over	32	35.95			
Coping Methods	Positive Cognitive Approach	18-22 years	10	40.25			
		23-27 years	16	18.69			
		28-32 years	11	36.18	3	14.340	.002**
		33 years and over	32	41.11			
	Negative Cognitive Approach	18-22 years	10	38.90			
		23-27 years	16	40.22			
		28-32 years	11	35.14	3	2.735	.434
		33 years and over	32	31.13			
	Behavioral Approach	18-22 years	10	34.25			
		23-27 years	16	35.75			

	28-32 years	11	44.55	3	3.528	.317
	33 years and over	32	31.58			
	Total	69				

*p<0.05, **p<0.01

In Table 7, according to the age of the referees there was no significant difference in negative cognitive approach and behavioral approach which are sub-dimensions of coping methods and stress sources (p>0.05). A significant difference was determined in the positive cognitive approach that is sub-dimension of stress coping methods (p<0.01). The results of the manual Mann Whitney-U test to determine which age groups this significant difference was due to are presented in Table 8.

Table 8: Results of the Manual Mann Whitney-U Test to Determine the Source of the Difference in the Positive Cognitive Approach Sub-Dimension from Stress Coping Methods

Sub-Dimensions	Age	N	Mean Rank	Sum of Ranks	U	p
Positive Cognitive Approach	18-22 years	10	18.10	181.00	34.00	.015*
	23-27 years	16	10.63	170.00		
	18-22 years	10	11.95	119.50	45.50	.502
	28-32 years	11	10.14	111.50		
	18-22 years	10	21.20	212.00	157.00	.929
	33 years and over	32	21.59	691.00		
	23-27 years	16	10.75	172.00	36.00	.010**
	28-32 years	11	18.73	206.00		
	23-27 years	16	14.31	229.00	93.00	.000**
	33 years and over	32	29.59	947.00		
	28-32 years	11	19.32	212.50	146.50	.410
	33 years and over	32	22.92	733.50		

*p<0.05, **p<0.01

In positive cognitive approach sub-dimension, it was found that there was a significant difference in favor of those whose ages are 18-22 (p<0.05) in the referees between the ages of 18-22 and 23-27, in favor of those whose ages are 28-32 in the referees between the ages of 23-27 and 28-32, and in favor of those whose ages are 33 and over in the referees aged 23-27 and 33 years and over (p<0.01).

Table 9: Kruskal Wallis H Test Results on Stress Sources and Coping Methods of Hockey Referees by Refereeing Category

Sub-Dimensions		Refereeing Category	N	Mean Rank	df	χ^2	p
Stress Sources	The Threat of Physical and Verbal Attack	Candidate	14	36.36			
		Provincial	40	36.40			
		National	8	40.44	3	5.921	.116
		International	7	18.07			
	The Presence of Others	Candidate	14	42.11			
		Provincial	40	33.41			
		National	8	40.31	3	4.803	.187
		International	7	23.79			
	Performance Concern	Candidate	14	46.21			
		Provincial	40	31.79			
		National	8	41.94	3	9.018	.029*
		International	7	23.00			
	Wrong Decision	Candidate	14	46.68			
			40	32.23			

		Provincial	8	34.00	3	6.356	.096
		National	7	28.64			
		International					
	Error in Mechanics	Candidate	14	40.21			
		Provincial	40	33.74			
		National	8	41.63	3	4.067	.254
		International	7	24.21			
Coping Methods	Positive Cognitive Approach	Candidate	14	39.79			
		Provincial	40	33.31			
		National	8	33.75	3	1.156	.764
		International	7	36.50			
	Negative Cognitive Approach	Candidate	14	41.68			
		Provincial	40	32.93			
		National	8	49.00	3	11.541	.009**
		International	7	17.50			
	Behavioral Approach	Candidate	14	34.50			
		Provincial	40	32.59			
		National	8	52.38	3	7.179	.066
		International	7	29.93			
		Total	69				

*p<0.05, **p<0.01

Among the stress sources sub-dimensions; there was a significant difference in performance concern (p<0.05), and negative cognitive approach from the coping methods sub-dimensions (p<0.01) according to the refereeing category. The results of the manual Mann Whitney-U test to determine the source of the difference are given in Table 10 and Table 11.

Table 10: Results of the Manual Mann Whitney-U Test to Determine the Source of the Difference in the Sub-Dimension of Performance Concern from Stress Sources

Sub-Dimensions	**Refereeing Category**	**N**	**Mean Rank**	**Sum of Ranks**	**U**	**p**
Performance Concern	Candidate	14	35.50	497.00	168.00	.026*
	Provincial	40	24.70	988.00		
	Candidate	14	12.50	175.00	42.00	.338
	National	8	9.75	78.00		
	Candidate	14	13.21	185.00	18.00	.019*
	International	7	6.57	46.00		
	Provincial	40	23.15	926.00	106.00	.132
	National	8	31.25	250.00		
	Provincial	40	24.94	997.50	102.50	.255
	International	7	18.64	130.50		
	National	8	9.94	79.50	12.50	.068
	International	7	5.79	40.50		

*p<0.05, **p<0.01

There is a significant difference in favor of the candidate referee compared to the referee as provincial and international category according to the referee category of the performance concern sub-dimension which is one of the stress sources (p<0.05).

Table 11: Results of the Manual Mann Whitney-U Test to Determine the Source of the Difference in the Negative Cognitive Approach Sub-Dimension from Stress Coping Methods

Sub-Dimensions	Refereeing Category	N	Mean Rank	Sum of Ranks	U	p
Negative Cognitive Approach	Candidate	14	32.61	456.50	208.50	.152
	Provincial	40	25.71	1028.50		
	Candidate	14	10.79	151.00	46.00	.490
	National	8	12.75	102.00		
	Candidate	14	13.29	186.00	17.00	.015*
	International	7	6.43	45.00		
	Provincial	40	22.60	904.00	84.00	.032*
	National	8	34.00	272.00		
	Provincial	40	25.61	1024.50	75.50	.049*
	International	7	14.79	103.50		
	National	8	11.25	90.00	2.00	.002**
	International	7	4.29	30.00		

*p<0.05, **p<0.01

There is a difference in the negative cognitive approach sub-dimension, one of the methods of coping with stress, between the referees in candidate and international categories in favor of the candidate referee (p<0.05); between the referees in provincial and national categories in favor of the national referee (p<0.05); between the referees in the provincial and international categories in favor of the provincial referee (p<0.05); between the referees in the national and international categories in favor of the national referee (p<0.01).

Table 12: Kruskal Wallis H Test Results on Stress Sources and Coping Methods of Hockey Referees by Refereeing Year

Sub-Dimensions		Refereeing Year	N	Mean Rank	df	χ^2	p
Stress Sources	The Threat of Physical and Verbal Attack	1-3 years	43	36.58			
		4-6 years	17	36.24			
		7-9 years	7	22.71	3	3.014	.390
		10 years and over	2	33.50			
	The Presence of Others	1-3 years	43	39.49			
		4-6 years	17	26.71			
		7-9 years	7	26.86	3	6.304	.098
		10 years and over	2	37.50			
	Performance Concern	1-3 years	43	38.87			
		4-6 years	17	29.21			
		7-9 years	7	23.07	3	5.895	.117
		10 years and over	2	42.75			
	Wrong Decision	1-3 years	43	36.64			
		4-6 years	17	34.85			
		7-9 years	7	25.21	3	1.993	.574
		10 years and over	2	35.25			
	Error in Mechanics	1-3 years	43	37.97			
		4-6 years	17	29.47			
		7-9 years	7	26.79	3	4.189	.242
		10 years and over	2	47.00			
Coping Methods	Positive Cognitive Approach	1-3 years	43	36.30			
		4-6 years	17	28.18			
		7-9 years	7	45.86	3	4.538	.209
		10 years and over	2	27.00			

Negative Approach	Cognitive	1-3 years	43	36.99			
		4-6 years	17	38.03			
		7-9 years	7	17.43	3	6.618	.085
		10 years and over	2	28.00			
Behavioral Approach		1-3 years	43	36.36			
		4-6 years	17	32.65			
		7-9 years	7	24.57	3	6.136	.105
		10 years and over	2	62.25			
		Total	69				

*p<0.05, **p<0.01

In Table 12, it is seen that there is no significant difference in the sub-dimensions of stress sources and coping methods according to the refereeing year (p>0.05).

4. Discussion

The findings of this research which was conducted to examine the stress sources of hockey referees and the emotion-centered approaches they use to cope with these stress sources according to demographic characteristics reveal that wrong decisions at moderate level as the highest in terms of averages; and in terms of ranking; verbal attack by the coach, verbal attack by the players, verbal attack by the spectators, the threat of physical attack by others and attempt by the referees higher category than you to influence your decisions during the competition are seen as sources of stress. It was determined that the referees used a high level of positive cognitive approach to cope with the source of stress. However, according to the demographic characteristics of the referees, it was found that there were significant differences in the threat of physical and verbal attack, the presence of others, wrong decision and errors in mechanics sub- dimensions of stress sources in favor of women; in positive cognitive approach from coping with sources of stress in favor of those who are married and generally of later ages; in performance concern sub-dimension of source of stress in favor of candidate referees and in the sub-categories of refereeing in the negative cognitive approach to cope with stress sources. Refereeing year did not make a significant difference in stress sources and coping with stress sources.

The referees are doing a difficult job. Because there are many aspects of the game/match that need to be taken into account: evaluating the actions that occur in the game/match, making quick decisions, managing the game, paying attention to many aspects of the game, maintaining order and resolving disputes. All these not only complicate the referee's job too much but also make it easier to make mistakes. As it's result; they should be prepared to be criticized for the referee's decision (Guillén & Feltz, 2011; Saputra et al., 2018). In this respect, it is possible to say that it is an expected finding that making wrong decisions will come to the fore as a source of stress in refereeing which includes decision making in essence. While the source of stress' being at moderate level is compatible with the stress levels of the football referees in Güllü and Yıldız's (2019) studies; it is not compatible with Soriano Gillué et al.'s (2018) study that perceived stresses of football referees outside the match are at high level compared to those inside the match Although football has a dominant advantage, hockey is also the second sport with the highest number of spectators after football in the Olympic Games (THF, 2022). Therefore, the difference between the findings is remarkable In terms of rankings, that wrestling referees see verbal attack by the coach secondly as a source of stress in Erdem's (2015) suggest that there is a difference due to the fact that this research has been conducted with hockey referees. Gürpınar (2015) found that the stress sources of wheelchair basketball referees were attempt of physical and verbal attack at the highest level. This finding overlaps with the top four items in the research's stress source ranking.

Erdem (2015) and Gürpınar (2015) have also reached a similar point to hockey referees who chose to continue their duties with positive thoughts in coping with stress sources. In addition, Bathla and Yadav (2017) state that field hockey referees use goal-setting and mental preparation strategies to cope with stress. Both the finding of this research and the finding of the work of Bathla and Yadav (2017) reveal that hockey referees use different methods to cope with sources of stress.

Reid and Dallaire (2019) state that women are underrepresented in leadership positions within the historically patriarchal sports institution and face various challenges as coaches, referees or managers. The finding of the referees who participated in the study in favor of women in terms of gender distribution and stress sources is an indication that women are more stressed and it supports this discourse in a way. Similarly, Koca and Yıldız (2018) indicate that female football referees and Atmaca (2020) notes that women handball referees are more stressed.

It suggest that the significant difference in favor of married referees in terms of positive cognitive approach to cope with stress sources is due to the fact that married referees develop more constructive and good thoughts and approaches to solving problems in family environment. There are also studies in the literature that differ with the findings of the research. Söylemez (2019) in hockey referees and Öztürk (2020) in folk dance referees found that marital status was not a determining variable in their way of coping with stress.

It is stated that the way referees perceive stress depends on experience and age. Young referees are more stressed than older referees especially in regard with the possibility of making mistakes (Diotaiuti et al., 2017). However, the finding of the research reveals that age and year of refereeing do not differ in sources of stress. On the other hand, life experiences with increasing with age bring about being constructive and positive in the approach to many problematic situations. It is therefore possible to explain that the significant difference between the referees aged 23 to 27 and 28 to 32 is in favor of hockey referees aged 28 to 32; and between the referees aged 23 to 27 and 33 and older is in favor of the referees aged 33 and older. On the other hand, it is thought that the significant difference between the referees aged 23-27 and 18-22 is in favor of the referees aged 18 to 22 can be explained in the context of the excitement of the task and the fact that the negative or behavioral cognitive approach is not preferred because the age range coincides with the starting age of refereeing.

Candidate referees consider performance concern as a source of stress more than referees in other categories. As candidate refereeing refers to beginners to refereeing and the lowest category of refereeing, and since the referees in this category have limited experience compared to referees in other categories; this finding is an expected finding. In contrast, Görün et al. (2020) state that perceived stress in football referees does not differ by classification. On the other hand, it is possible to explain also the difference in the sub-categories of refereeing concerning not to continue task by having negative thoughts in coping with stress sources for hockey referees with the limitation of experience. To put it another way; although the year of refereeing does not make a significant difference in coping with stress, it is possible to say that the referees in the higher categories use the negative cognitive approach less in coping with stress is directly proportional to their experience. In Bayston's (2011) study, the finding that the action tendencies shown by non-elite referees and the coping strategies they use to alleviate the negative emotions they experienced contribute to significant effects on their subsequent decision-making processes supports the interpretation.

5. Conclusions and Recommendations

In line with the findings of the research, it was concluded that the stress sources of hockey referees were wrong decision making, the threat of physical and verbal attacks and performance concern; that they continued their tasks with positive thoughts in order to cope with sources of stress which were the elements that cause stress (positive cognitive approach); and in terms of demographic characteristics, gender and refereeing category in stress sources; age, marital status and refereeing category in coping were decisive.

According to the results of the research, the factors that push hockey referees to stress and the planning of the trainings towards coping methods in order to reduce the negative effects caused by these elements; variables not discussed in this study and parameters to be related may be suggested to be included in subsequent studies.

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Cultural Adaptation and Social Experience of International Students at UIN Maulana Malik Ibrahim Malang

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Abstract
This article discusses a system to prevent fraud in voting activities in Indonesia by utilizing information technology, in this era of globalization, the world seems to be "shrinking" so that our intensity to connect with foreign people and cultures will be higher. Moreover, if it is connected with our desire to realize a world class university, then our interaction with foreign people and cultures will become increasingly frequent both through academic collaboration, joint research and the most intense is when we do cross-cultural learning. Therefore, a wider capacity to understand cultural diversity is needed. Intercultural communication is a process of sending and receiving messages between people whose cultural background can lead them to interpret verbal and nonverbal signs in different ways. The communication skills acquired will facilitate one's movement from a mono cultural view to a more multicultural view.

Keywords: Cultural Adaptation, Social Experience, International Students

1. Introduction

In the era of globalization, studying abroad for students has become a common phenomenon, along with the development of transportation and information technology (Gould, 1995) (Gould, 1991). In addition, countries around the world have made interesting policies to increase the number of international students. They are expected to bring their ideas and thoughts to inspire the people in their home countries (Marambe, Vermunt, & Boshuizen, 2012). However, the main problem for international students is their ability to adapt to a foreign environment. When international students study in an unfamiliar environment, they must learn to socialize, communicate and overcome difficulties in their lives (Zhu & Ma, 2011) (Bui, Baruch, Chau, & He, 2016).

Not a few people travel abroad for various reasons, such as vacations, continuing education, business trips, and for various other reasons. Individuals who visit or live in another country for a specific reason or purpose and stay temporarily are called *sojourners*. *Sojourner is* different from immigrants, *sojourner is* meant as a person who visits a country for a certain time (temporary), while immigrants are the definition of those who are intended to stay in another country for a long period of time, even settled (permanent) (Jolly & Davis, 1980) (Richards, 2019). Both *sojourners* and immigrants usually face complex situations, circumstances and cultural adaptation challenges.

Negative responses that arise in someone who enters a new place or country with a culture that is different from the place of origin, raises a condition called *culture shock*. Culture shock does not look at age and gender. *Culture shock is* interpreted as a problem or discomfort that arises both psychologically and physically experienced by *sojourner* and immigrants (Aldridge & Fraser, 2000) (Ren, 2022). Perception different in every individual can lead to *culture shock*.

Sojourner who inhabit a country for a specific reason and within a certain time often clash or incompatibility with *host-culture*. The existence of a personal identity that has been inherent in every individual who enters a new country tends to cause conflict within each individual, which has the potential to be an obstacle to cultural adaptation.

International students studying in Indonesia are international students from the results of collaboration with a number of countries, such as: the United States, the Middle East, ASEAN, and Europe. An increase in the number of international students who come to study in Indonesia shows that Indonesia is a country of study destination that is quite attractive to students from abroad.

The interaction between international students and Indonesians, especially Javanese with different cultural backgrounds, creates a process of cultural adaptation between the two parties. For *sojourner* individuals, Javanese *culture* which is a *host- culture is* considered attractive, because it has its own uniqueness. Thus, in the process of cultural adaptation, there are a number of cultural challenges, like differences in language, values values, and others that tend to be a bottleneck at the beginning of their interaction.

Cultural adaptation is important because it can determine the success of an international student in studies. According to research conducted by (Shadiev, Wang, & Huang, 2021) (Pasha-Zaidi, Afari, Sevi, Urganci, & Durham, 2019), around 40% of all *sojourners* (ex- patriates) failed, with an estimated failure to adapt to *host culture* reaching 70 %. Failures due to a lack of inability environment host *culture* for on matching right, and the lack of skills of interpersonal from the *sojourner*.

Research conducted by Karana (2012: 11) to four foreigners from Japan who work in Surabaya, it is known that they experience *culture shock* due to difficulty adjusting to the workplace environment. Among the causes of their difficulties there are differences in the awareness of time and work ethic, between them and coworkers from Indonesia, so, they wish to return to their home country immediately. The effects experienced by Japanese employees include *stress* that results in insomnia, the desire to return to Japan, and feel confused about what to do in the office.

Research conducted by (Shonfeld et al., 2021) (Mohammed & Kinyó, 2022) of a group of students who took part in student exchanges in Paris is an example of failure in cultural adaptation. When students feel at the *honeymoon* phase, the euphoria for living in Paris arises, a tragedy occurs, namely the death of one of the participants. Because of the tragedy, the effect was dislike of living in Paris. They become *stressed* to have to go to the doctor because of feelings of fear and disappointment due to the tragedy of death.

Things are at issue in the adaptation s*ojourner* when interacting with other students and locals alike is the habit brought by the *sojourner* who is very different from the habits of the locals. Habits are very basic things that often emerge clearly. If they succeed in ways to improve the friction and get rid of the friction, they are successful individuals in the process of cultural adaptation.

Meanwhile, social experience is a form of self-socialization from someone based on knowledge and curiosity obtained directly from field experience. From the statements of several foreign students, they gained social experience after conducting field research on Islamic boarding schools. They stayed in the cottage, learned the routine, communicated, then brought a sense of community and social empathy.

This study seeks to answer the question of how is the process of cultural adaptation of international students at the Maulana Malik Ibrahim State Islamic University of Malang (UIN Maliki Malang)? What are the social experiences gained by international students after being directly involved in research or *sit-in* visits?

This study is expected to be a reference, especially in the study of cultural adaptation and social experience. In a specific context is how to develop individual competencies to be able to adapt and socialize in the *host culture* environment (environment in the new culture) and to describe the process of cultural adaptation and social experience.

The study is expected to give a picture of the reality of adaptation between cultures among international students, and can be a source of literacy can help international students understand the problem cultural adaptation that they face.

The findings and suggestions from this research can be ma sports for the program manager of student exchange and student recipient institution international alternative barriers to minimize the gap communication and socio-cultural experienced by international students who are under the program of the institution.

2. Method

Research on cultural adaptation and social experiences that occurs in international students in the city of Malang using this type of qualitative research (Darmalaksana, 2020) (Sahney, Banwet, & Karunes, 2003) (Rachmawati, 2007) (Hammarberg, Kirkman, & Lacey, 2016), a qualitative approach is an approach in the study of social habits that occur, which explain and analyze the culture and habits of humans and their groups from their perspective. In the context of this research, international students from different countries will describe or relate the experiences of individuals experienced in Malang related to culture, such as differences in customs and habits encountered by citizens of Malang City who later will be interpreted by researchers to get the essence of each experience.

Data obtained by the interview will be reduced and extracts that are relevant to the research theme, namely about cultural adaptation and social experience which are then used as several themes and analyzed in more depth using a phenomenological approach .

Phenomenology perspective helps researchers to enter the way of thinking or the perspectives of research subjects, how they interpret social phenomena. That the study of phenomenology seeks to explore the meaning of individuals about the experience of life (Hammarberg et al., 2016) (Owen, 2014). Phenomenological perspective is used to explore consciousness deepest international students about the process of adaptation culture is experienced directly and social experience them.

Data obtained through observation (see firsthand their activities, both in the academic and no-academic related to social activities), and interviews depth *(depth-interview)* with students internationally. The next process after the interview is the transcript. Transcript of the interview is done to facilitate the researcher in the analysis process. Results of observations and interviews that it would be sorted information or experiences of students international are in accordance with the theme of cultural adaptation and social experience. Data obtained were processed and analyzed to be able to answer the formulation of the problem which has been set at the beginning of the study (Haryati, 2012) (Sofaer, 2002) (Owen, 2014).

While it is, the subject in research is foreign students (*sojourner*) in UIN Maliki to study. The research subjects were chosen *purposively*, especially some students who took the BIPA (Indonesian for Foreign Speakers) program, at the UIN Maliki campus in Malang. Secondary data was obtained from the majority of student data at the BIPA UIN Maliki Malang office in the form of student document data, documentation of activities, data on programs participated by students at BIPA UIN Maliki Malang.

This study uses an interpretive paradigm with a phenomenological approach in which research is carried out by understanding the conscious experience experienced directly by international students who live in Malang City for a certain period of time. Explain the process of cultural adaptation performed by international student, researchers used a process Adaptation the culture that exists between students of international with new culture in Malang, which resulted few constraint referring to the vibe but power (*shock culture*). In the process of adaptation there are many factors that play a role, both from within the international students themselves and from external factors.

In analysis and interpretation of data, this study using a phenomenological approach empires where the core of the approach is empirical adhering to the reflections of the participants on the issue of yes ng real-time and to know the power and measures so as to bring the invention (Hammarberg et al., 2016). The phenomenological approach in this study looks at, describes, and analyzes phenomena that occur in the community that is experienced directly by international students and then these experiences are grouped based on appropriate themes.

The basic principle stated by (Thanh, Thi, & Thanh, 2015) (Hammarberg et al., 2016), about phenomenology is applied in this research, namely by understanding the world of information or experiences experienced by international students directly in the process of cultural adaptation. Language is a tool meaning between researchers with the informant that. In this study, the mindset of students internationally interpreted on how they are air communication with the environment, tem pat living, campus, as well as associations that they follow. Interpreting the informants experience is important in the study expected in late phenomenological approach, starting with the process of understanding experience direct student international with aspects of the uniqueness different. In addition, the interpretation is an active process thought and acting creatively in clarifying personal experiences international students.

3. Result and Discussion

One of the differences that stands out from the host culture and home culture is the collectivistic and individual sexual culture. The research subject used to with the environment that is individualistic to be dealing directly with the environment collectivistic. In the process of cultural adaptation that is taking place, research subjects are experiencing a difficult time to get into a new culture. This phase is the phase of *culture shock*, a phase which also referred to as crisis phase describes the characteristics of a *sojourner* who experience symptoms of concussion culture (*culture shock*), namely the difference in views on the value or customs that exist in local communities.

As stated Xia (2009: 98), that the culture *shock* appears when *sojourner* met with a different state or condition of the culture themselves where these changes make it fail in understanding the ideology and behavior of the local population.

(Hsieh & Cifuentes, 2003) add that if a *sojourner* has expressed uneasiness towards the attitudes of the local population (local values / norms), the *sojourner* is in a phase of culture shock. This reality is experienced by research subjects, so it can be said that all subjects of the research experience a *culture-shock* phase related to socio-cultural gaps in the process of cultural adaptation that they live.

Individualistic culture is known to have the characteristics of one of them is the tendency to construct themselves freely (Jiménez et al., 2015) (Ju & Xu, 2015). Unlike the case with a *host culture* environment that tends to be collectivistic which is more like togetherness. The countries of origin of the research subjects, some of which are individualistic. In individualistic cultures it is believed that the autonomy of an individual is the most important thing.

In contrast to informants from Palestine or Arab League countries and India which are categorized as having low individualistic indices that are more likely to prioritize group life or be loyal to groups. The intended group is a

group that may be relevant is the nuclear family or extended family, as well as groups within the organization. This means that Palestine and India have similarities with Indonesia which tends to refer to collectivistic culture.

Based on observations and interviews, all research subjects faced a number of similar cultural adaptation challenges. This study found several types of cultural adaptation challenges faced by informants in the city of Malang. Obstacles to adaptation are in things as follows: 1) barriers to adaptation of communication and interaction interpersonal, relating to the control of Indonesian, mixed language usage late in the local community, as well as aspects of cultural value in communications. 2) Barriers to adaptation to differences in food choices and tastes. 3) Cultural value gap or *shock culture* between *culture* and *home culture* with habits and *host culture.* Cultural disparity, mainly on socio-cultural concepts/values about the concept of public-privacy, such as: collectivistic culture, the ethics of associating men with women, and unwritten social-social rules, such as street rules I'm a night for boarders/dormitory residents. 4) Barriers demographic adaptation of multi-cultural: meetings and interaction with various o rang on campus and Malang consisting of air like a tribe, race, ethnicity, and race. 5) Barriers adaptation The Institution and bureaucracy, trillionth not optimal program language and culture as well as the introduction of low efficiency in service administration and bureaucracy. 6) Barriers to cultural adaptation competence from individual *sojourners* themselves.

Every individual who lives in the community trying to live in the direction of cultural patterns and systems of meaning that are formed in the community environment. It is intended that the interactions that occur between individuals go well and smoothly. In addition, it aims to be accepted by individuals in the community or society who use patterns and cultural systems as the basis or philosophy of shared life. Therefore, each individual will try to adjust the hood and behavior in based on the set's rules, values and norms taught by their culture that became the foundation of life in neither think nor act.

Difference cultures that exist in every individual may pose a problem that will be the servant of a tan to communicate and interact. This research places it in the focus of the study of the phenomenology of phenomena that are directly related to the cultural sphere and further examines how cultural crossing and presenting a phenomenon and social problems experienced by international students who come and live in Indonesia. Therefore, it is important to place the cultural adaptation problems experienced by the research subjects in one perspective of social and cultural studies.

From a comprehensive analysis of the results of interviews with international students and the elaboration of research data, there have been several efforts made to overcome the barriers to socio-cultural adaptation of international students at UIN Maliki Malang. These efforts are as illustrated in the following chart:

Table 1: Socio-Cultural Barriers and Their Mitigation Efforts

No	Socio Cultural Barriers	Efforts to Overcome Social and Cultural Barriers
1	Barriers to adaptation of communication and interpersonal interaction, relating to the mastery of Indonesian, the use of mixed languages in the local community, as well as aspects of cultural values in communication	Participate in intensive Indonesian learning
2	Barriers to adaptation to differences in choices and tastes of food.	Participate in the practical classes of the BIPA program, namely cooking.
3	The gap in culture values or *shock culture* between habits and *home culture* with habits and *host culture*. Cultural divide it, Tern of all the concepts / values concerning socio-cultural about the concept of privacy.	Participating in social class program visits to several boarding schools, visits to several family events in the city of Malang (sit *in program).*
4	Barriers to multi-cultural demographic adaptation: meetings and interactions with various people on campus and Malang City consisting of various	Participate in various practical class activities such as batik, dance, and gamelan.

	ethnicities, nationalities, ethnicities and races.	Following various workshops and seminars. Take classes on social visits to cultural attractions.
5	Adaptation of institutional barriers and bureaucracy, trillionth not optimal language courses and introduction to the culture and the low efficiency in the regulatory and administrative services.	Facilitators are provided to assist the administration and bureaucratic services of international students.
6	Barriers to cultural adaptation competence from individual *Sojourners* themselves.	Participating in various organizational activities, sports clubs, nature lovers clubs that mingle with local students.

Cross-Cultural Learning Process for Foreign Students In Inculcating Moral and Social Values, one of which is through teaching Indonesian Language for Foreign Speakers (BIPA). Language research is an important part to be researched because of its users. Several studies related to BIPA to date have only been related to BIPA teaching, only about language learning, both written and spoken language. There are several studies related to BIPA, including Rica Farrah Aziza, and Ida Lestari from the State University of Malang, namely a form of BIPA learning, while the research that will be carried out is the application of inculcating values for BIPA students. The similarity is the learning process of BIPA students. The difference is in the research conducted by BIPA Learning as a tool for the Cross-Cultural learning process for foreign students. And there is a form of collaboration between researchers and foreign students.

This research was conducted at the University of UIN Malang on BIPA students from Thailand, Sudan, Libya, Russia, Cambodia, Malaysia, Yemen, Saudi Arabia, Timor Leste, China, Madagascar, Nigeria, and Indonesia. As for those who became informants studying at the Faculties of Science, Psychology, Pharmacy, Sharia, and Economics.

4. Conclusion

Some aspects below determine the level of readiness of individuals in facing the challenges of adaptation in the destination country of residence and determine the short or long process of cultural adaptation will take place. These aspects include: 1) Mastery of *host-culture* language and / or international language of instruction, 2) Personal characteristics, such as age, *introvert / extrovert type* , and mentality, 3) Motivation, 4) Perceptions of *host culture* , pluralism, and especially about cultural differences, 5) Obtaining adequate information about destination countries, 6) Pre- domicile visits, such as tourists and / or intercultural experiences, 7) Support of comprehensive socio-cultural and cultural introduction programs by recipient institutions, 8) The existence of a local native friend as a mediator / facilitator or a personal assistance consultant who is indeed provided in helping students to understand and deal with the challenges of *shock culture*, 9) The existence of communities that allow *sojourners* to join and socialize, 10) Availability of several facilities that allow *sojourner* find it easier to get the information needed.

A spec-aspect that if managed properly synergistically, cultural adaptation barriers in services exchange program ran student or international students can be minimized and assist in the process of cultural adaptation of international students.

Meanwhile, based on the recognition and analysis of the results of interviews and observations of the informants, this study found two important things agreed by all research informants that the basic support that helps their adaptation processes, especially in the aspects of communication and interaction as well as socio-cultural, exist in two types of support, namely: 1) institutional support in the form of campus introduction programs and language and cultural services programs organized by the university, in this case BIPA is very instrumental in helping support academic facilitators, and 2) Social support from local friends, both at both in the campus and in

the neighborhood, are seen as effective ways in the process and the critical period of international student adaptation.

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Exploring Problems of Moms with Children with Autism Spectrum Disorder during COVID-19

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Abstract
The COVID-19 pandemic, which emerged in 2019, disrupted global education and training activities. During the epidemic, online education has replaced face-to-face education. During the epidemic, the routines of all families and their children have changed. This situation adversely affected the lives of both families with normally developing children and families with children with special needs. Significantly during the pandemic process, the workload of mothers has increased. From this point of view, the research aims to reveal the problems experienced by the mothers of children diagnosed with autism spectrum disorder during the COVID-19 pandemic. For this purpose, the opinions of 20 mothers who had a child diagnosed with autism spectrum disorder and participated in the study voluntarily were taken. The case study design was used as a qualitative research approach. In the study, data were collected by voice recording through semi-structured interviews, one of the qualitative data collection techniques. The obtained data were written down, checked and analyzed through descriptive analysis. According to the study, mothers stated that their children were bored at home and wanted to go out; they encountered behavioral problems and forgot what their children learned at school. They reported that their children spend more time with digital tools such as phones, tablets, and computers. They stated that they could not get feedback from the online courses, the courses were not organized according to individual differences, they had connection problems, and they could not benefit enough due to a lack of resources. All the mothers who participated in the interview emphasized that they wanted the education to be face-to-face.

Keywords: COVID-19, Pandemic, Autism Spectrum Disorder, Special Education

1. Introduction

Due to the (COVID-19) pandemic, countries switched to online education instead of face-to-face activities. In this process, educational institutions in Turkey were suspended on March 16, 2020, and it was decided to continue educational activities through 3 television channels and the Educational Information Network (EBA) within the scope of open and online education practices at primary, secondary and high school levels (MEB, 2020a). Thus,

the continuity of education was tried to be ensured with online education, which we did not have enough control over (Karip, 2020).

Like all students, students with special needs had to continue their online education. However, since moms cannot replace special education teachers in online education and assistive technologies are unavailable, the problem of providing special education assistance to children arises (İnce & Yıkmış, 2021). This situation negatively affects the development of children with special needs such as Special Learning Disability (SLD), Down Syndrome (DS), and Autism Spectrum Disorder (ASD). It is known that families of children with special needs face more stress than those with normal development, even in regular times (Karabulut, 2021; McConnell & Savage, 2015; McStay vd., 2014; Sönmez et al., 2018). During the COVID-19 period, families with special needs children faced many problems such as high levels of anxiety and worry (Tsibidaki, 2021), behavioral changes (Asbury et al., 2021), lack of professional support (Petretto et al., 2020) during the pandemic and online education process. it appears to be together. In this context, it is essential to determine the difficulties experienced by families with children with special needs.

1.1. The Purpose of the Study

This study aims to determine the problems experienced by the mothers of students with ASD during the pandemic process. When the special education literature is examined, the roles and responsibilities of mothers and the problems experienced by children with special needs in the process of starting primary school (Altın, 2014); loneliness levels of mothers with children with special needs and mothers with children with normal development (Sarıhan, 2007); anxiety and depression levels of mothers of children with SLD (Yıldız, 2019); there are studies examining the anxiety levels of mothers (Fiorillo & Gorwood, 2020) caused by uncertainties about when life will return to everyday life during the pandemic process and revealing the problems experienced by mothers. Since there is no study in the literature about online education among mothers with children with ASD, and in the light of research conducted in the field, the research was designed and conducted with mothers, considering that the people who take responsibility for the education of their children in families with special needs children are mostly mothers during the pandemic process.

For this purpose, the following questions have been tried to be answered.
1. What are mothers' problems regarding their children's education during COVID-19?
2. What problems were with online education applied during the COVID-19?
3. What are mothers' views on the adequacy of the contents prepared by the Ministry of National Education during the COVID-19?
4. What are the problems they experience in keeping their children at home during the bans implemented during the COVID-19 process?

The structure of the paper is arranged as follows: Section II presents the details of the Methodology. Section III contains the findings of the study. Finally, section IV will discuss study results within the literature and give recommendations for future research directions.

2. Method

This section contains information about the research design, participants, data collection, and data analysis.

2.1 Study Group

The study group of the research consists of mothers attending A Special Education and Rehabilitation Center with a child diagnosed with ASD. From the sampling methods for the study group, the criterion was selected sampling method. The basic understanding of the criterion sampling method is to study the situations that meet a set of predetermined criteria (Yıldırım & Şimşek, 2018). In this study, being a child with ASD, going to primary school,

and participating in the study voluntarily were determined as criteria. The study was conducted with 20 mothers who met these criteria. The demographic information of the participants is shown in Table 1.

Table 1: Information related to Participants of Research

No	Participant Code	Age	Education Level	Family Type	Number of Child in the Family	Average Monthly Income	Job
1	A1	35	Basic Literacy	Nuclear Family	3	2.324 TL	Housewife
2	A2	44	Elementary School	Nuclear Family	2	2.324 TL	Employee
3	A3	27	Secondary School	Nuclear Family	3	2.324 TL	Housewife
4	A4	57	Elementary School	Nuclear Family	5	2.000 TL	Housewife
5	A5	42	High School	Nuclear Family	1	2.324 TL	Housewife
6	A6	30	High School	Nuclear Family	2	4.000 TL	Sales Assistant
7	A7	38	Elementary School	Nuclear Family	2	2.324 TL	Housewife
8	A8	38	Elementary School	Nuclear Family	2	2.324 TL	Housewife
9	A9	41	Elementary School	Nuclear Family	2	2.324 TL	Housewife
10	A10	42	Secondary School	Nuclear Family	1	2.324 TL	Housewife
11	A11	42	High School	Nuclear Family	1	2.324 TL	Housewife
12	A12	40	Elementary School	Nuclear Family	2	2.324 TL	Housewife
13	A13	42	Secondary School	Nuclear Family	4	1.850 TL	Housewife
14	A14	41	Elementary School	Nuclear Family	2	2.400 TL	Housewife
15	A15	67	Basic Literacy	Nuclear Family	3	2.324 TL	Housewife
16	A16	31	Ortaokul	Nuclear Family	2	3.000 TL	Housewife
17	A17	30	Elementary School	Nuclear Family	2	2.324 TL	Housewife
18	A18	51	Elementary School	Nuclear Family	1	2.324 TL	Housewife
19	A19	37	Elementary	Nuclear Family	3	5.000 TL	Housewife
20	A20	-	Basic Literacy	Nuclear Family	2	2.324 TL	Housewife

As seen in Table 1, all the families participating in the study were nuclear. The age range of the participants ranged from 67 to 27 years. Most of the mothers participating in the study are housewives. In addition, the average income of the families participating in the study is the minimum wage. Considering the educational status of the mothers, it is seen that most of them are elementary school graduates. Finally, the number of children that mothers have varies between 1 and 5.

2.2 Data Collection Tools

At the end of the literature review, interview questions were determined, and the researchers created an interview form consisting of seven questions. The prepared interview form was presented to the opinion of two experts with a doctorate in special education and who are experienced in qualitative research. The interview form was given its final form with five questions, which two of the experts whose opinions were asked stated that they were suitable for the research. However, since the interviewed experts stated that two questions were not ideal for the study, they were excluded from the interview form. The questions asked to the mothers in the interviews are given below, respectively:

1. What problems did you experience with your child's education during the COVID-19?
2. What problems did you experience with online education during COVID-19?
3. What are your thoughts on the content prepared by the Ministry of National Education for your child's online education during COVID-19?
4. What problems did you experience keeping your child at home during the curfews implemented during the COVID-19?
5. Is there anything you would like to add to this interview?

2.3 Research Design

This research, which was conducted to determine the opinions of mothers with children with ASD on the problems they experienced during the COVID-19 pandemic process, was conducted as a case study, one of the qualitative research designs (Bogdan & Biklen, 2007; Yıldırım & Şimşek, 2018). Case studies are classified differently according to their characteristics (Yin, 2003). However, this study was designed according to the holistic single case study design, as it aimed to examine the problems related to the difficulties experienced by mothers with children with ASD during the pandemic period in a multidimensional and in-depth manner (Yin, 2003).

2.4. Data Collection Process

Semi-structured interviews, one of the qualitative data collection methods, were conducted to collect the data. The mothers who had a child diagnosed with an autism spectrum disorder in the institution where the research was conducted were informed about the study, the names of the mothers who wanted to participate in the study voluntarily were determined, and it was decided to conduct the interviews on the appropriate day and time. The research data were collected between 16.09.2020 and 21.09.2020 in the proper periods of the participants. All of the interviews were conducted face to face by the first researcher. Before each interview, the researcher explained the purpose of the research and how the interview would be conducted to the mother. Then, 5 semi-structured interview questions were directed to the participants in the order. During the interviews, a demographic information form, voluntary participation form, documents with interview questions and a voice recorder were used for each mother. The interviews took place between 12 and 18 minutes. Instead of mothers' names, codes such as A1, A2,…A20 were given.

2.5. Data Analysis

Research data were analyzed with the descriptive analysis technique. According to Yıldırım & Şimşek (2018), the data obtained in the descriptive analysis are summarized and interpreted according to the previously determined themes. After the research questions were prepared, the main themes and codes were created. In addition, according to the answers received after the interviews, the coding key was given its final shape by adding new codes and removing some codes. After the interviews were completed, the audio recordings were transcribed. In the transcription of the recordings, all the interviews were transcribed as they were heard without any corrections. To check the accuracy of the data obtained, the records were listened to once again, the transcribed data were read simultaneously, and it was seen that the data were transferred correctly. Later, the researchers divided the data into themes and prepared the interviews for coding. As a result of the interview transcripts, new codes were added to the predetermined codes, and some codes were removed. The data obtained by calculating the frequencies of the codes were digitized. In creating the coding key, the researchers carried out their studies independently. The codes

with consensus on the results were determined, and the level of reliability for the codes created for each main theme was determined. In the calculation using the [Reliability = Consensus/Agreement + Disagreement] formula developed by Miles & Huberman (1994), the reliability level between encoders was determined to be 100%. In the interpretation of the findings, direct quotations were included to reflect the views of the interviewee in a striking way (Yıldırım & Şimşek, 2018).

3. Results

In this section, to reveal the views of mothers who have a child diagnosed with ASD and who are educated in a Special Education Center regarding the problems they experience regarding their children's education during the COVID-19 pandemic process; the findings obtained as a result of the descriptive analysis of the data collected through semi-structured interview questions are included. The conclusions were arranged according to the order in which the questions in the interview form were asked and were given based on this order. The excerpts from the data breakdown were written as an example at the end of the findings by providing a code number to the interview transcripts of each mother interviewed.

3.1. Findings Related to problems experienced by mom's child's education during the COVID-19

To the mothers of children diagnosed with ASD, "What kind of problems did you experience regarding your child's education during the COVID-19?" question was posed. The answers received from the interviewed mothers and their frequency distributions are shown in Table 2.

Table 2: The Problems Mothers Experience with Their Children's Education During the COVID-19 Pandemic Process

Codes of Problems	**f**
My child is bored at home	6
We had problems giving directions	5
We had problems with internet connection	4
My child forgot what she learned	2
We couldn't adapt to online education	1
We had difficulty following the lessons	1

Regarding the education of their children during the pandemic process, mothers of children diagnosed with ASD stated that their children were bored at home, had difficulties in giving instructions to their children, had problems with an Internet connection, and forgot the information their children learned at school. In addition, mothers stated that their children could not adapt to online education and had difficulty following the lessons. Some of the mothers' views on these findings are as follows; A7 "After the closure of the special education school where the schools normally went, the pandemic period entered. The child started to get bored at home, so he was bored. So he stayed away from education. Moms love it, okay, but if something happens to a child given by a teacher, there is no discipline in the moms. He is afraid, but the teacher disciplines the child." A1 "He didn't listen to us, so be it homework or something, force it." A5 "My Child forgot what he knew. Since this Covid-19 came out, what he lost, he forgot what he knew. Online education has never been good for us. There are disconnections on the Internet, and we do not understand what the teacher is saying. They are trying to write, the children cannot keep up." expressed their opinions.

3.2. Findings Related to problems experienced by mom's child's online education during the COVID-19

To the mothers of children diagnosed with ASD, "What kind of problems did you experience with online education applied during the COVID-19 pandemic process?" question was posed. The answers received from the interviewed mothers and their frequency distributions are shown in Table 3.

Table 3: Views of Mothers on Online Education during the COVID-19 Pandemic Process

Codes of Problems	f
My child couldn't pay attention to the lessons	5
We had a resource and support problem	5
Our workload at home has increased	4
We experienced internet connection problems	4
Individual differences are not considered in EBA courses	2
Broadcast hours of live lessons are early	1
We experienced a tablet/computer shortage	1

Regarding the online education process, mothers stated that their children could not pay attention to the lessons, had problems with resources, increased their workload at home, and had internet connection problems. In addition, they stated that individual differences are not taken into account in the live lessons, the broadcast hours are in the early hours, and they lack materials such as tablets and computers. Regarding these findings, A7 said, "After the special education school where the schools went normally, the pandemic period entered. The child started to get bored at home, so he was bored. So he stayed away from education. Moms love it, okay, but if something happens to a child given by a teacher, there is no discipline in the moms. He is afraid, but the teacher disciplines the child." A1 "He didn't listen to us, so be it homework or something, force it." A4 "An environment that I do not know is a digital environment. We don't know; we're trying to open it but can't. Our resources are limited. It was difficult for the children to write the files one by one, page by page, with the help of our teacher from other friends. It was difficult to write. It was different for the teacher to say and write at school. We had problems for the first month, which happened before we started the live class. Because we were not ready for content, it was difficult for us to log in to EBA, receive files and download them. We had an adaptation problem in the child." expressed their opinions.

3.3. Findings Related to educational content prepared by the Ministry of National Education for Online Education during the COVID-19

To the mothers of children diagnosed with ASD, "What are your thoughts on the content prepared by the Ministry of National Education in your child's online education during the COVID-19 process?" question was posed. The answers received from the interviewed mothers and their frequency distributions are shown in Table 4.

Table 4: Mothers' thoughts on the content prepared by the Ministry of National Education in the COVID-19 process

Codes of Problems	f
Insufficient as there was no feedback	6
Content was sufficient but we couldn't use it	5
Lesson duration was short	4
Course content wasn't sufficient	3
Lessons are not understood because they are online	3

Regarding the content prepared by the Ministry of National Education, the mothers stated that there was a lack of feedback, they could not benefit from the content sufficiently, and the course duration was short. In addition, mothers noted that the content was insufficient and could not be understood because it was online. Regarding these findings, A5 said, "I don't know whether it is heavy on the lessons or not. What will be the process, and how will it go. It is more beneficial if my child goes to school. At least he asks the teacher to show something he does not know, and he has the opportunity to ask the teacher. But what can we ask the teacher on the computer in online education? I throw it there, and the child tries to ask something; one of the children has a dog next to him—the dog barks, drowning the teacher's voice. There is a disconnection on the Internet. EBA is kicking us out. So we don't understand at all." A2 "It is also made from TRT EBA, but the child does not sit and do it. The lessons are enough, but no matter how much I say, he doesn't." A6 "You know, with examples and so on, their time is very short for such children. They give a little time to a subject. Normally, if they did it one-on-one at school, they

would do two or three lessons. They will be places to ask questions that they do not understand. But since this is no such thing, I think it was not very productive." A18 "I think it was not enough. Because we have never taken advantage of it, since he didn't want it, we couldn't use it. I mean, I don't know how something could have been bought, but we couldn't make any use of it. He's never done it himself, either." A11 "No, sir. Face-to-face training would be better because nothing is understood in the internet environment. Then they post something from the group about the life lessons. We are having a connection problem, and we cannot connect. When we contact the class teacher, he says you will fill in the following, but we enter the site. The site is not opening in any way. We are in trouble." expressed his views.

3.4. Findings Related experience of moms keeping child at home during the curfews implemented during the COVID-19?

To the mothers of children diagnosed with ASD, "What kind of problems did you experience keeping your child at home during the curfews applied during the COVID-19 process?" question was posed. The answers received from the interviewed mothers and their frequency distributions are shown in Table 5.

Table 5: Problems Mothers Experience in Curfews During the Covid-19 Pandemic Process

Codes of Problems	**f**
Played too much with phone/tablet	5
He harmed himself and his environment	5
We had no problems	5
He wanted to go to the park	4
Bored of being alone	2
Gained weight	1

Regarding the problems they experienced during the curfews during the pandemic, the mothers stated that their children play with their phones or tablets too much, harm themselves and their surroundings, gain weight, are bored, and want to go out. On the other hand, five mothers reported that they had no problems. Regarding these findings, A6 said, "We had a lot of difficulties. Even adults had a hard time thinking about our children and their energies. They wanted to go out, and they wanted to play. They wanted to go somewhere and do social activities. Keeping them at home all the time has done quite a bit. We tried to do something ourselves, but the bad part was that they clung to phones and tablets more. Since we live in an apartment, the possibility of friends and the fear of avoiding constant contact is very natural. Having fewer friends than before was very impressive."

A9 "It was forbidden, but we had a lot of difficulties. He was constantly looking at the phone and playing, but after a certain time, he got bored. It was constantly on top of me. He was trying to hit me, biting himself." A2 "Well, we were keeping it hard at home. It didn't stop. After that, she wanted to go to the park all the time, she wanted to go out, and when we didn't take her out, she went crazy at work. We had a lot of problems in this process." A4 "We had problems keeping it at home because my child gained 10 kilograms in this process. She gained weight very fast. I don't know if this brought health problems with it, but our troubles started. We get tired quickly. We went towards asociality for a while."

A3 "We had no problems keeping it at home. My child never wanted to go out, and normally, he doesn't want to go out either. He never came out when he was sick. I forcibly removed it so that it could breathe." A11 "Well, he wasn't a kid who goes out often. He sat with me and played. I cooked, he watched cartoons, and he solved the test. I mean, it didn't get boring like that, I wasn't leaving the house because he had a chronic illness. He was standing next to me." expressed their opinions.

3.5. Findings Related additional experiences and views moms

To the mothers of children diagnosed with ASD, "Finally, is there anything you would like to add to this interview?" question was posed. The answers received from the interviewed mothers and their frequency distributions are shown in Table 6.

Table 6: Suggestions of Mothers for the Education of Their Children in the COVID-19 Pandemic Process

Codes of Problems	**f**
Let Education Be Face-to-Face	20
Shaping education with different methods	3

All of the mothers of children diagnosed with autism spectrum disorder who participated in the interview stated that they wanted the education to be face-to-face and that the lessons should be designed with different methods if there would be online education. Regarding these findings, A9 "As long as schools open, go to school." A12 "I want him to come to the school where he goes to face-to-face education." A6 "For the education process, I think it would be much more useful if different methods were created that would be more useful. As I mentioned, not every child's perception level is the same. There are children with learning disabilities like my child. But some children understand chickpeas without saying leblebi. Teachers working in the education sector may be moms, and there may be moms who will take extra care. It would be better if a separate system were created especially for children who need special education." expressed their opinions.

4. Discussion & Conclusion

In this study, interviews were conducted to determine the views of mothers with children diagnosed with ASD regarding the problems they experienced during the COVID-19 pandemic process. Considering the findings of the interviews, the mothers' taking on the educational roles of their children in their daily routines, limited Internet, inability to use technological tools, the situation of keeping their children at home, and their children's increasing tablet and phone addictions, etc. These situations increase stress and anxiety levels, so they have anxiety and problems. By examining the literature, we can see an increase in problem behaviors. Mothers' coping strategies are one of the issues discussed in online education, mainly because their routines change and they frequently spend time with online education materials (Alexander et al., 2020; Courtenay & Perera, 2020); Rose et al., 2020). Therefore, the study's finding is in line with the literature.

When another finding was examined, many moms said their children did not want to leave the house for fear of catching COVID-19. According to a study conducted on this subject in the literature, children with ASD who fear catching the Covid-19 virus do not want to leave the house due to these concerns during the epidemic (Hughes & Anderson, 2020). This finding aligns with the literature also.

Considering the research findings, some mothers stated that their children harmed themselves and their environment. When the literature is examined, it has been said that there is an increase in problem behaviors. Mothers' coping strategies are one of the issues discussed in online education, mainly because their routines change, and they must spend time with online education materials (Alexander et al.,2020; Courtenay & Perera, 2020; Rose et al., 2020).

All the families with children with ASD found online education incomplete, and it was seen that they wanted to switch to face-to-face education. In line with these opinions obtained from mothers, it can be stated that face-to-face teaching should be given in addition to online education. Furthermore, Picciani et al. (2020) said in their study that online education did not provide learning results such as face-to-face education in children with ASD. Based on these findings, it can be said that face-to-face education of individuals with special needs should not be interrupted in any way.

According to another study, one of the mothers' most significant problems is the increase in phone and tablet addiction in their children during the epidemic. It has been observed that such problems occur primarily due to the use of these devices in online education and that mothers have to allow their children to use phones and tablets to keep them at home. Furthermore, Toran (2016) stated that the increase in the frequency of use of technological devices in children had caused discussions and problems between families and children.

Based on the findings of this study, in which the views of mothers with children with ASD on the problems experienced during the COVID-19 pandemic process are tried to be determined for future studies; during the COVID-19 epidemic, the opinions of the families of the children from the other disability group who received online education and need special education can be taken. Teachers of children with learning difficulties, who are a part of the online education process, can also receive their opinions on the pandemic process in the future. On the other hand, online family training can be organized for practice. In addition, online training can be differentiated. Face-to-face education can be continued by taking the necessary precautions.

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Investigation of the Effect of 8-Week Life Kinetic Training on Self-Confidence, Attention and Psychological Skill Levels in Sedentary Men Students

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Abstract
This research was conducted to examine the effect of 8-week life kinetic training on self-confidence, attention and psychological skill levels in sedentary men students. Fifteen sedentary men participated in the study and the research was conducted using the pretest-posttest research model. In order to collect the data, "D2 Test of Attention" developed by Brickenkamp (1981), "Self-confidence Scale" developed by Akın (2007), "Athletic Coping Skills Inventory" developed by Smith (1995) and personal information form were used. The data were evaluated with the SPSS 25.0 statistical package program and the significance level was considered as $p<0.05$. The normality test of the data was done with the Kolmogorov-Smirnov test, and the Wilcoxon test was used to compare the pre-test and post-test scores. According to the findings, no statistically significant difference was found between the 8-week life kinetic training sub-dimensions of sedentary men's self-confidence, attention and psychological skill levels ($p>0.05$). As a result, it could be argued that life kinetic training applied for eight weeks does not have a positive effect on increasing self-confidence, attention and psychological skill levels in sedentary men.

Keywords: Sedentary, Life Kinetics, Self-Confidence, Attention, Student

1. Introduction

A sedentary lifestyle is seen as living away from an active lifestyle. A sedentary lifestyle brings about very serious health problems and threatens human health very severely (Akdur et al., 2007). Sedentary behavior refers to the moment when the human body has very little or no physical exercise and the energy loss is almost at the same level as the resting pulse level. It is the pattern of behaviors in situations such as sitting at home, watching TV, lying down, reading a book, playing computer games at the desk, driving, eating and drinking, and other situations with little movement (Memiş, 2017).

Developed in Germany, life kinetic exercises are used as a training program that stimulates the neuronal learning process, which is practiced in many countries of the world today, increases new brain networks, reduces neural symptoms, and improves concentration and performance of the visual system (Lutz, 2011). Many different tools such as balls of different sizes and colors, ribbons, and colored circles are used for life kinetic exercises. In

addition, the materials to be used vary according to the sports branches such as racquet sports, team sports, individual sports (Ateş et al., 2019). With the effect of developing technology and opportunities in the recent age, the needs of adolescents and young children to apply what they have learned in their school and social lives now play a very essential role. It is normal to expect adults to have responsibilities in their family and business life, and to expect the elderly to be able to stay physically and mentally healthy. Indeed, these are not the things that will naturally occur by themselves, but the things that require an effort to occur (Lutz, 2012). Life Kinetics exercises are not only done in gyms, but they can also be performed anywhere such as in school, classrooms, office and home. You can use almost any material for the exercise by using your creativity (Neureuther, 2009).

Self-confidence, according to a definition, is the state of an individual to develop positive and optimistic feelings and thoughts towards himself/herself and to feel good about himself/herself. It is the situation in which individuals are at peace with themselves and those around them thanks to this good condition (Akagündüz, 2006). In another definition, it is stated as recognizing and knowing one's own abilities, self-confidence and self-love (Kasatura, 1998). Lindenfield (2011) divides self-confidence into inner confidence and outer confidence. Inner confidence consists of the individual's own feelings. On the other hand, external confidence is complementary to inner self-confidence. It is the behavior of the individual to show that s/he is satisfied with herself/himself and that s/he accepts and loves herself/himself.

Attention was defined 110 years ago by William James as the simultaneous receptiveness of one of several objects or trains of thought by the mind in a lively, focused manner. Focus, concentration, and awareness are the essence of attention. Attention is the selection of certain things to be handled more frequently than others (Tiryaki, 2000). The concept of attention is a general concept that includes all of the functions of prioritizing, sequencing, planning and organizing (Yazgan, 2002). People are faced with many stimuli throughout their lives, starting from the mother's womb. The conscious choices people make among the stimuli they encounter are explained with the concept of "attention" (Özmen, 2006). The concentration of consciousness at a certain point is called "attention." Attention affects people's perception levels and thus their learning skills (Asan, 2011). In other words, attention is defined as “selectively focusing on the elements that are the center of attention by putting aside other elements that are encountered” (Soysal et al., 2008). In its shortest definition, psychological skill refers to the development of activities and exercises, which are performed daily in a natural and routine way, in a special perspective such as sports and training. It also means the regular and consistent performance of mental and psychological skills in order to increase performance, perceived pleasure, or personal satisfaction from sports and physical activity.

When we look at the studies in the field of life kinetics, research studies on the effects of life kinetics on performance and cognitive level in sports have been conducted with athletes from different branches and students from different groups. Due to the limited number of studies on the effect of life kinetics on self-confidence, attention and psychological skills of sedentary individuals, we think that the results obtained with our research will contribute to the literature.

2. Method

For this research, it was aimed to examine the effect of 8-week life kinetic training on self-confidence, attention and psychological skills. 15 sedentary male students studying at Gaziantep Turgut Özal Secondary School were determined and the necessary permissions were received from the school administration.

The research was conducted using the pretest-posttest research model. First, the participants in the study were provided with the necessary information about the content of the study. Along with the warm-up and cool-down exercises, participants were given life kinetic training sessions lasting 45-50 minutes three days a week. Before starting the 8-week life kinetic training and after completing the 8-week life kinetic training, the Personal Information Form, the "D2 Test of Attention" developed by Brickenkamp (1981), the "Self-confidence Scale" developed by Akın (2007) and “Athletic Coping Skills Inventory” developed by Smith et al. (1995) was used to collect the data. At the end of 8 weeks, post-tests were applied to sedentary male students participating in the study and they were statistically analyzed.

2.1. Data Collection Tool

Personal Information Form: It includes questions created by the researcher to determine the demographic characteristics of the participants.

D2 Test of Attention: The D2 Test of Attention developed by Brickenkamp (1962) was used to determine the attention levels of the participants. The D2 test consists of 14 lines and 47 marked letters. It is performed to evaluate mental concentration and selective attention. As a result of the study conducted on the athletes, it was emphasized that the Cronbach's Alpha value was determined as Total Item (TI)=0.95, Total Item-Error (TI-E)=0.96, and Concentration Performance (CP)=0.96 (Çağlar & Koruç , 2006). According to the results of Yaycı's study, it was reported that the Cronbach's Alpha value of D2 Test of Attention on sedentary individuals was found to be Total Item (TI)=0.831, Total Item-Error (TM-E)=0.831, and Concentration Performance (CP)=0.877 (Yaycı, 2013).

Self-confidence Scale: As a data collection tool in the study, the 33-item "Self-confidence Scale" developed by Akın (2007) was used. The scale consists of two sub-dimensions, inner self-confidence and outer self-confidence. Inner self-confidence items in the scale are 4-25-32-17-10-30-12-3-19-5-21-27-9-23-1-7-15 and outer self-confidence items are 6-31-20-29-16-14-22-11-18-33-2-28-26-13-8-24. The scale is a 5-point Likert type. Akın (2007) found the reliability value of the scale he developed to be 0.94 for the whole scale. The reliability rate of the scale, as a result of our study, was found to be 0.90 in the pre-test, while the Cronbach's Alpha value in the post-test was 0.86.

Athletic Coping Skills Inventory: The scale is a self-assessment tool developed by Smith, Schutz, Smoll, and Ptacek (1995) to evaluate the psychological skills of athletes. This tool developed for athletes consists of 28 items, 7 sub-dimensions and 4 items for each sub-dimension. The scale, which consists of a total of 28 items, is in the form of a 4-point Likert type scale. Questions numbered 3.7.10.12.19 and 23 of the scale are negative and must be numbered in reverse. Scoring for the sub-dimensions ranges from 0 to 12, and an increase in the score from the scale indicates that the athlete's psychological skills are good. Seven sub-dimensions were created by Smith, Schutz, Smoll, and Ptacek R (1995) and interpreted by Smith R and Christensen D (1995). Definitions and item examples of these seven sub-dimensions are given below (148). As a result of our study, the reliability score of the scale was found to be 0.72 in the pre-test, while the Cronbach's Alpha value in the post-test was 0.80.

2.2. Data Analysis

SPSS 25 statistical package program was used in the analysis of the data obtained during the study. The normality test of the data was done with the Kolmogorov-Smirnov test. Wilcoxon test was used to compare the pre-test and post-test values. The level of statistical significance was taken as $p<0.05$.

3. Findings

Table 1: Descriptive Statistics.

Variables	Groups	N	%
Age	12	12	80,0
	13	3	20,0
	Total	15	100,0
The Education Level of Mother	Primary	8	53,3
	Secondary	6	40,0
	High-school	1	6,7
	Total	15	100,0
The Education Level of Father	Primary	6	40,0
	Secondary	7	46,7
	High-school	2	13,3
	Total	15	100,0
Monthly Family	3500TL-4500 TL	7	46,7

Income (TL)	4501TL-5500TL	5	33,3
	5501TL-6500 TL	3	20,0
	Total	15	100,0

While 80.0% of the participants are in the 12 age group, 20.0% are in the 13 age group. When we look at the education level of mother, it is seen that the majority of them have a primary school education level with a rate of 53.3%. When the education level of father is taken into consideration, it is seen that 40.0% are primary school graduates, 46.7% are secondary school graduates and the remaining 13.3% are high school graduates. In addition, it was determined that 46.7% have an income of 3500TL-4500TL, 33.3% have an income between 4501TL-5500TL and 20.0% have an income of 5501TL-6500TL.

Table 2: Wilcoxon Results of Pretest and Posttest Scores Regarding Self-Confidence Levels of Sedentary Men

Variables			**N**	**M**	**SD**	**z**	**p**
Self-confidence Scale	Inner Self-confidence	Pre-test	15	64,87	9,463	-2,198	0,052
		Post-test	15	63,67	9,693		
	Outer Self-confidence	Pre-test	15	62,27	6,861	-1,338	0,181
		Post-test	15	63,87	4,984		

According to the table, no significant difference was observed in the inner self-confidence values in the sub-dimension of the self-confidence scale ($p>0.05$).

Table 3: Wilcoxon Results of Pre-test and Post-test Scores Regarding Athletic Coping Skills Levels of Sedentary Men

Variables			**N**	**M**	**SD**	**z**	**p**
Athletic Coping Skills Inventory	Coping With Adversity	Pre-test	15	7,87	1,922	-1,232	0,218
		Post-test	15	7,53	1,807		
	Coachability	Pre-test	15	8,07	2,314	-1,104	0,270
		Post-test	15	6,73	2,251		
	Concentration	Pre-test	15	8,47	1,885	-1,933	0,053
		Post-test	15	8,00	1,964		
	Confidence and Achievement Motivation	Pre-test	15	8,87	2,031	-0,631	0,528
		Post-test	15	8,60	1,805		
	Goal Setting/Mental Preparation	Pre-test	15	7,20	2,077	-0,284	0,776
		Post-test	15	7,33	1,988		
	Peaking Under Pressure	Pre-test	15	7,00	2,104	-1,539	0,124
		Post-test	15	7,47	1,727		
	Freedom From Worry	Pre-test	15	6,33	2,526	-1,470	0,142
		Post-test	15	4,67	2,380		

According to the table, no significant difference was observed in the sub-dimensions of the Athletic Coping Skills Inventory ($p>0.05$).

Table 4: Wilcoxon Results of Pretest and Posttest Scores Regarding Levels of Attention of Sedentary Men

Variables			**N**	**M**	**SD**	**z**	**p**
Test of Attention	Total Item	Pre-test	15	329,40	92,801	-1,140	0,254
		Post-test	15	324,27	95,660		
	Total Error Score	Pre-test	15	31,53	19,770	-1,311	0,190
		Post-test	15	25,93	12,027		

Concentration Score	Pre-test	15	99,67	25,765	-0,852	0,394
	Post-test	15	95,27	18,972		

According to the table, no significant difference was observed in the sub-dimensions of the test of attention scale ($p>0.05$).

4. Discussion and Conclusion

80.0% of the majority of sedentary men who participated in our research are in the 12 age group. In terms of education level of mother, it is seen that 53.3% of them are primary school graduates, 40.0% are secondary school graduates and 6.7% are high school graduates. In terms of education level of father, 40.0% of them were primary school graduates, 46.7% were secondary school graduates and 13.3% were high school graduates. When we look at the monthly family income, it is seen that 46.7% of them have income between 3500TL-4500 TL, 33.3% have income between 4501TL-5500TL and 20.0% have income between 5501TL-6500TL.

According to the post-test results of the sedentary men who participated in our study, no significant difference was observed in the sub-dimensions of self-confidence development.

According to the results of the study conducted to compare the self-confidence levels of high school athlete students and sedentary students, it was concluded that sedentary students had both lower inner and lower outer self-confidence levels compared to athlete students (Özbek et al., 2017). In the study conducted to determine the effect of sports activities on the self-confidence levels of individuals aged 13-14, it was found that the self-confidence levels of those who participate in sports activities are statistically higher than those who do not participate in sports activities (Yaylacı, 2019). According to the results of the study conducted by Zorba (2012), it is stated that doing sports regularly helps to increase positive results such as developing self-esteem and increasing self-confidence for individuals.

When the studies are analyzed, it has been determined in many studies that the self-confidence of the people who participate in sports increases with the effect of situations such as the increase in social relations and the development of personal skills; on the other hand, there is no change in sedentary people. When the relevant literature was reviewed, no study was found about the effect of life kinetic training on the level of self-confidence in sedentary individuals, and we think that this study will contribute to the literature.

According to the post-test results of the sedentary men who participated in our study, no significant difference was observed in the sub-dimensions of Athletic Coping Skills Inventory.

According to the results of the study, which was conducted to examine the basic psychological needs of students who do and do not do sports, based on various variables, it was concluded that the basic psychological needs of students who do sports are met more than students who do not do sports (Çırak, 2017). According to the results of the research conducted to compare the levels of resilience, self-esteem, optimism and locus of control of athletes and sedentary individuals, it was concluded that athletes have higher levels of resilience, self-esteem, locus of control and optimism than sedentary individuals (Özdemir, 2017). According to the results of the study conducted to determine the socialization levels of foreign national high school students who do and do not do sports, it was determined that foreign national high school students who do sports take more successful steps in communication with their friends, social relations, reflection of their perspective on sports and socialization compared to sedentary students (Yenişan, 2020). In Tunç's (2015) study on university students who do and do not do sports, the subjective well-being scores of women who do sports were found to be significantly higher than those who do not.

The sports environment provides many contributions in terms of making individuals feel good and teaching many skills that can improve their individual qualities. Also, it supports individuals by improving psychological skills such as motivation, anxiety, stress, assertiveness and self-confidence. When the studies were examined, it was seen that there were no studies on the effect of life kinetic training on psychological skill levels. That is, we

think that the results obtained will contribute to the relevant literature regarding being a study in the field of psychological skills.

According to the post-test results of the sedentary men who participated in our study, no significant difference was observed in the sub-dimensions of test of attention. According to the study conducted to compare the attention skills of table tennis players to sedentary individuals, it was determined that those who play table tennis are more successful in test of attention than sedentary ones, and playing table tennis positively affects the level of attention of individuals (Reyhan, 2019). In a study conducted by Adsız (2010) to determine the effect of sports on attention development in primary school 4th and 5th grade children, it was seen that those who do sports are 83% more careful than those who do not. In a study conducted by Özdemir (1990) to compare the attention levels of university students aged 17-23 who do and do not do sports, it was found out that students who are athletes are more attentive than those who are not. In a study conducted by Gür (2022) to examine the effect of life kinetic exercises on performance in darts athletes no statistically significant improvements were found between pretest and posttest values in all of the performance values of the control group.

When the studies were examined, there was a significant increase in the attention levels in the post-test results of the athletes who participated in table tennis, darts, game training and sports-related exercises, while there was no significant difference in the post-tests results of sedentary people. We think that the results of this study will contribute to the literature, since there are no studies on the effect of life kinetic training on the attention level of sedentary people.

When the literature is reviewed, it is seen that there are studies conducted to examine the effect of life kinetic training on cognitive abilities and to examine the effect on skill learning. Therefore, it is thought that our study has a unique value and will contribute to the literature, since it was conducted to examine the effect on self-confidence, psychological skill levels and attention levels in sedentary people. In future studies, it may be suggested to examine the effects of life kinetic training on different variables in people who actively do sports. In addition, longer studies such as 12-16 weeks can be done with adult age groups. It can be suggested to contribute to the literature by conducting more research on psychological skill training practices and life kinetic training practices.

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The Challenge of Turkish Proper Names in Foreign Language Learning

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Abstract
The article aims to sort out semantic and cultural diversity in Turkish female and male names, which could be challenging for foreign learners of Turkish. This research was designed as a descriptive analysis into how foreign names could be semantically and culturally interfered by foreign language learners of Turkish. So as to make the classification, the most frequent 100 names of newborn Turkish citizens between 1950 and 2020 years were officially gathered from the Turkish Statistics Institute. The findings reveal that these names reflect a wide diversity ranging from functional words to their derivations since Turkish is an agglutinative language causing challenges for foreigners, and it deduces it is far beyond of their formations. It is assumed that these names raise critical language awareness on structural and deep cultural insights of target language.

Keywords: Onomastics, Turkish Personal Names, Gender, Word Formations

1. Introduction

Languages constitute great diversity wherein identity, heritage, ideology, geography, history, and literature are reflected in a distinctive way. Of these matters it appears identity standing for who we are and what we share as common language, culture and ideas indigenous to the society. The concept of 'identity' herein is belonging of people who determine their place in the social and cultural space in the World (Aksholakova, 2014, p. 465) within onomastics. The origin comes from the Greek word, ὀνομαστικός (*onomastikós*), which means "of or belonging to naming," from ὄνομα (*ónoma*) meaning 'name' (Oxford English Dictionary). The Association of Turkish Language defines it as proper names, especially, personal names. For scholars, it is the names convenient labels for identifying people and they are the governing entities behind the social meanings and the triggering constituent for the co-occurring predicative and pronominal forms (Anashkina and Konkova, 2018, p. 174). Hence, it includes a great value in language as mirroring the way specific groups of people to name themselves in words within semantics. In this respect, names also reflect the personal qualities, characters and even proficiency by arousing definite images about that society. This is how the others accept cultural norms and patterns of behavior, valuable orientations and language of this particular society (Aksholakova, 2014, p. 467). As a matter of fact, names in all societies reflect linguistic and cultural identities since they indicate the existence

of individuals, the differentiation of them in the society wherein they take part in terms of social and occupational actors. Aksholakova (2014: 467) cites name appears as a part of a language, consequently, names are a kind of reliable material. No matter however it is defined, all languages indicate names' appropriate labels to identify people, places and objects. Also it has been the focus of target language research in terms of linguistics, sociolinguistics, and pragmatics for several decades. Regarding linguistics, personal names appear to be important twice as much since it focuses on morphological and semantic aspect. Ainiala and Östman (2018) accentuate that language structures selected should be presented in meaningful contexts and pattern drills observable in language teaching. Upon consideration of the basic theoretical framework, personal names would be observed through 'Cognitive-pragmatic Theory,' that focuses on the nature of linguistic knowledge (Nuyts, 1991). Coates (2009) draws attention to onomastics and distinguishes names in onymic and semantic references. The former is associated with proper meaning whereas the latter is associated with meaning. Whichever is taken into account, names are the fundamental inputs behind the social meanings and the triggering constituent for the co-occurring predicative and pronominal forms in addition to their 'semantic potential' in language units. Regarding from the syntactic point of view, when examined what activities, traditions, and processes are assigned to name of individuals in the act of naming, pragmatic aspects reveal because the nature of naming acts and their differences are determined by the mental approach of the name-givers (Nuyts, 1991, p. 145). That's why, several elements of personal names are unique to every language; for instance, in Russia, Ukraine or Belarus, the name and father name are considered to be the joint use and surname (e.g., Sergey Valentionevich Asanamiev/İrina Ivanova Novitskaya/Natalia Vladimirovna Vasileva). In England personal names can be divided into three parts: first name, middle/second name and last/family name (Jack Carlson/Jack Allen Carlson). Similarly, regarding Turkish personal names, they can be in two or three ways: name and surname (Mete Çelik), name, second name and surname (Mete Han Çelik). In short, it reveals the identity of communication in different parts of one's life, which is a burden for any foreing language learners while reading or hearing a Turkish name but getting lost about its appearance or sound. In other words, different person name models can be used in different parts of life (personal, public, professional domains, etc.). These models take place within the communication dimension accepted by the society (In public or professional domains=Turkey: *İbrahim Bey 'first name plus Mr.', Emel Hanım 'first name plus Mrs. or Ms.';* England: *Mrs/Miss/Ms. Smith, Mr. Smith;* Belarus: *Olga Ivanova Denisovich, Dimitry Anatoliyevich*)- and (personal, social area=Turkey: *İbo/İbrahim, Emoş/Emel*; England: *Pam/Pamela, Mike/Mikeal*; Belarus: *Ola/Olichka/Olga, Dima/Dimitry*]. To Calp (2014), this relationship between names and public administration reveals the usage in private (Emel-Emoş) and public (Emel-Emel Hanım) domain. According to these domains, names (middle name, name and surname, nicknames etc.) are always grounded matters hidden in themselves and cause misunderstandings for people from other cultures. Nonetheless, Aykut (2017) deduces valuable information about people's cultures as well as history, psychology, religion and customs of each society that has its own naming traditions as the way of life in society, way of thinking, social structure and reflective mirror (Calp, 2014). From this point of view, the burden could be coped with easily. Because as expressed by Aykut (2017, p. 423), the names of individuals not only regulate the cultural and individual identity of the human being but also the relationship by eliminating the confusion and the margin of error.

As afore-mentioned, proper names reveal the richness of language changing from country to country, revealing the country's unique historical and cultural heritage but also burdens to catch in the society. From this point of view, it is also an important cognitive input in language learning. Therefore, the cognitive basis and semantic aspects of naming should not be ignored while going through the exemplification of personal names in any language because this super diversity might break barriers and mutual prejudices among cultures since the semantic potential of language units make world people become aware and curious about identifying societal norms and values hidden in semantics. In brief, this potential is also unveiled through the help of onomastics, a clue symbol of identity. Yet, the focus of several intercultural studies is considered as incompletely explored (Petit & Sieffermann, p. 11). Thus, helping to build bridges of understanding and communication among cultures might be realized with onomastics that has been a great interest of scholars since ancient times dating back to the 15th Century. Since then, there have been several onomatological studies conveyed from different perspectives such as nature and direction of ongoing changes in names (Anashkina and Konkova, 2018. p. 4), spontaneous mnemonic strategies to use proper names (Sarıtaş, 2009); episodic records or transfer-appropriate processing (Vascenco, 1975); linguistic complexity of proper names (Murru-Corriga, 2000); morphology and semantics of

personal names (Ngoc-My, 2001) relationships, attitudes, and emotions concerning the self (Maduagwu, 2010); onamastics and ethnography of communication for historical family and community events (Vodanović, 2014); anthropotonymic structures in discourse (Angelou, 1969); corpus-based investigation of names (Shokhenmayer, 2018). Therefore, reconstructing socio-cultural trends, forces, castes, professions, their creation and variation, linguistic significance as well as ethnic affiliation in different regions and communities were attempted (Anashkina and Konkova, 2018) in the field. It was articulated that modern linguistics, sociolinguistics or pragmatics and discourse analysis have taken less interest in proper names (Yumaguzin and Vinnik, 2019). Nevertheless, the insufficient critical approach to language study has unfocused on social aspects, especially language and power in addition to social relations and grammaticality, cohesiveness and coherence of the discourse (Vodanović, 2014). Hence, in recent years, interest in proper names not merely as labels but also their semantic potential has increased in multicultural classrooms where multicultural teaching approaches have often dealt with proper names from linguistic or cultural perspectives. No doubt, language and intercultural or intracultural awareness have played a role in these approaches. Matushansky (2009) highlights proper names are studied as syntactically simple, with no internal potential of semantics. Eugenia, Romanova, and Spiridonov (2018) underline importance of the pragmatic theory of properhood and its remaining unsolicited in theoretical onomastics by deducing the syntactic features of proper names. They discuss syntax produced by different structures and importance of lexical material stored in the lexicon with all the meanings associated with lexical units, which make the starting point of this unearted matter in the current study. Their concern is also negotiation on that there is no consensus as to whether morphology is a module distinct from syntax or syntax is the module where morphological operations also occur. To Motschenbacher (2020), syntax of proper names is a relatively new field of study, much of the research in which is yet to be undertaken indicates long lasting studies on syntactic explanations of semantic problems. To Motschenbacher (2020), earlier onomastic research concentrated on the description of names in their own right, which means that their linguistic usage context has only insufficiently been taken into account (p. 9). Sengani (2018) negotiated to create identities positives with some oblique names just as labels. Tse (2004) claims that little has been done with respect to the grammatical account of proper names from a linguistic perspective, and her study is limited to pure titles as references, nicknames, epithests, and quasi names given to supernatural beings, and so on. Ainiala and Östman (2018: 8) put an end all discussions by stating onomastic research has been done for over 40 years and many areas have still hardly been touched upon, and by applying the question studying of personal names to be answered. No doubt, when all these aspects are regarded through semantic units of any foreign language, especially in the Systemic Functional Linguistics to focus on the metafunctions of languages, different cultures communicate effectively and appropriately as also given in semantic categories for Turkish personal names below.

2. Turkish Female and Male Names

Turkish personal names are reflected in logical and lexical semantics. They stand for semantically arts, atmospheric and natural events, seasons and months, priceless stones, animals, plants, colours, kindship, patriotism, professions, spirit of struggle, sense of nationality, common names in daily life, names used in addressing someone, abstract names, sounds and even greetings (Aykut, 2017, p. 665). Logical semantics appears in these names as much as lexical semantics. For instance, they reflect tenses, nouns, adjectives, adverbs, numbers, gerunds and participles and so on. Conceptually or logically, it gains richness on how children are given names according to their rank in the family like the first (*Ilker* 'first soldier' for males; *Ilkay* 'first moon' for females) and the last child (*Soner* 'the last soldier' for males; *Sonay* 'last moon' for females'). This fact for any foreign language learner of Turkish is an indication whether or not they reflect gender and derivational input as well. Even naming children with flowers makes a reflection of the importance of culture and even nature (gül 'rose'). Inspiration by animal names reflect their belief of 'Animal husbandary,' associated with qualities such as bravery, courage, ability, intelligence (*Aslan* 'lion,' *Şahin* 'falcon' for males and *Ceren* or *Ceylan* meaning 'gazella', *Ahu* 'deer', and *Suna* 'shelduck' for females). Additionally, religious names reveal the ancestral respect toward the prophet in the religion they belong to. Observation their environment and link the names to occurrences such as war, peace, natural events, good harvests and even agreements in families is common as well. Sometimes inaugurations of kings or queens are reflected in names revealing gender and vowel harmony, a burden for foreign language learners (i.e., *Banu* 'princess', *Ece* 'queen', *Melike* 'female ruler', etc.). In the same vein, Turkish people also give compound names including the lexicalisation process. As informed in these

examples, it is much more beyond it as explained below. To start with, names are taken from family elders either alive or passed away (grandmothers, grandfathers, grand-grandparents) as appears in many languages. It is great word puzzles to give similar names to twins '*Canan-Candan', 'Bilgi-Bilgin', 'Ecem-Ece'*, '*Demet-Buket'* for female and '*Can-Cem', 'Bülent-Levent', 'Berk-Berkay', 'Can-Caner'* for males. This puzzle not only makes language learners to vowel harmony but also to the suffixes gaining another meaning. This is a key factor for them to remember and produce their word formations in their sentences just looking around. Then, names are given as compatible factors with sister names '*Nuriye-Huriye', 'Nermin-Sermin*' etc. for females and 'Tevfik-Fikret', 'Erhan-Erkan', 'Savaş-Barış', 'Güney-Kuzey', etc.) for males. This manner is considered as tongue twisters for learners to practice as well. Names are given when mother or other family member is affected by a dream during the pregnancy (*Irmak* 'river', *Deniz* 'sea', *Ruya* 'dream', *Serap* 'mirage', *Aslan* 'lion', *Kaplan* 'tiger'). Sometimes, families longing for children for a long time give specific names associated with their will, wish or hopes (*Murat* 'will', *Umut* 'hope') for their children to survive. Sometimes names of the loved relatives or friends are given with inspiration to keep the memory of those beloved ones in the family forever (Sarıtaş, 2009. p. 428; Ağırman, 1998). In the similar vein, names can be given according to the importance of the day/month when a child is born (*Kadir* 'the holy night, to which Islamic belief, the Quran is the time when the God began to be revealed to the prophet, *Muhammad*; *Ramazan*-religious month namely Ramadan; *Nisan* 'April', *Eylül* 'September', etc.). Likewise, names are given regarding the events at baby-delivery time or season (*Bahar* 'Spring', *Yağmur* 'Rain', *Rüzgar* 'storm', *Mehtap* 'moonlight', *Şimşek* 'lightening',) or the river or place of birth (*Dicle* 'Tigrish', *Fırat* 'Euphrates', *Doruk* 'peak'). Moreover, names are given as first names and surnames, respectively (*Fırat, Yılmaz, Erdoğan, Özgür, Demir, Doğan*, etc.). As mentioned and exemplified with the examples, Turkish naming diversity could be termed as super diversity since the ones given above are one part of naming in Turkish culture. There are other examples listed severalfold: a) giving names by those who have many (enough) children and never desire of giving new births or deliveries (*Yeter* 'enough', *Songül* 'the last rose', *Dursun* 'let him/her stay alive', *Sondur* 'the last one, namely last enough'; b) by those who want to change the gender of the child (*Döne* 'wishing it were to turn', *Döndü* 'reneged'…). This is because of having the same gender, especially girls, and thinking to change this misfortunes for boys and also survive the family names for other generations, people decide to give such names; c) by those who may not have children becauce of miscarriages and early mortality, (*Durmuş* 'he is said that he has survived', *Songül* 'the last rose', *Yaşar* 'the one who he lives'), ç) by those who name newborn babies regarding their rank in the family for the first or last delivery ones as afore-mentioned (*İlknur* 'the first divine light', *Sonnur* 'the last divine light', etc.), d) by those who want their children to be healthy and strong (*Yiğit* 'brave', *Kahraman* 'hero/ valiant', *Cesur* 'courageous', *Yağız* 'bold', *Efe* 'swashbuckler', etc.), e) by those who name their babies by looking at their physical appearance or characteriscts (*Esmeray* 'brunette moon', *Gamze* 'dimple', *Deniz* 'sea' for those born with blue-seacolor-eyes, etc.), f) by those who give names of abstract semantic names are associated with beauty, tenderness, gift and grace (*Özlem* 'passion', *Ferman* 'edict' or *Gülten* 'skin like rose', *Armağan* or *Hediye* 'gift', *Zeki* 'smart', *Adil* 'fair', *Onur* 'honour', *Bilgi* 'information'), g) by those who believe precious stone names are associated with deep value (*İnci* 'pearl', *Elmas* 'diomand'), and also h) by those who want to show sympathy for forerunners of their nations and their uniqueness (*Savaş* 'War', *Barış* 'Peace', *Zafer* 'Victory', and the names of famous personas like past Sultans, leaders, poets, authors, philosophers, political actors: *Selçuk, Cengiz, Osman, Fatih, Alparslan, Süleyman, Yavuz, Orhangazi, Mustafa Kemal, Murat, Selim* for males and *Sultan, Orhan Kemal, Halil İbrahim* etc.). In another viewpoint, some personal names can even be used for both men and women as gender-neutral names (*Yaşar, Ayhan, İlhan, Yüksel, Servet, Kamuran, Güngör* etc.). Regarding gender, there are also gender-specific suffixes (a female name is formed by converting a male name by suffixation of 'e', 'a' regarding the preceeding vowel in the name and 'ye', 'ya' as buffer if male name ends in a vowel) in Turkish antroponomy (*Cemil-Cemile, Salih-Saliha, Şerif-Şerife, Zeki-Zekiye, Kadri-Kadriye*, etc.) as in the other languages (i.e., Czech: Piotr-Petra; Russian: Aleksandr-Aleksandra; Italian: Georgo-Georgia; English: Victor-Victoria, etc.). Zengin (1999: cited in Uca, 2004: 145) states that with these features, the names are the way of life, the way of thinking, the social structure and the mirror of that society. Akalın (1998: cited in Uca, 2004. p.146) stresses the fact that elders of the family could give names taken from the oldest written documents, even in the epics, perhaps belonging to prehistoric ages (*Bilge* 'wise', *Oğuz* 'Oghuz', *Göktürk* 'Gokturk' etc.) or can be influenced by important events of specific decades or ages (*Cumhur* 'public', *Hürriyet* 'freedom', *Kurtuluş* 'independence', etc.). As given in several categories above, Turkish personal names are illustrative to shed light on deep meanings and keep a question mark in minds by leaving its place as 'tip-of-the-iceberg',

which is required to unearth the questions in minds within several studies to be carried out. Additionally, icoranic names in the Qur'an are also common among the citizens to indicate their being followers (i.e., Havva 'Eva', Melek 'angel', Cennet 'heaven', Medine 'madinah', Meryem 'mariem', Firdevs 'heaven garden', Nur 'divine', Nisa, Nisanur, Ayşe, Fatma, Füsun 'magic', Tuba 'a tree in Heaven', Kevser 'the 108th Sura in the Quran' for females, and Adem 'Adam', Miraç 'miraj, holy night', Kudret 'might', İsa 'Jesus', Kadir 'dignity', Ali, İbrahim, Yusuf, Mustafa, Mümin 'Muslim', Yasin '36th Sura in the Quran', Resul 'prophet', Recep, Ramazan, Şaban, Nuh, Musa, Muharrem 'muharram', Aşur 'ashura', Rabia, Davut, Yakup, Ruhi 'psychic' for males).

If lexical semantic patterns are on focus, there is a range of functional words: verbs (present: *Yaş**ar*** 'he who liv**es**'/past tense: *Dön**dü*** ***'s***he who return**ed**'), gerunds *Sez**en*** '*s*he **who feels'**, participles *Satıl**mış*** 'he who **had been** sold', passives *Satı**l**mış* 'he who had **been sold'**, nouns (simple/compound/derivation), adjectives *Cesur* 'brave', negativity *Yıl**maz*** 'he who **never** quits', numbers **Bin**nur 'a **thousand** divinity light', as well as simple noun '*Çiçek'* meaning of flower, compound noun '*Güldeste'* rose-bunch and *Gülseren* 'she who lays roses', derivatives *Kurtul**uş*** 'libera**tion**', and so on.

Regarding all these potentials mirrored in the names proving the descriptive part of the study, this current study deserves close scrutiny on Turkish personal names and aims to sort out their semantic potential so as to present some hints mirrored in the formulation of grammatization and realization. As the second part of the study so as to reflect the cultural attitudes to name citizens, the core of this study is designed as a data collection of the corpora of Turkish names (n= 424.511; M. 206.849 and F: 217.662 constituting diversity of male and female names in the top hundred list: n= 594; M:286; F:308) by the Association of Turkish Statistics (TUIK) to realize appropriate and reliable results since all these constitute the identity of larger groups representing the population in 2020. The aim is to reflect the attitude of name givers regarding categories of religion, culture and patriotism since Turkey is Islamic country, yet super diversity in culture and has deep roots to its history. The list was restricted to the most frequent 100 names to investigate whether or not these three categories are reflected in. Yet, the list is limited merely to the years of 1950 and 2020 so as to give insights about the semantic and cultures hints of those from the past to the present date. It is assumed it gives an insight to the language learners about the names and their being changing throughout the years.

Table 1: Female and Male names of 1950 and 2020 by TUIK.

Categories	**1950**				**2020**			
	Female		**Male**		**Female**		**Male**	
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**
Religion	34	34.00	39	39.00	39	39.00	42	42.00
Culture	61	61.00	46	46.00	58	58.00	35	35.00
Patriotism	5	05.00	15	15.00	3	3.00	23	23.00
Total	**100**		**100**		**100**		**100**	

As displayed in Table 1., the most common names in the top hundred lists appeared in religion, culture and patriotism categories. Apart from religion and patriotism, the culture category included several sub-sections reflecting the diversity of the Turkish population as afore-mentioned. However, when the findings were analyzed, the religious names were observed to increase throughout the years, whereas the culture-based names indicate a descending order from 1950 to 2020. Patriotic names are rarely utilized (5% in 1950; 3% in 2020) for females but male names are more common and reveal an ascending order (3% in 1950; 23% in 2020). Semantically, the religious names are found to range from garden of eden '*İrem*-Female' to righteous '*Salih*-Male' as well as girl of eden '*Huriye*', light of islam '*Nurettin'* for men. In the past the name of the prophet '*Muhammed'* in Islam was found inappropriate to name an individual and '*Mehmet'* was the name given to new-borns as its Turkish equalence. Nevertheless, according to the names list in 2020, the prophet name was found as noun compound '*Muhammed Ali', 'Muhammed Emin', 'Muhammed Enes'* as well as single noun of '*Muhammet'* and '*Muhammed'*. In addition, some holy names calibrated in the Qur'an were given to females and

males (i.e., '*Melek'* angel, '*Elif*' given in Suras; '*Ramazan'* Ramadan for males, '*İsa'* Prophet Jesus, 'Yusuf' Prophet Joseph. For culture-based names, gratitude '*Şükran'*, graceful '*Zarife'* for females and maturity '*Kemal'*, wise man '*Hikmet'*, praiseworthy man '*Hamit'* and woman "*Hamide'*. Additionally, semantically the cultural names reflect the physical appearance such as facial beauty '*Sebahat* and *Feride*-Female'; *Cemal*-Male; even beautiful as much as fullmoon '*Bedriye*-Female', and white-tanned, stupendous '*Recep'* for males. It is also common to find names to reflect behavior such as matronly '*Kamile'* for females and '*Kamil'* for males and patience '*Sabriye'* for females and '*Sabri'* for males. Even though patriotic names are rearly found in the first hundred name list, they are given to children to indicate the families adoreness to their historical actors and victory in their past. For instance, name of '*Türkan*' means the princess who affects the ruler, '*Satı'* is the female leader. '*Emirhan'* means the Khan who imparates and '*Serhat'* is the soldier at the border. There are numerous names reflecting several potentials of semantics even in full sentences, which are the focus of another study. In the same vein, Turkish personal names reveal a wide range of semantic potential ranging from religion to patriotism (even identity, heritage, ideology, profession, and geography to emotional and economical indications).

3. Conclusion and Suggestions

The findings of the study put forward a valuable diversity of Turkish anthroponomy within the integration of semantics by raising awareness towards deep knowledge beyond that of onomastics [26]. Any personal name emboldens a deep insight and perspective rather than merely naming individuals as labels that happen in several languages. It goes beyond knowledge [14] revealing the way of life that could unearth the social structure as a mirror of that society. This is how language units make it easy for individuals to have an interest in names concealing unique particularities of form, identity, etymology, history as a way of meta-language awareness towards intercultural or intracultural diversity and of overcoming cultural barriers mutually. This study deduces that semantic potential of language units for foreign language learners of Turkish language as the literature is filled with surveys revealing the burdens and challenges of Turkish language for foreigners. In fact, Turkish language is very logical once the hints and insights could be captured by the foreign learners since all alterations are based on logical inputs. It broadens the constitutions of morphology and lexicon when they are grasped and realized within meaningful patterns in the lessons. In the same vein, this awareness can help to build bridges rather than build walls among the cultures. Additionally, when these super-indicators are taken as units of the linguistics for foreign language learners, they can be motivated to learn any language like Turkish, one of which is among agglutinative languages. Morphologically embedded units gain importance as alterations within sentence through the motivation. This permanent learning could be realized by putting these male and female names be frequently inserted in a wide diversity into the course books teaching Turkish as a foreign language for foreign learners since foreign learners of Turkish struggle with morphological units during their learning process. So as to raise logical awareness towards the challenges of the linguistic and cultural units, the characteristics of proper names lead to success to be achieved without burdens.

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Features of Deictic Processing Adverbs Now, Then, Here, There

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Abstract
This article examines the main mechanism of development of the deictic features of English adverbs now, then, here, there, their purposeful research, and also reveals and diversifies the diversity of their development points on the basis of specific linguistic material. The study of the deictic properties of the adverbs Now, then, here, there in English is of deep interest. In a discursive situation, the deictic essence of the adverbs now, then, here, there is revealed first of all. Before exploring the deictic functions of these adverbs, the views of various linguists on the deixis category and deictic expressions are noteworthy.

Keywords: Deixis, Adverb, Adverbial Determinants, Physical Context, Discursive Situation

1. Introduction

In linguistics, the concept of deixis is often referred to when considering grammatical categories. Although it is not correct to attribute sentence-related grammatical categories to functional linguistics as a whole, it is justified to make some analogies. One of them is the category of deixis.

As known, language has an objective-subjective nature, that is, on the one hand, language acts as a means of communication of specific language speakers as a product of an objective, social and specific language environment. On the other hand, human language is subjective, because it functions in a real way only with the help of individuals and satisfies the social and personal needs of that individual.

Deixis refers to a class of linguistic units that are used to refer to elements of a situation or context. These include both conversational participants and the location and time of the current conversational event. Deixis belongs to the most important categories of language communication. The universality of deixis is measured by the fact that the conversational process cannot be imagined without deictic units: speech cannot be realized without reference to space and time. When referring to time and space, the use of time and space adverbs, especially now, then, here, there, as a deictic element attracts attention. The anthropocentric paradigm of modern linguistics allows us to consider that deixis is a unique natural occurrence of language egocentrism, so that the creation of any utterance or speech by the speaker is a product of his communicative-cognitive experience.

2. Objective of the study

The purpose of the article is to study the features of the deictic processing adverbs here, there, now, then in modern English, their means of expression, the analysis of these deictic adverbs being a set of premises about readers and stories that grew out of research on the function of deixis in fictional narratives.

3. Methodology

Research methods include direct contextual analysis, cognitive-linguistic, or linguistic description. With the help of these methods, the onomasiological typology of deixis (whether it is universal or special) is clarified. It is noteworthy to mention the fact that in the investigation of the problem may be considered completely for it is not possible to cover all the study by using one method. That is why the study of these concepts is needed to investigate deeply.

The following has been chosen during the investigation:

1. The method of tenacity within the pragmatic model:
2. To follow the systematization of the theory and practice the method of dedication is used as well
3. A qualitative analysis of the most frequently used deixis in English

4. Presentation and discussion

Deictic adverbs are very interesting parts of speech in any language. They do not have their own specific content, they do not give specific space or time signs for events or actions, they only show them in relation to the subject of the act of speech, the speaker. They are called "linguistic individuals" because in each new act of speech they always refer to the individual purpose of a place or time, depending on a particular speech situation. According to Bondarko, such words create a kind of backstage that the event is played against, involved in the actualization of the sentence, its relation to the real situation [Bondarko,]. These adverbs, which are called determinants in a sentence, act as a case outside the predicative group, they do not belong to the subordinate group or the predicate group, but act as a spreader of the sentence as a whole.

Among the determinants, the researchers identified two groups: adverbial and object-subject determinants. Conditional determinants are sometimes called situations that differ from object-subject determinants, which are more in line with the semantic properties of the named elements. In addition to the words of the category of person deixis, words that serve as a sign of space and time also occupy an important place in the deictic system of modern English and are characterized by both the diversity of semantic content and the degree of deicticity. In this sense, the adverbs of space *here and there and now and then* are of particular interest. Some linguists suggest expanding the system of concepts to describe the deixis of space and time, and bring the speaker's concept of time to the fore. Thus, the speaker selects and identifies grammatical devices depending on the perception of the time of the event.

In our research, we examined the deictic properties of the adverbs *now, then, and here, there*, which indicate the time of the action and the location of the action. Today, the most important point in the study of the classes of adverbs is the reference to spatial adverbs. If we compare the parameters of space and time, we find that deixis is first of all spatial and then temporal. In the temporal parameter, deixis is processed in a similar way to the spatial parameter, since time is a more abstract concept than space. The concept of space covers the existence, space, appearance, internal structure of objects, the order of their placement in relation to each other, size, distance between them and other aspects. Sometimes these *here, there, now, then* adverbs confuse reference with deixis when processing. However, there are some differences between them. Deixis refers to the physical context, while reference refers to the linguistic context. Although both indicate direction, one seems to place and the other connects. This can be seen from the following examples:

1) I've got a man in England who buys me clothes. He sends over a selection of each season, spring and fall.

2) What are you going to do now?

3) Here is she at last!

In the first sentence, the article of uncertainty and the person pronoun has a coordinating function. However, in other examples, the adverbs *now and then* are found to depend on the general discursive situation. Therefore, space and time adverbs are sometimes called pseudo-deixters. This explains why pairs that exclude each other, such as person pronouns, sign pronouns, and finally adverbs *now, then, here, there* , act as deixis and pseudo-deixis. Burlakova argues that in both English and Russian, spatial adverbs, in order to realize the meaning of location, usually appear together with the verbs that have this place in their semantic structure [Burlakova,1985]. The main form of expression of the localizer in the language is a prefix noun denoting a specific local attitude. It is the name that is the main and independent, initial form of expression for the localizer. The place adverb always acts as a secondary means of defining space in the context of deixis. Deictic adverbs are the most common here. Absolute orientation, i.e the non-deictic understanding of the situation, is expressed here by the near / far adverb, which refers to the place conditions. The non-deictic strategy of understanding is explained here by the fact that the use of this adverb is directed to a certain fixed center, regardless of the speaker / observer, and that center is the capital. The reference area of the adverb will not change here, as the spatial position of the subject changes. For example:

I found him here. He was waiting for us.
He said that they were waiting for us there.
Everybody was there with the paper in their hands.

So, deictic expressions are not pure indicators. They combine two functions - sign and sign character. Although their meaning is assessed in context, it has an additional meaning that is not considered evaluated in context. Personal pronouns not only define the attitude to participation in the act of conversation, but also indicate the category and vitality of the person; *here / there and this* / are indicators of proximity and distance. In general, deictic units, such as / I-I /, always tell the speaker that he or she has lost his or her property at the end of the conversation. In this case, the speaker is the point of account in the deictic field or in the deictic context, as is customary in the present tense. Both space and time are evaluated from the speaker's point of view. Everything that is close to the speaker is evaluated by the adverb / *Here* / -, and everything that is far from the speaker is evaluated by the adverb / *there* /. The time that is the same as the act of negotiation is denoted by the adverb / *now* /, but the time before the act of negotiation is denoted by the adverb / *then*/. Therefore, the place deixis is determined by the place of the speaker at the moment of speech, and the time deixis is determined by the moment of the moment of speech. The 3rd person pronoun is radically different from the 1st and 2nd person pronouns. Thus, 1st and 2nd person pronouns play an active role in conversation, 3rd person pronouns play a passive role and do not participate in the act of speaking, *this / that* pronouns are not always deictic, so they do not always indicate proximity / distance to the speaker. Their function in speech is significantly more difficult, which leads to controversy among linguists. C. Lyons believes that the pronoun / *this* / is close to the adverb / here / and the pronoun / that / is close to the adverb / there / [Lyons,1977]. According to several other authors, the position of the addressee is not very clear in connection with the development of the adverb / here /: sometimes the addressee can enter this space, and sometimes removed from it. This also applies to sign pronouns. The boundary between the adverbs here / there and this / is very vague, but also unclear. It turned out that the adverb / here / can represent the space in the immediate vicinity of the speaker. The development of this / that pronouns depend largely on whether the author of the speech act refers to his own particular words or to the words of the speaker who spoke earlier. If the speaker refers to his own word, both / this / and / that- / can be used equally, but if the reference refers to words that have just been uttered by someone other than the author of the speech, then only / that / is used.

For example: / *He will help us here: I know it exactly* /.

In this case, the difference in the functionality of the / *this / that* / sign pronouns is, as some authors believe, not only in proximity / distance, but also in more complex linguistic regularities in relation to the author of the speech, which is more complex than the author of the speech is. Like the center of deictic space, the deictic center of time varies according to the conceptualization of the speech situation: Now- it can be related to the moment of the speech event, but also to the larger incoming time period, the time of the current speech event *(e.g. Pete is now thirty years old)*. The deictic center differs from the conceptualized tense as past and future, for which there are different deictic expressions in English: Then both past and future tenses can be used, but the other time is deictic, expressions like soon and before refer to only one direction along the timeline is; that is, they are used only with reference to the past or the future. *Then I was at school. Then I was still at school. [past] b. Then I will be ready.*

[future] c. I will be there soon. [future] d. Ten years ago I was a waiter [past]. The time deixis is often correlated with measurements for time periods such as day, week, month, or year [Levinson,2004]. Now in the semantics of the adverb of time there is a coincidence with the moment of speech, and as a result, the word plays the role of a means of expression of the present tense. For example:

/*We have to do all our work and now we are preparing everything for it/.*

The categorical meaning of the adverb now in the context with the appropriate time form of the verb is more clearly manifested by creating a colorful time relationship in the scope of processing. In the semantics of the adverb then, there is a departure from the actual moment of speech creation, which determines that the word functions in two directions: past and future. They refer to earlier and later time microfields in the temporal plane, respectively. In a number of examples, the joint use of space and time deixis is also observed. For example:

> /*Now see here, Jane - said her mother. If you are going to make personal remarks, I won't stay here a minute.//*

In English, two concepts, namely deixis and time measurement, are co-expressed in compound NPs consisting of a demonstrative (or serial adjective) and a noun (eg, this week; next week); however, the combination of time deixis and time measurement can be lexicalized as in the time adverbs today, yesterday, and tomorrow, which denote both a point of time and a unit of time, i.e., a day, relative to the deictic center. English has a variety of true time deictic expressions, but time deictic can also be expressed by demonstratives imported into the temporal domain. There are some examples from several languages where deictic expressions such as now-then-now and then are demonstratives, as in the examples of German (Indo-European) and Urubu-Kaapor (Urubu-Kaapor). is carried out by Moreover, temporal deixis are often derived diachronically from demonstratives, e.g., after English, which evolved from a spatially meaningful deictic root. Similar developments have been found in many other languages of the world. In general, since time is usually conceptualized as being in motion, space, spatial deixis can function to "locate" the event in time on the timeline relative to the moment of the speech event, i.e., the deictic center. It explains that time deixis is often realized in terms of space, especially with demonstratives that can historically be transformed into time deictics. However, while temporal deixis is generally conceptualized in terms of space, it remains an abstract concept, and this is reflected in the fact that performers typically lose some of their deictic power when they enter the temporal domain. Like temporal deixis, discourse deixis is based on the metaphorical structure of time as space. Discourse consists of words and phrases used in sequence, that is, with one element. The sequential arrangement of discourse elements is usually conceptualized as a series of linguistic entities to which speakers may refer in the same way that they refer to temporal entities in a timeline. Both temporal deixis and discourse deixis involve a group of sequential elements divided into separate domains by a deictic center. However, deixis is defined as the deictic central moment of time. Thus, the semantics of pronominal adverbs of time is speaker-oriented. These adverbs constitute a special class of deixis, so deixis is defined as the indicator of the speaker (the natural center of the speech situation) in a narrow sense [Bondarko, 1971].

As we mentioned above, the most common examples in English include /*here and there*// adverbs, which play a major role in the creation of spatial deixis. For example:

1. /I enjoy living in this country//. [Cook, 1956]
2. /Here is where we are planning to play our wedding party//.[Cook, 1956]
3. /She was sitting over there//.[Cook. 1956]
4. /Just you turn up there in the fall and it will be all right. Just try and turn up there.//[Cook, 1956]
5./Thank you for keeping your word to stay as my guests. It's not bad here, really//[Cook, 1956].

/Here, there// and this/ that/ express distance from the speaker:
Physical distance and proximity
Mental and psychological distance and closeness.
For example:
/I am not here now//.
/"I see nothing here" he said. "It is really very simple"//.

The first sentence is semantically illogical, but pragmatically true, because it is a statement on an answering machine phone. The word /Now/ refers to that moment, regardless of when the callers call the person saying this

sentence, and not the moment when the person saying it is actually typing these words into the phone. In the second sentence, the mental distance between the speaker and the interlocutor is assumed, that is, the speaker emphasizes to his interlocutor that the problem he intends is not difficult at all, and the adverb here is a sign of this problem. Now let's pay attention to the discursive essence of the locative adverbs here and there. Burlakova.B.B(1985) conducted research on the discursive nature of the adverbs here and there and studied these adverbs in comparison with the corresponding adverbs in the Russian language (tut, tam). She notes that the adverbs here and there have place, time and discursive properties in Russian, and the adverb here has place, sign and discursive properties in English. In addition to these features, the adverb there also has an expletive meaning [Burlakova, 1985]. From the following examples, it is clear that the adverbs here and there perform a deictic function in accordance with the current situation: */I am glad to see so many of you guys here tonight when you could be at home watching the new Britney Spears series on television, he draws/*. And : "/*That huge place there? She cried pointing/ "/Do you like it?"* /[Cook, 1956] Parallelism is observed in the constructions where the adverbs here and there are used. Both of them have the function of pointing to an object, a person or an event. The difference is that the adverb */here/* is an indicator of close deixis, and the adverb */there/* is an indicator of far deixis. The joint processing of deictic elements */Here and there/* strengthens the semantic opposition between them: /*Dressed up white flannels I went over to his lawn a little while after seven and wandered around rather ill at ease among swirls and eddies of people I don't know – although here and there was a face I had noticed on the commuting train* /[Cook,1956]. Spatial deictic words, which characterize the location or direction of movement of this or that object of reality in relation to the subject of the information sender, are manifested in two microsystems.

Time deixis is an expression in relation to a specific point in time when the speech is produced by the speaker. Usually, the reference point for a time expression is the moment of the expression, which is the encoding time. In written or recorded language use, there is a difference between encoding time and reception time [Lyons, 1977]. The encoding time is the speech time, and the reception time is the time for the information to be recovered by the listener. The deictic center or origo for the time deixis is the so-called "*now*," the meaning of "*now"* being the interval of time that includes the moment of utterance [Lyons, 1977]. Additionally, the coding in calendar units counts either backwards or forwards from the time. According to Levinson(2004) these expressions are, for example, "*yesterday*" or "*a day before*" if you count backwards, "*tomorrow"* or "next Thursday" if you count forward . Deixis is a form of reference that depends on the context of the speaker, the most basic difference between deictic expressions being "away from the speaker." In English, "near-speaking" or proximal terms, "*this", "here-here", "now-now"*. “
Let us give some examples that clearly show the feature of the use of time deixis in English. First, the proximal form of /now/ can refer to the moment of the speaker's speech and the moment the listener receives the information. This is most clearly seen in the recording of the information into the recorder, and then playing it back.

The time adverb */now/* refers to the present time, and /then/ refers to the past and future. Compare: adverb in the sentence /*Why didn't you go there then?//(Why didn't you go there then?) – /then/ past tense, /I'll be there tonight, so I'll see you then/ /.(I will be there tonight, so I will see you then.)* indicates the future tense.

Thus, the time adverb /then/ indicates the speaker's relation to the present time, that is, its interpretation depends on the knowledge of the appropriate moment of the utterance. It also corresponds to the following deictic cases: /yesterday, tomorrow, today, tonight, next week/ and so on. The understanding of all expressions with the words given below depends on their interpretation, relying on appropriate pronunciation. For example, if a paper hangs on the door of the room - /back in an hour/, then this information does not tell us anything about when the person we need will come, because it is not known when he left the office. Events in time can be viewed as objects coming towards us or leaving us. Thus, the psychological foundations of time deixis are comparable to those of space deixis. Time metaphors are used in English. So, events can be seen as coming from the future /*the coming month, approaching Christmas/* and leading to the past. The present tense is proximal /*I study here now)/(I study here now)* and the past tense /*I studied there then// (I studied there then*) is the distal form.

Far from the speaker" or distal terms are "*that, there*,"*then*. According to Kibrik A. E(1987) proximal terms are usually interpreted in terms of the speaker's location or deictic center, so that now is generally understood to refer to some point or period of time in which the speaker's discourse is central. Distant terms can simply mean 'far from

the speaker,' but in some languages they can be used to distinguish between 'close addressees' and 'far from both the speaker and the addressee.' The context of the speech is of decisive importance in the interpretation of certain words and in the complete conveyance of the meaning. *Here and there, now and then, yesterday, today or tomorrow* can be ambiguous if we are not aware of the physical context. Some situations determine the meaning of some English sentences. To understand these sentences, we need to know who the speaker is, who he is talking to, about whom he is talking, where and when. This knowledge about context is defined as non-linguistic knowledge because knowledge about these cases does not belong to the framework of general knowledge about language. A tense deixis refers to all the tenses associated with it, and the utterance refers to it.

If the ideas about temporal words are somewhat clear, temporal adverbs should be approached in detail. Common English adverbs */now/ /then/, /soon/* indicate time in general and belong to time deixis. Compare:
/Now/(proximity);
/Then/(distance) (both past and future);
(Events of Time Approaching Us—This Week;)
(Events of time moving away from us—out of sight).
Let's take a look at the examples:
/Yesterday, all my troubles seemed so far away//.
/Now it looks as though they are here to stay.//
/Oh, I believe in yesterday./
/Yesterday I was so tired, but now I am not//.
/Yesterday, she was so angry, but now she is calm//.
/Present (close form),
/Past/ (distant form, something that is not only in time, but also unattainable, impossible).
For example:
/If I had more money/……
(If only I had more money)…

Distant forms of tense deixis not only communicate from a distance of current time, but also communicate from a distance that expresses current reality and facts. Adverbs of time in English show themselves as numerous plastids of the lexicon. In this language system, /*easy, difficult, compound*/ and resulting adverbs can also be noted. Here the final adverbs have many parts. In English, tenses can be given in three ways. Primarily through signaling systems. Then there are lexical semantic units with sign specificity in their semantics. Time appropriateness in English can also be given by marking time separation in the verb category of time (Ehrich,1982). In this sense, timing can refer to being ahead and at the same time also following the exit point.

5. Conclusion

We can conclude that the category of deixis is one of the categories of pragmalinguistics. The connection of deixis with the context and state of speech suggests its relation to pragmatics. Deixis covers the components of a speech act, its participants, the subject matter about it, the temporal and spatial localization of the reported fact, as well as signs directly related to the speech act.

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Teachers' Ability in Writing Mathematical Literacy Module Based on Local Context

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Abstract
One problem in elementary schools in facilitating students' literacy skills is the limitation of teaching materials. This study aims to explore the ability of elementary school teachers to write mathematical literacy modules based on the Bengkulu context. This research is descriptive research with a quantitative approach. Subjects consisted of two groups taken from 40 postgraduate students of elementary school teachers' education FKIP UNIB. Data were collected using ability tests, document analysis, and interviews. The results showed that: (1) there were differences in students' abilities to understand teaching materials before and after developing the module. (2) the fresh graduate students are better at choosing local context problems, designing modules, and displaying modules. (3) students from elementary school teachers tend to be better at developing indicators, presenting material, and examples of reinforcement. (4) the literacy mathematics module-based local context has met the criteria valid in terms of construction, material, language, and readability.

Keywords: Teachers' Ability, Module, Mathematics Literacy, Local Context, Descriptive Research

1. Introduction

The main problem in learning in schools such as elementary schools is the limited teaching materials that can facilitate students' thinking skills. This requires teachers to be more creative in developing teaching materials so that the achievement of student learning outcomes can be maximized. However, the demands of students' abilities in the 21st century must have at least four skills: critical thinking, creative thinking, communication skills, and collaboration skills (Salim, 2019). Skills needed in the 21st century are based on literacy, competence, and character (Direktorat Pembinaan SMA, 2017). In addition, applying AKM (minimum competency assessment) in learning in schools requires the development of literacy skills in students.

Literacy is the ability that a person has to read and write (Kern, 2000; Graff, 2006). Literacy is also related to student life at home and the surrounding environment to cultivate noble character (Creswell, 2014; Satgas, 2018). Students need to develop literacy skills to be accustomed to solving literacy problems. The literacy ability that focuses on the PISA test is mathematical literacy. Mathematical literacy is an individual's ability to formulate,

apply, and interpret mathematics in various contexts (OECD, 2013). Mathematical literacy skills can help a person relate mathematics's role in everyday life (OECD, 2013; Puspitasari et al., 2015; Fajriyah, 2018; Masjaya & Wardono, 2018). There are three concepts of mathematical literacy, namely (1) the ability to formulate, apply, and interpret mathematics in various contexts, (2) the involvement of mathematical reasoning and the use of mathematical concepts, procedures, facts, and tools to describe, explain, and predict phenomena; and (3) the benefits of mathematical literacy abilities are that it can help someone apply mathematics to everyday life as a form of constructive and reflective community involvement (OECD, 2013; Stacey, 2010).

Mathematical literacy emphasizes students' ability to analyze, reason, and communicate ideas effectively in solving mathematical problems they encounter (OECD, 2009). Mathematical literacy abilities are very important to solving problems faced in everyday life (Setiawan et al., 2014; Puspitasari et al., 2015). The common problem is that students have not been familiarized with literacy learning. Literacy abilities can be optimized by getting used to PISA questions (Sasongko et al., 2016). In accordance with this, (Purnomo & Dafik, 2015) mentions that frequently giving questions such as PISA will train and improve Indonesian students' ranking in the PISA score.

The achievement of students in schools in mastering literacy abilities still needs to be a concern, especially in Indonesia. Several tests conducted to measure the ability of students in Indonesia internationally need to be considered. Tests such as PISA show that Indonesian students' position or rank is still low. Indonesian students' ranked mathematics 63 out of 70 countries in 2015, ranking 64 out of 65 countries in 2012 (OECD, 2016; OECD, 2013).

Several aspects cause the low mastery of students on the tests conducted by PISA. The math problems in the PISA questions measure the ability of reasoning, problem-solving, and arguing (Wardhani & Rumiati, 201). The research results related to students' ability to solve PISA questions (Haji et al., 2018) at the middle school Bengkulu City found it difficult to relate real-life aspects to mathematical problems (models). According to (Kharizmi, 2015), multiliteracy followed by students' difficulties in improving literacy abilities were because of inadequate literacy practices and environments.

These problems indicate that it is necessary to emphasize learning that is oriented and facilitates students' abilities. As facilitators in developing students' abilities, teachers need to carry out innovative learning, especially in learning mathematics in elementary schools. (Sungkono, 2009) suggests that one of the competencies that a teacher needs to have is developing teaching materials. A teacher ideally controls the competence in developing teaching materials. Teaching materials make learning more effective, and the teacher will have a lot of time to guide students in understanding a learning topic. Learning activities must be designed so that students are facilitated in gaining knowledge. This is in accordance with Government Regulation Number 58 of 2013 concerning the learning process that changes the pattern of passive learning to active-seeking learning where students actively build their knowledge which is strengthened by a scientific approach learning model (Mendikbud, 2014). Several research results show that the development of teaching materials can affect literacy abilities. Research conducted by (Arvyaty et al., 2017) states that the mathematical literacy abilities of level 3 and 4 students can be improved by developing mathematics teaching materials with a metacognitive guidance approach for eighth-grade students. According to the National Center for Competency-Based Training, teaching materials are learning tools or tools used by teachers in the learning process in the classroom (Prastowo, 2011). One of the important goals of literacy strategies in content learning is to form students who can think critically and solve problems (Ming, 2012). Efforts must be made to encourage and guide teachers through developing literacy-based teaching modules. The development of teaching materials can use the context of everyday life or based on ethnomathematics, especially in the Bengkulu context.

2. Method

The research method used is exploratory research with a qualitative approach. The exploratory method aims to explore broadly the causes or things that influence the occurrence of something and is open, looking for elements, characteristics, and properties of the object of research (Arikunto, 2010). The study aimed to explore teachers' ability to develop mathematics literacy modules based on the Bengkulu context. The focus of the Bengkulu context

used in this mathematics module consists of (1) Bengkulu culture, (2) history, (3) Bengkulu tourism, and (4) Bengkulu food specialties.

The targets in this study were students of the Elementary teacher's education postgraduate program at the University of Bengkulu who were divided into two groups. The first group is students who have less than or equal to two years of teaching experience at school (≤ 2 years), and the second group is students who have more than two years of teaching experience (> 2 years). The data collection technique used consists of three, namely: (1) ability test, (2) document analysis, and (3) interview.

The data analysis technique used is a descriptive statistical analysis that aims to describe students' abilities and describe the results of the development literacy module in the Bengkulu context. Analysis of the teacher's ability in writing teaching materials as measured by tests using the following formula.

$$Grade = \frac{score}{maksimum\ score} \times 100$$

Table 1: Ability level category

Student's final grade	Level
67-100	High
34-66	Moderate
0-33	low

Document analysis uses an analysis sheet with a score range of 1-5, which is used in assessing the mathematics modules developed by students. The results of the assessment scores are interpreted with the following criteria.

Table 2: Criteria module

Interval	Criteria
1.00-1.80	Very less
1.81-2.60	less
2.61-3.40	moderate
3.41-4.20	good

3. Results

3.1 Description of development product

The mathematical literacy module developed in this study focused on literacy problems in the Bengkulu context. The Bengkulu context was chosen as a literacy problem in conveying the material concept, namely fractional operations. Literacy refers to the Bengkulu context, namely: the context of typical food, cultural context, historical context, and tourism context. (1) Bengkulu specialties, such as tat cake, a *lemma* (fermented young bamboo), processed *kalamasi* oranges, *rendang Lokan, tempoyak* (processed fermented durian fruit), and gelamai. (2) the cultural context of Bengkulu which consists of: Tabot, Batik *Diwo Kepahiang*, the ceremony of *medurasan* (engagement), Bengkulu traditional house (*Bubungan lima*). (3) Historical context, such as Malborough Fort, Sentot Alibasa Grave, Jamik Mosque. (4) The context of tourism, such as: Panjang beach, *Tapak padri, Rindu hati* tourism, *Suban.*

The mathematical literacy module based on the developed Bengkulu context is compiled by presenting material, examples of strengthening questions, and strengthening exercises. In terms of content, the module material is arranged based on basic mathematics competencies for fifth-grade elementary school students. The module developed is based on the results of the identification process of problems found by the teacher when carrying out the learning process in the classroom. The analysis was carried out by making direct observations at schools and Bengkulu contexts that are familiar to elementary school students in Bengkulu.

Panjang Beach *Tradisional house* *Tat cake* *Bungkarno's house*

Figure 1: Bengkulu contexts

The Bengkulu contexts in Figure 1 are used in presenting the material in the literacy module to facilitate the presentation of material and strengthening exercises. For example, the use of Bengkulu context in presenting material such as the following figure.

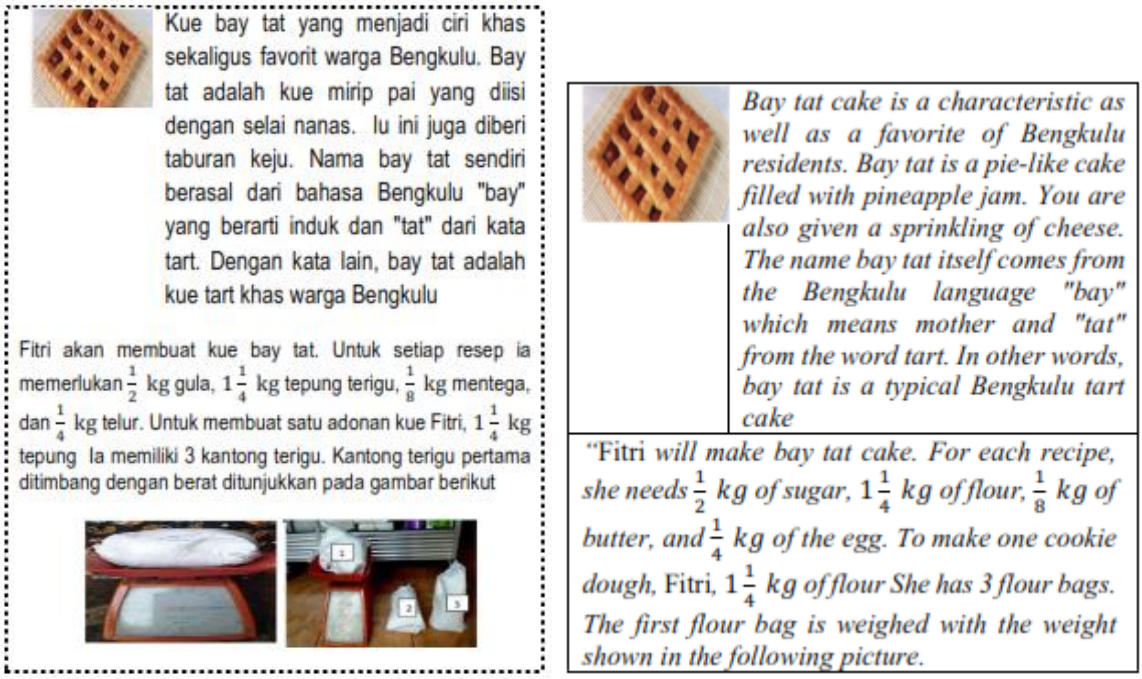

Figure 2: Examples of using Bengkulu context

The presentation of the material above shows the use of the Bengkulu context in presenting the material for adding fractions. Using real problems like the example above can help students understand the material contextually. Students' literacy skills will be further honed by getting used to understanding real context problems and those that are close to the student's environment. This is in accordance with the opinion (Masjaya & Wardono, 2018) that with mastery of mathematical literacy, each individual will be able to reflect on mathematical logic to play a role in his life, community, and society. Mathematical literacy enables individuals to make decisions based on a constructive mathematical mindset. The real context, especially local culture, can support the improvement of students' abilities. The study's results (Nur & Palopo, 2018) stated that contextual learning using local Lombok culture as a context had a positive and significant impact on students' mathematical problem-solving abilities.

The modules are based on two research target groups, namely groups of teachers with less than two years of teaching experience and more than or equal to two years of teaching experience. Two lecturers evaluated modules from the postgraduate program in mathematics education. The validator's assessment of the literacy module's aspects of language, material, and construction criteria are good. The focus of the revision was emphasized in using the appropriate Bengkulu context and presenting the material using concepts.

3.2 The results of the exploration of the teacher's ability

Teachers who carry out module development are given a knowledge test before and after module development. The results of the teacher's ability test related to knowledge about module preparation are as follows.

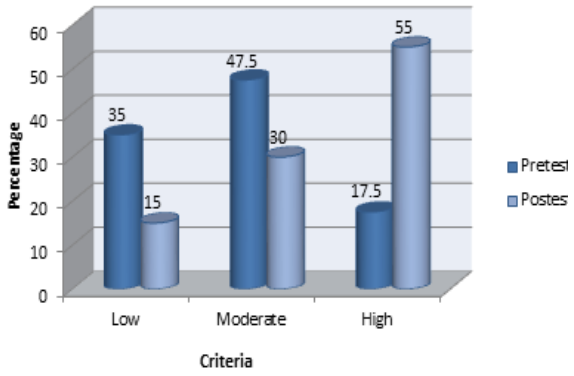

Figure 3: Description of teacher's ability

Figure 3 shows that there is an increase in the ability of teachers after implementing the module development. It can be seen that in the pretest, the average ability of teachers is in a low category. The posttest results show that there is an increase where the average in the category has a high ability. These results indicate that, on average, the teacher's ability to develop modules is good. Based on the study of the results of the module development, it shows that theoretically, construction and language are in a good category. The results of document analysis on literacy-based mathematics modules are as follows.

Table 3: Module assessment analysis results

Aspects of assessment	< 2 years		≥2 years	
	Score	Criteria	Score	Criteria
Indicator development	3.65	Good	4.31	Good
Context Selection	4.06	Good	3.67	Good
Material Presentation	3.37	Moderate	3.89	Good
Example of Reinforcement	3.21	Moderate	3.39	Moderate
Design and appearance	4.25	Good	3.24	Moderate

Data Table 3 shows that, generally, the category analysis results are moderate to good. The data shows a tendency that research subjects who have worked as classroom teachers for less than 2 years have higher scores on aspects of context selection and module design and appearance. However, in contrast to subjects with a working period of more than or equal two years, the aspects with the highest scores tend to be on developing indicators and presenting the material. The difference is that teachers with higher teaching experience tend to more easily show the material and the selection of indicators. Meanwhile, the age group of fewer than two years has advantages in design and appearance. This is supported by the many design and editing applications that are easy to learn through YouTube.

5. Conclusion

There are differences in students' abilities to understand teaching materials before and after developing the module. The tendency of fresh graduate students to be superior in choosing Bengkulu context problems, designing modules, and displaying modules. Students from school teachers tend to be superior in developing indicators, presenting material, and examples of reinforcement. The mathematical literacy module based on the designed Bengkulu context has met the criteria in terms of construction, material, and language.

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Evaluation of 4006 TUBITAK Science Fairs in Terms of Science Teachers

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Abstract
In recent years, the organizations of the science fairs at schools have been emphasized on. Science fairs are important since students' perceptions, attitudes, and achievements towards sciences are affected positively by the science fairs. It is important to carry out studies for science fairs and follow up this process in this context. This study aims to evaluate the effectiveness of the 4006 coded TUBITAK science fairs and the problems experienced by sciences teachers during the preparation and implementation stages of the fair. For this purpose, the study was carried out within the framework of the Phenomonographic approach, which is one of the qualitative research methods. The study group consists of 20 sciences teachers who participated in the support program of TUBITAK science fairs coded 4006 in the 2018-2019 academic year in Istanbul. In the study, a semi-structured interview form was used as a data collection tool. When the interview form was examined; It was determined that the majority of the teachers participating in the study demonstrated positive thoughts towards 4006 TUBITAK science fairs. Teachers stated that students who participated in science fairs developed skills such as imagination, active participation, self-confidence, socialization, work awareness, and responsibility.

Keywords: 4006 TUBITAK Science Fairs, Science Education, Teacher Opinions

1. Introduction

In the information society we live in, one of the most basic needs of learners is to learn how to access information rather than getting ready-made information. Because developing technology has made it easier for learners to access information, it has gained the feature of being reached by learners in a very short period, expressed in seconds (Durdukoca, Yardimciel, Beşeren, & Özbek, 2017). Science, which is the process of thinking about the nature of knowledge, understanding existing knowledge, and producing new knowledge, includes two elements: scientific knowledge and ways of acquiring knowledge. Scientific knowledge is the applied and sound knowledge contained in science and includes factual propositions, generalizations, hypotheses, theories, principles, and laws. Ways of acquiring knowledge are ways of getting scientific knowledge. Scientific knowledge can be divided into two groups as attitude and process skills. Scientific attitudes are the characteristics that should be found in people who are interested in science, that is, scientists. These attitudes; are qualities such as curiosity, modesty, not giving up, truthfulness, and skepticism (Oğuzkan, 1984, 95, cited in Tan and Temiz, 2003).

Science allows children to reveal their imagination and creativity. Students with the science education at the secondary school level begin to understand the basic definitions, principles, laws, and theories that support the emergence of science knowledge. They get the chance to know and apply the reasons that involve practice and scientific analysis. They understand the structure of scientific research, the history of its development, and the relationship between science and technology. They get the opportunity to know the social, cultural, and historical context in which these relations occur (Trowbridge, Bybee, & Powel, 2004, cited in Anagün, 2008).

It is known that innovations and inventions in science both make great contributions to the development of countries and are the basis of scientific and technological developments. This situation causes the importance of science and science education to increase day by day, and all nations give importance to the development of science. For this purpose, countries are trying to develop science education programs, increase teachers' quality, and equip educational institutions with tools (Ayas, Çepni, & Akdeniz, 1993). In recent years, project-based learning (PBL) practices have entered the school environment with the program changes made in our country. Project design is among the initiative and entrepreneurial competencies of the curriculum. Initiative and entrepreneurship refer to the ability of an individual to transform his thoughts into action. It includes creativity, innovation, risk-taking, and the ability to plan and manage projects to achieve goals. In the science curriculum, it is foreseen to conduct courses in learning environments (project, problem, argumentation, cooperative learning, etc.) based on the student. It is recommended that the performances of project design, model and product creation, product presentation, etc., which are expected from students, to be carried out in the classroom and under the guidance of the teacher as much as possible. It is expected that the activities will be held together with their peers in the school atmosphere (MNE, 2018). In this context, within the scope of each unit, project design gains are given to students. Thus, students reveal their inventions with the products they created by applying the PBL steps. Projects make students feel like scientists since they own their products. Since science is a course that is intertwined with daily life, it can attract the attention of students as a course suitable for projects.

In summary, studies have shown that when science courses are taught based on projects, learning is more permanent for students, and academic success is increased. Çiftçi (2006) found a significant difference in the experimental group due to the test he applied to measure the students' permanence levels. Dilşeker (2008) observed that academic achievement increased in experimental groups using the PBL method. He emphasized that PBL would provide permanent learning. Karaçallı (2011) stated that PBL provides permanent learning for students in his study made with 4th graders in science lessons. When the literature on academic achievement and permanent learning is examined, there are studies on the positive effects of PBL (Aladağ, 2005; Çil, 2005; Gültekin, 2007; İmer, 2008; Keser, 2008; Korkmaz & Kaptan, 2002; Özcan, 2007; Seloni, 2005; Soil, 2007; Wolk, 1994). In recent years, it has been seen that science fairs with the code 4006 supported by TUBITAK have been held in secondary schools to make students like these project studies as festivals. In this process, teachers and students go through a time and exhibit their projects towards the end of the semester. However, it is thought that teachers' ideas are important for future project studies in revealing whether teachers' process with students is effective. In this context, the opinions of teachers participating in 4006 TUBITAK science fairs as coordinators on this issue gain importance. For this reason, this study, it is aimed to get more detailed information about the preparation and implementation process of 4006 TUBITAK science fairs and to determine the thoughts of the teachers who act as a guide. In this direction, the study tried to answer the problems experienced by science teachers participating in TUBITAK science fairs with code 4006 during the preparation and implementation phases.

1.1. Sub Problems

- What are the problems experienced by science teachers during the preparation phase of TUBITAK science fairs with code 4006?
- What are the problems experienced by science teachers during the implementation phase of TUBITAK science fairs with code 4006?

2. Method

To evaluate 4006 TUBITAK science fairs in terms of teachers, it was found appropriate to use the phenomenography qualitative research method. Phenomonographic research describes the different ways people experience, interpret, understand or conceptualize a particular aspect of a phenomenon (Çepni, 2007). The phenomenography method aims to reveal the perceptions of the participants towards a concept and events (Yıldırım & Şimşek, 2012). Interviews are frequently used to collect data in phenomenographic research (Richardson, 1999; Çepni, 2012; Khan, 2014).

2.1. Study Group

The study group consists of 20 science teachers working in secondary schools in Istanbul, Turkey. Purposive sampling was used in the selection of the sample in accordance with the purpose of this study since it focuses on the opinions of science teachers rather than all teachers in different branches who carry out 4006 project studies. Teachers were coded as T1, T2, T3, …..T20.

2.2. Data Collection Tool

In order to collect data in the research, a semi-structured interview form was prepared to evaluate TÜBİTAK science fairs with the code 4006 for teachers. The questions in the interview form were prepared by taking the opinions of 5 experts in the field of science education from the related literature. Initially, the first version of the interview was one-stage, with a literature review. The previous version of the questions was aimed at getting simpler and shorter answers. Since some questions are directive, they were made more open-ended and arranged to receive more explanatory answers from the teachers. Then, the questions were examined one by one and staged in the form of preparation and application. Experts made the necessary combinations and arrangements in these questions and brought the interview form to a question format for getting more data. This prepared form consists of two parts. The first part includes demographic information, and in the second part, questions about evaluating the project process. In addition, the second part consists of the preparation and implementation phases. The semi-structured interview form was applied face to face, and the application process took 45 minutes. The data were collected in the form of audio recordings by taking the teachers' views along with the interview questions. All interviews were conducted in an empty room at schools by getting appointments. Later, the audio recordings were converted into Word documents.

2.3. Analysis of Data

NVivo 11 program was used to analyze the data, and content analysis was carried out in the evaluation of the interviews with the teachers. An attempt was made to establish a relationship between content analysis and concepts. The reason for this is to reveal the underlying events in the analysis of the data obtained. Then, the researcher interprets and organizes his analyses so that everyone can understand (Çepni, 2012). The data were described according to the codes and themes obtained and tabulated by making the necessary calculations. The questions written in the first stage are divided into two parts: preparation and application stages due to expert opinions. The questions in the preparation and implementation phases were dimensioned. The 1st-4th. questions or the preparatory stage of the study are dimensioned as “project task-information” dimension, 5th-6th. questions are dimensioned as “website use” dimension, 7th-8th. questions are dimensioned as "teacher competence" dimension, 9th-11th. and 14th. questions are dimensioned as "general problems" dimension, 12th-13th. questions are dimensioned as “project topics” dimension. 15th.-18th. questions for the implementation phase are dimensioned as “general problems” dimension 19th-20th. questions are dimensioned as the “student-teacher contribution” dimension. Then, the data were analyzed in this order by the researcher and presented as findings.

A preliminary study was carried out to increase the validity and usefulness of the developed semi-structured interview form. The questions in this interview form were determined considering the purpose of the research. To ensure content validity in the development process of the form, the literature was used, and the program was reviewed. The final form of the interview form was given by taking the opinions of 5 science education experts

about the prepared questions. The questions were written in a very short and simple way when they were first prepared, these questions were corrected these questions, and different questions were suggested to be added to the form. These corrections were taken into account by the researcher. Thus, the data were collected in different ways and evaluated by comparing them with each other. Audio recordings were taken while the interview questions were answered.

Regarding the reliability of the study, the consistency of the codes given among the coders was examined in the study. In this regard, the codes given by two coders were evaluated by three science experts. Miles and Huberman's (1984) principles were used for the reliability of coding. The following ways were followed for the reliability of the study: The analyzes on the probability of error were reviewed repeatedly. It was checked whether there was a deviation in the creation process of the codes and whether the meanings of the codes changed. The communication between the coders and the sharing of analyzes by getting the coders together at regular intervals and conducting studies was coordinated. The thesis advisor re-evaluated the codes and themes to cross-check the codes developed by different researchers and independently derived results and to ensure compatibility between coders. Then, with the acceptance of the coders, the codes whose reliability was evaluated were finalized. The consistency of the codes created separately was checked. Then, they were grouped as "Agreement" and "Disagreement" based on the evaluations of the researcher and two experts by taking the answers given to the teachers' questions into account. The reliability of the study was calculated by using the percentage of agreement calculation formula. In the calculations made, the percentage of agreement between the researcher and the experts in the field of science was found to be 87.5%. It can be said that the research conducted is reliable by looking at these values.

3. Results

3.1. Findings Concerning the Preparation Phase of TUBITAK Science Fairs with Code 4006

With the developed interview form, 14 questions were asked to evaluate the preparation phase of the 4006 coded TUBITAK science fairs. These questions are addressed in 5 dimensions. These dimensions are; project task information, website use, teacher competence, general problems, and project subject.

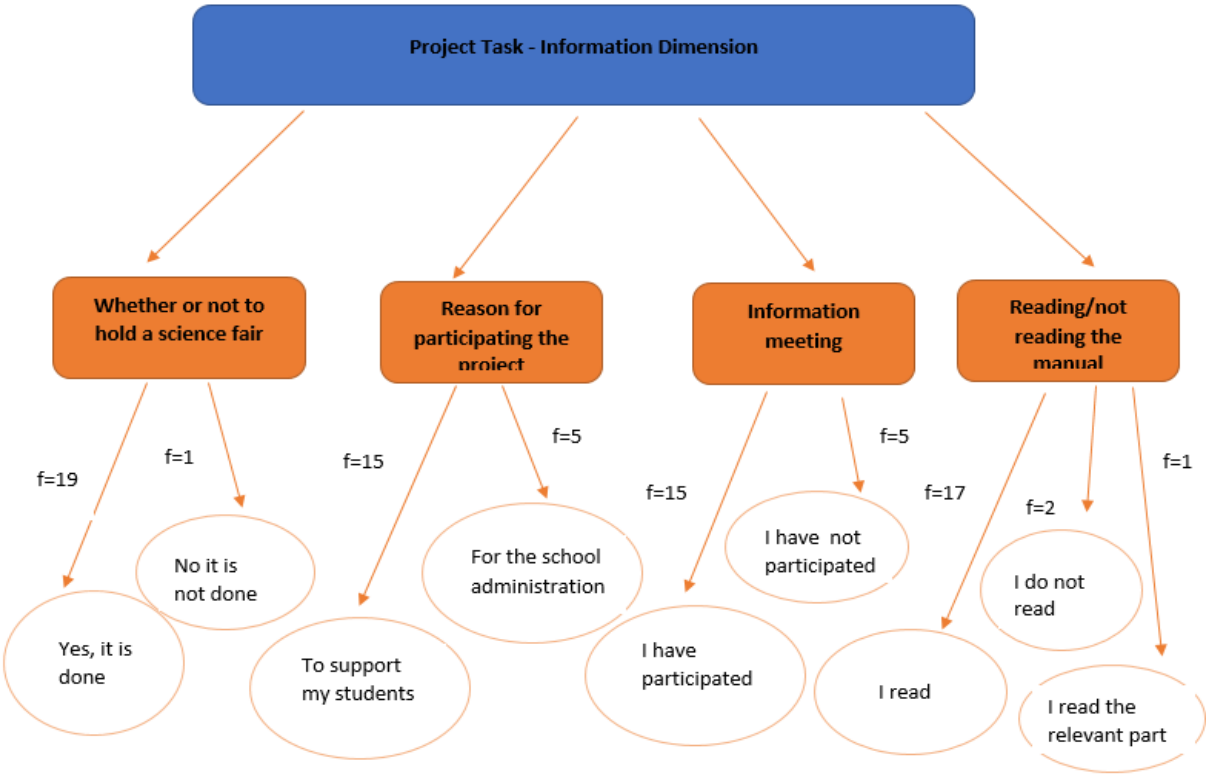

Figure 1: Model for the project task-information dimension

As can be seen in Figure 1, the "Project Task-Informing" dimension is grouped under four themes as; whether or not held the 4006 TUBITAK science fairs, their participation in the project and the reason for it, their participation in/not participating in the information meeting, and reading/not reading the guide. When we look at the codes regarding the theme of the 4006 TÜBİTAK science fair should be held or not, the teachers emphasized the most "Yes, It is done." T6 expressed his views as *"…Yes, it was done. It was held in different fairs…."*. The statement of the teacher, who was the project manager, was as "*I worked as an executive for four years in a row. It has never been done before in our school. At first, I had no knowledge or idea about the 4006s. I told my principal that I wanted to write a project for "this is my work" competitions, then he introduced me to the R&D unit project manager and the 4006 processes started at our school. I aimed to develop skills in my students and arouse interest in science through projects."* reveals the teacher's voluntary participation.

There were two different issues that teachers focused on the most about participating in the project and the reason, which is another theme related to the Project Task-Knowledge dimension. The majority expressed their opinions regarding participation in the project as "Yes, I participated" and expressed the reasons for participation as "I participated voluntarily." T8 expressed their opinions as *"…I acted as an executive. I follow it constantly. I love to involve my students. I joined voluntarily." T7 comments as "I joined. We attended because the school administration requested it. So the demand came from the school. Actually, I also wanted to participate in the events. So, we joined with my students."*.

The majority of them attend the meeting, under the theme of attending/not attending in the information meeting. T10 expressed his opinions as *"…Yes, I participated, but not enough information was given. I mostly reach information by researching myself or get information from our provincial representative …"*. T2 said, *"I participated, meetings and seminars are held in the provinces regarding such projects. Prior notices are given. I often go to these meetings with my colleagues. Information on innovations and things to do is given. I think it is useful too."*

"Yes I read" was the most emphasized by the teachers regarding reading/not reading the Guide, another theme related to the project task-information dimension. T2 stated as *"…I read the manuals. I take notes, I sort it…"*. T6 comments expressed as *"I read the guides every year because there are changes every year, and if you do not follow these changes, it is not possible to get the fair approval."*

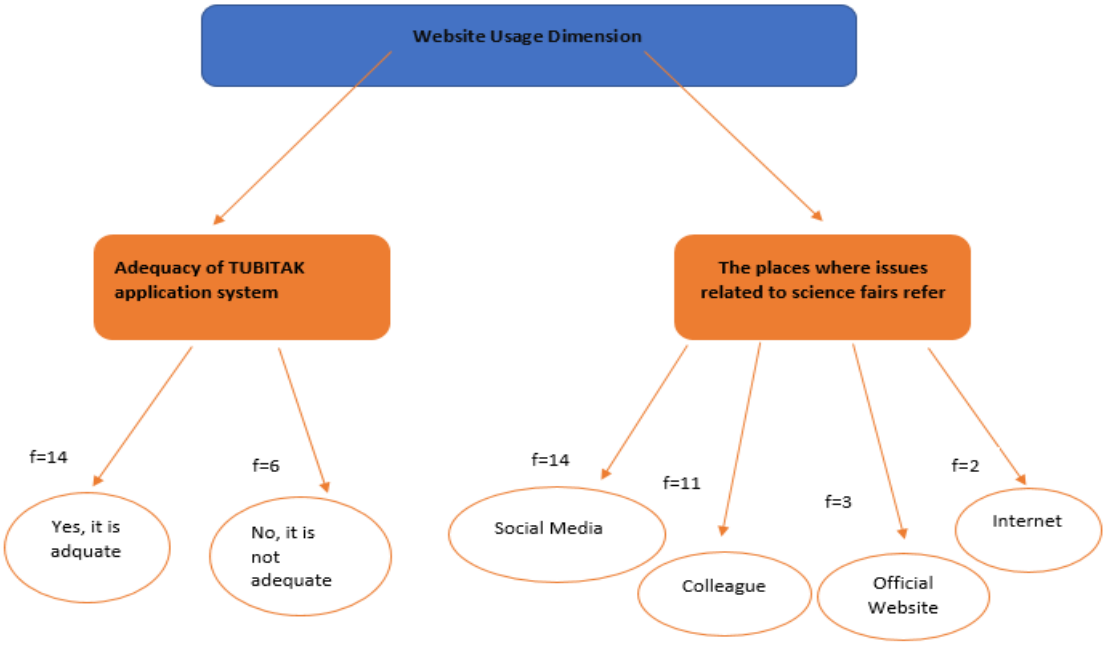

Figure 2: Model for the dimension of website usage

As seen in Figure 2, the majority of teachers find the TUBITAK application system sufficient. T5 expressed his views on this subject as "…*Yes, it is enough. I can find answers to any question I want."* T9 stated as *"I don't find*

it sufficient. Because there are serious problems in the application system. Notifications are not made on time and in the right way. For example, the guideline was not created when the e-signature process started. It is a very challenging process for people who will use e-signature for the first time. Instinctively, we try to use the system by trial and error."

Teachers generally stated that they found out what they were curious about or problems about TÜBİTAK by using social media groups, colleagues, the internet, and official sites. T8, replied *"R&D units in the provinces are trying to help in this regard, but unfortunately, they cannot help because their project tracking screen systems are different from ours. It is very useful to consult experienced friends from social media groups or to follow the posts of the members. I even try to help my friends who do not have experience in these groups because I also benefit from it myself. When I even meet my friends from university in social media groups, good exchanges can occur"* regarding finding out what they are curious about. T17 stated as *"I ask the provincial R&D officer what I am curious about TUBITAK. I rarely consult my colleagues. There are now a lot of sharing groups on this subject. There are groups on Facebook, and these groups are very useful. They are not bad at generating ideas as well."*

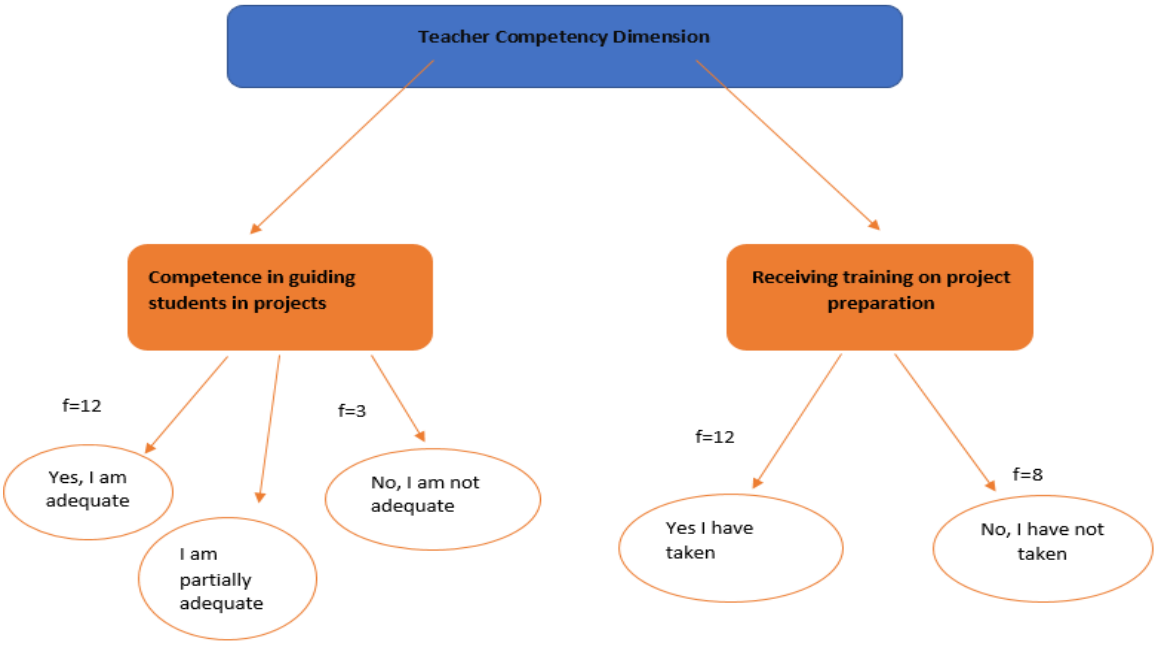

Figure 3: Model for teacher competency dimension

Twelve of the teachers find the project proposal stage sufficient in terms of guiding their students. T2 expressed his views on this subject as *"...I think I am enough. I take a very active role and give direction...."* T11 said, *"It is not possible to direct students during the project proposal phase. TUBITAK raises the bar every year, and students prefer to copy and paste from the internet at the point of the project proposal. Teachers at school (including me) have not received training on project production or project management. In the stages of proposal and project execution, the advisor teachers should first understand so that the student can understand the situation. I do not know how to direct students during the project proposal stage, and I do not think that other teachers (at least in science) know either."* Therefore, he stated that he was insufficient in the process of guiding the students.

Twelve of the teachers received courses or training on project preparation. T17's views on this subject were as follows: *"... Yes, I got it. I went to the courses and got a certificate. It helped..."* T18 expressed their opinions as *"I attended project preparation seminars a few times and I think it is useful. At the university, we had classes on preparing materials and projects. I think they also contributed".* T6 expressed his views as *"I did not receive any training, but there were courses for this when I was studying at university. We were preparing projects and making presentations. It is good to be given in such classes."*

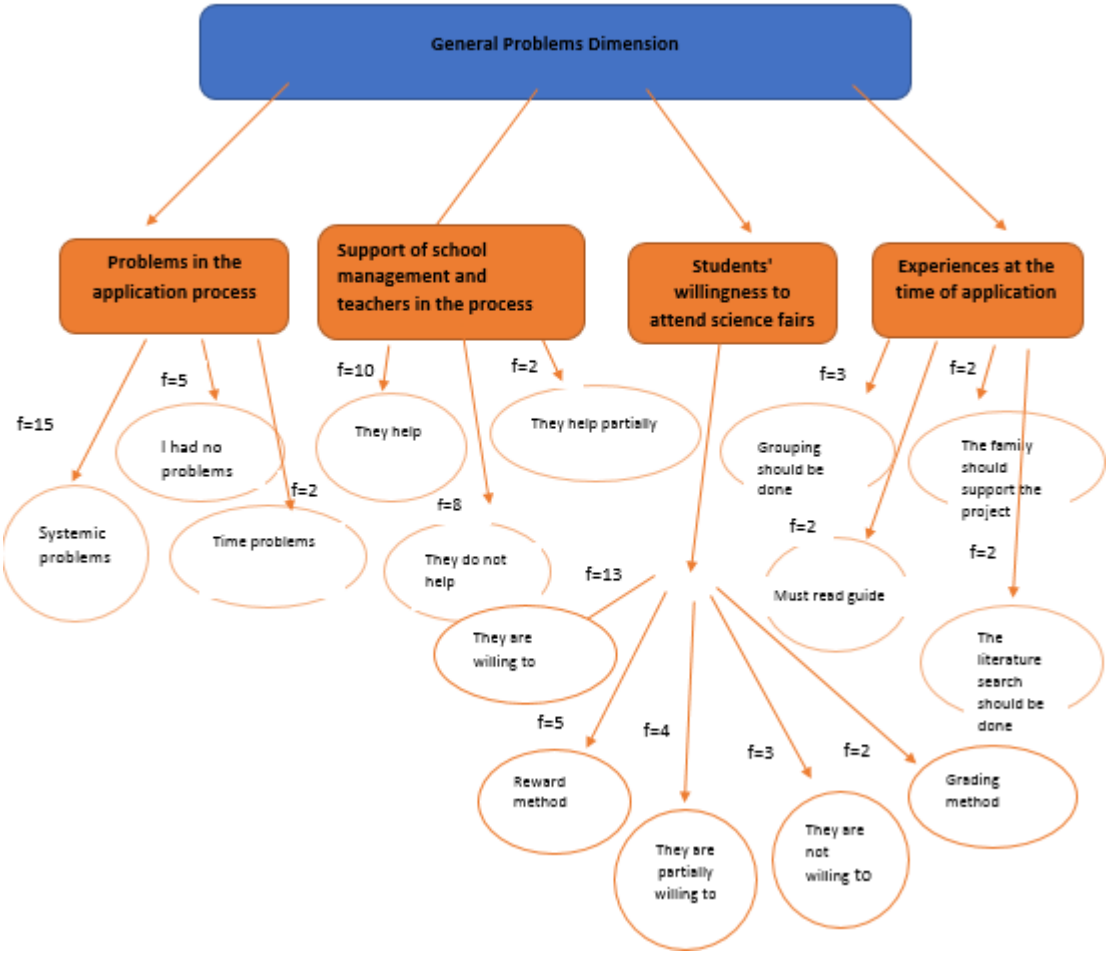

Figure 4: Model for the dimension of the general problems

General problems, another dimension of the research, were gathered under four themes as; problems in the application process, teachers and school administration's help in the project preparation process, students' willingness to participate in the science fair, and determining the project topics. When the teachers' opinions regarding the problems in the application process were examined, the *teachers drew attention to the problems related to the System. T2 expressed his views as follows: "The e-signature process is difficult, we have problems in signing in to the site, and there are a lot of system errors."* T5 expressed the problems he experienced as follows; "*Some sentences in the guide are not understandable during the application process. The system is very busy. The different rules that come in every year create problems. However, I learned a lot about solving the logic of preparing projects, and I also guided my friends."*

In the theme of the assistance of teachers and school management in the project preparation process, some of the teachers mentioned that they were helpful. T3 draws attention to the help of the school administration and teachers with his statement as *"... They help. When we can't find materials, we ask for them to be brought, or we share ideas..."*. T12 expressed his views on this subject as *"Other teachers are reluctant to prepare projects. I think that such activities are necessary to get teachers and students out of their molds, and I get very serious support from my principal."*

The majority of teachers find students willing to participate in science fairs. T18's views on this matter were as follows: *"...They are enthusiastic. They like to do projects by themselves... I worked with a group of 23 people, all of them were very enthusiastic. They like to do things, work, and spend time with their friends."* T7, one of the teachers of the students who participated willingly, said that: "*Students are very willing to participate. They can experience many emotions such as being in the fairground, making a presentation, feeling belonging to a group, feeling valued, etc. Since I am an executive, some students started to circle me a month before the fair. Even if they do not present a project, I try to assign tasks in the fair area according to their qualifications. In other words,*

I evaluate such fields not only as scientific work and project creation, but also to help my students gain behaviors that I cannot gain in classes".

The teachers' conclusions from their experiences at the time of application are grouping, literature review, reading the guide thoroughly, and families supporting the project.

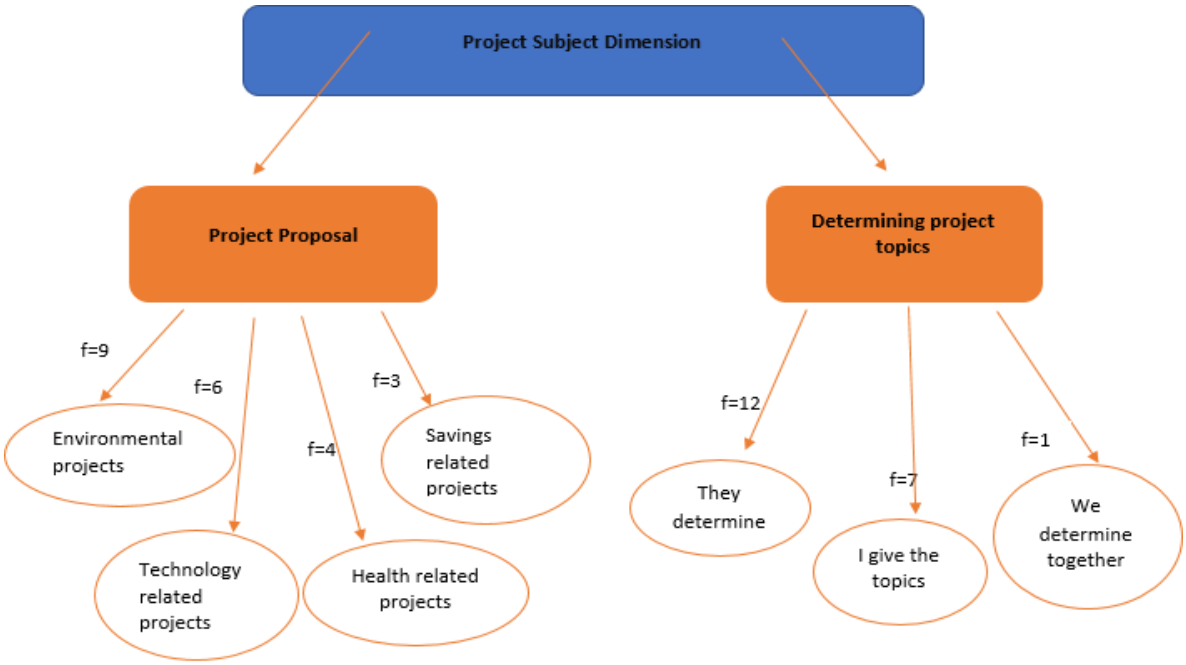

Figure 5: Model for the project subject dimension

As seen in Figure 5, it was stated that most of the work done by the teachers was related to the environment. They also stated that they are doing projects for savings, technology, and disabled people. T1 expressed his views on this subject as *"... Projects related to the environment, nature and life ..."*. T3 expressed his views on this subject: *"We applied the projects such as the most durable building with the least cement (mathematics-engineering-bioimitation) hexagon bricks, the effect of expired vitamins on plant growth (chemistry-biology-environment), game design with science subjects and learning with games, which is Einstein?"* T13 expressed his views as *"We have done projects related to fields such as physics, chemistry, biology, and health sciences. We have designed projects on issues related to mirror images, dental health, healthy nutrition, and periodic systems and applied."*

The majority of the teachers (12) leave it to the student while determining the project subject. T2 expressed his opinions as *"... I want students to determine their views on this subject, I give sample topics and try to create a project based on them. Sometimes I show examples of projects that have been made. Of course, I have students who have something in their minds, and sometimes I have to help them generate ideas even though I give the subject. Not every student is at the same level of success. Some are very creative, while others I have to hold their hands with."*. Regarding the students' realization of the projects by themselves, T11 stated that, *"In the projects that I carried out, they were able to carry out and follow the experimental processes themselves. In many other projects, since the teachers were the first consultants, I directed the teacher first, and then the teacher guided the students. The job of the executor is quite difficult"*. More burdens and responsibilities fall on executive teachers. They help both their colleagues and student groups and play an active role in most of the process.

3.2. Findings Concerning the Implementation Phase of TUBITAK Science Fairs with Code 4006

With the developed interview form, six questions were asked to evaluate the implementation phase of the 4006 coded TUBITAK science fairs. These questions are addressed in two dimensions. These dimensions are; general problems and student-teacher contribution.

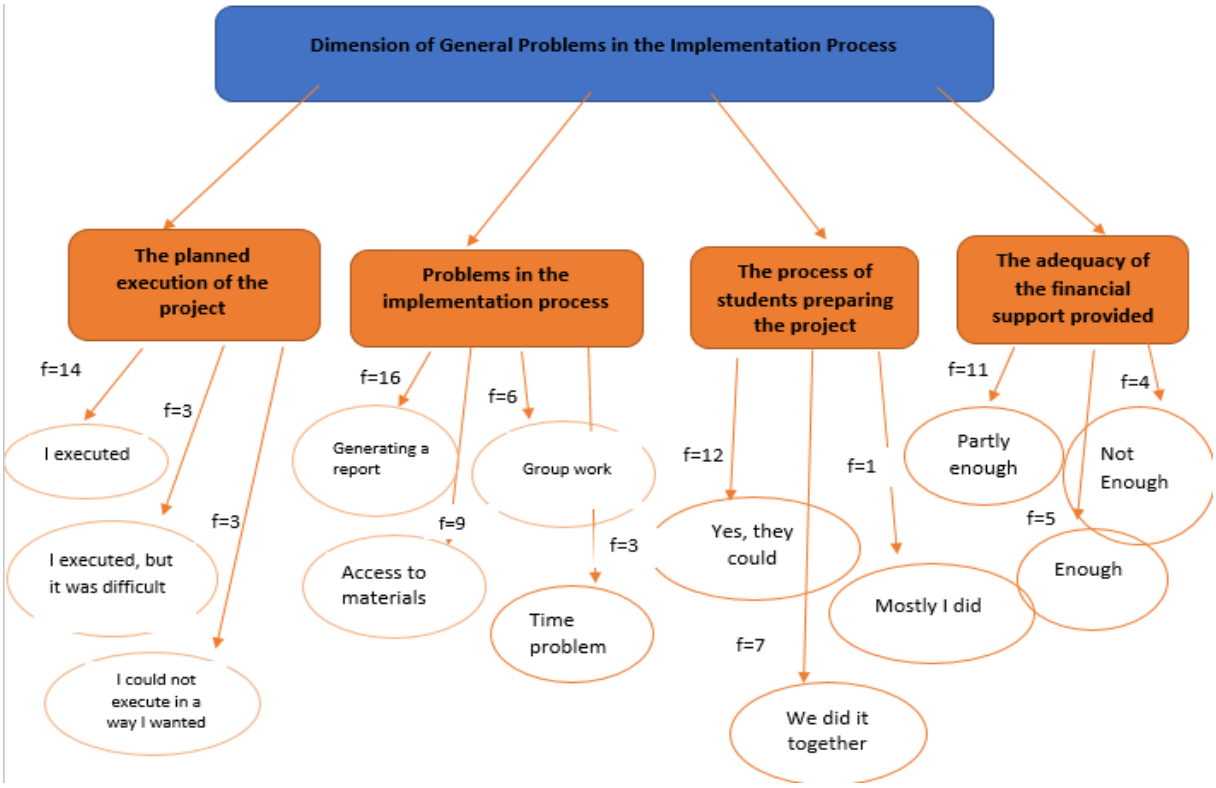

Figure 6: Model regarding the dimension of the general problems in the implementation process

As shown in Figure 6, most teachers think that they carry out their projects as they wish. T10 expressed his views on this subject as *"... Yes, we were able to carry it out. At first there were problems with planning. Over time, we got used to it, we don't have any setbacks anymore..."* and T5 expressed his opinions as *"Some of them yes and some no. Some students were very willing in the projects but did not want to realize it. Later on, we had to change students in the middle of the project."*

The most common problem faced by teachers during the implementation of the project is report creation. T12 expressed his views on this subject as *"... Since some of the students are bussed students, group work got stuck in the lunch breaks, and there were times when it was not productive. It was very difficult to guide advisor teachers during the reporting process. Because each project was in a different field and in a different genre."*

The majority of the teachers participating in the research think that the students realize their projects. T13 expressed his views on this subject as *"... Of course, they asked for help. However, they followed a good process. I was just a guide...."*

In addition, most teachers do not find the financial support provided by TUBITAK to be fully sufficient. T1 expressed his views on this subject in the form of "… It is not very sufficient …".

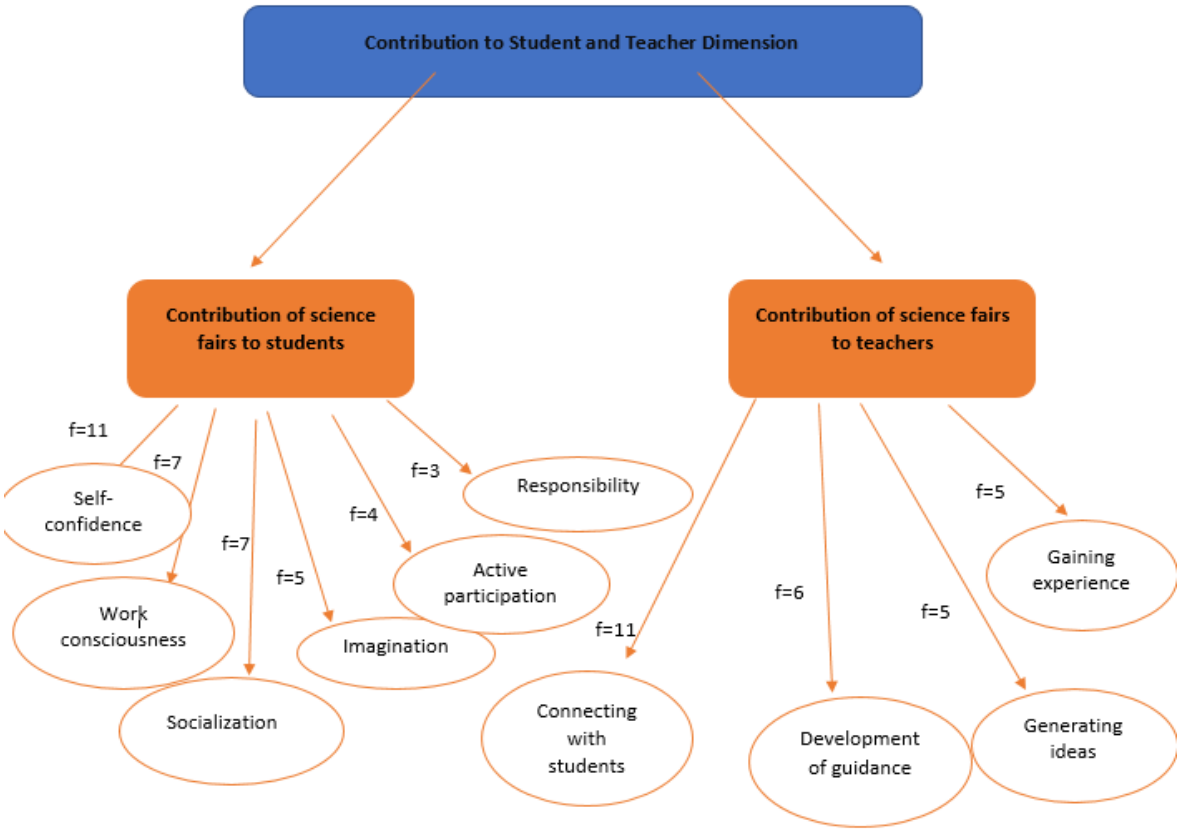

Figure 7: Model for the dimension of student and teacher contributions

Teachers participating in the research see the effect of science fairs on students' self-confidence the most. T2 expressed his views on this subject as *"... Their self-confidence has increased. It makes them proud to present the results they have achieved...."* At the same time, T5 stated that the science fairs made students gain as follows; *"The ability to express oneself, the ability to speak in the face of protocol and self-confidence, the sense of belonging, the motivation to succeed, the feeling of being valued, the learning to dress according to the environment." When the effect of science fairs on students is evaluated, it is seen that most of the teachers answer "self-confidence."* In addition, they stated that TUBITAK science fairs strengthen communication and thus socialize students.

The majority of teachers participating in the research think that science fairs increase the bond and interaction between students. T4's views on this subject were as follows: *"... In this process, I saw how I understood the student better. I learned to motivate the student better..."* T6 expressed his views on this subject as *"... The revisions made by TUBITAK every year have taught me a lot. Every year, I learned how to write a project step by step, and I did consultancy. With these activities, I learned that I could give my students many different skills by doing. I learned to see the light, excitement, and sense of discovery in the eyes of my students."*

4. Discussion and Conclusions

In this part of the study, the data given in the findings section were associated with each other and compared with other studies on the subject. The discussion for each sub-problem is presented under headings.

4.1. Discussion of findings obtained for the first sub-problem

In this part of the study, the discussion of the findings obtained for the sub-problem of "What are the problems faced by science teachers during the preparation phase of 4006 coded TUBITAK science fairs?" is included.

In this context, when the 4006 coded TUBITAK science fairs preparation phase was evaluated, it was seen that all the teachers participated and were willing when the teachers were asked about their participation or not

participating in the projects. In line with the answers given, their willingness is to see that they are successful even if it aims to support the students. It was stated that TUBITAK science fairs were held in the schools of many participants. Although teachers stated that they participated in science fairs voluntarily, some teachers stated that they participated in science fairs under pressure from the school administration. It has also been observed that teachers who work on their own will participate in meetings and activities related to the science fair and read the guides. When the working experiences of the teachers who read the manual are examined, it is seen that there are more teachers with fewer years of experience. Some teachers read only the parts of the guide that are related to their field. In addition, teachers' willingness to participate in TUBITAK science fair projects with the code 4006 confirms with the study by Atalmış, Selçuk, and Ataç (2018). As a result of the findings they obtained in this article, they stated that teachers willingly participated in science fairs.

Considering the dimension of website use, it is seen that teachers (f=14) think that the TUBITAK system is sufficient, but some (f=6) teachers find it insufficient. It is thought that the reason for this may be the changes and innovations made. Teachers often use social media groups and peers for answers to questions about science fairs. The situation of using the internet and the official site is less preferred than other situations. Teachers consider themselves sufficient in guiding students at the project proposal stage. On the other hand, it is striking that the teachers who deem themselves inadequate are less involved in these studies or those who state that they have participated for the first time. In terms of training or taking courses for the project, it was stated that most of the teachers took courses for this situation, and some of them did not receive any training. Considering this situation, it is quite meaningful that the result is like this.

Another dimension of the first sub-problem is general problems. It is seen that teachers generally experience systemic and time problems during the application process. Teachers often state that they have problems in the application system for TUBITAK science fairs with the code 4006. Since the teachers are not informed about the innovations and changes made, it is seen that problems arise and make the process difficult. It has been determined that some teachers can get help from the school administration during the project preparation process, and this help is related to the project proposal, place, and process.

It is seen that most of the students are willing to participate in the TUBITAK projects (Table 9). Students' willingness to participate in science fairs is generally more positive when associated with grades and rewards. Grade and reward can be used as a solution, especially for students who are reluctant. Thus, the student can experience the project, and if he is successful in the next process, he can go into the study without the need for grades and rewards. In this way, students also develop a sense of responsibility, self-confidence, interest in lessons, feelings of courage, and socialization skills. It has been demonstrated by other studies that TUBITAK science fairs with the code 4006 provide students with life skills that are also included in the science curriculum (Karadeniz and Ata, 2013; Meydan, 2017; Yıldırım and Şensoy, 2016).

The subject of the project, which is another dimension of the first sub-problem, is very important. Because the main purpose of these fairs is to create projects. It was determined that the teachers gave the most importance to this point in the interview questions. Two themes were included in the project subject dimension; project examples and determining the project topic. Project examples include projects that students generally create to solve problems in current life. Generally speaking, students prefer environmental issues. These issues can be related to savings, recycling, technology, or health. It is thought that students prefer current situations more because they identify a problem by observing the events happening around them. Because an important step in project-based learning steps is to identify the problem. While determining this, it is important that it is useful and economical, which will solve the event that occurs more. In this, students need to use their observation skills to see a problem. The project's main feature is that the student can independently decide how and in which order to solve the problem to find the solution to the problem (Kubinova, Novotna, & Littler, 1998, cited in Saracaloğlu et al., 2006).

Teachers generally stated that it is important to read the guide on their experiences during the application process. It is not enough for the students to be supported only by the teachers or the administration in the projects. Students' families should also support and assist them throughout the project process. A literature review is important in terms of the originality of the studies, and it is thought that making groupings makes the studies easier. It is thought

that there will be no time problems in planned and regular studies. When the preparation stage of the study is considered as a whole, it is stated that five dimensions are important separately. In general, it has been emphasized that the biggest problems for teachers in the preparation phase are systemic. In this regard, teachers should pay attention to participation in information meetings for this problem. In this way, they can be informed about innovations and changes.

4.2. Discussion of findings obtained for the second sub-problem

In this part of the study, the discussion of the findings obtained for the sub-problem of "What are the problems experienced by science teachers during the implementation phase of TUBITAK science fairs with code 4006?" is included.

When the implementation phase of TÜBİTAK science fairs with the code 4006 is evaluated, most of the teachers carried out the project in a planned manner. It is seen that teachers who have participated for many years are more experienced in the creation of the work schedule and in the production of the solutions against possible problems. Teachers who participate for the first time have more problems in terms of time and planning. The problems they experienced during the implementation phase were generally grouped under the following headings; accessing the materials, creating reports, transportation problems, time problems, and problems due to group work. In the study conducted by Czerniak and Lumpe (1996), the problems experienced by the students participating in the science fair on the duration overlap with the problems in the implementation phase. When the teachers were asked whether the students realized the projects themselves or not, it was stated that the majority of them carried out the projects under the teacher's guidance. Especially the executive teachers who have a duty have more burdens and responsibilities. They help both their colleagues and student groups and play an active role in most of the process.

Teachers find the support provided by TUBITAK insufficient. It is seen that only half of the teachers gave a partially sufficient response to this support. In this case, in line with the financial support given, the teachers try to realize the projects by limiting the material in their projects. Sometimes they do not do some projects because the budget is not enough. This reveals that teachers have difficulties in putting out an original product. Özel and Akyol determined in their study that (2016), “Problems encountered in this is My Work” project are as follows; financial reasons, writing the project report, finding a project topic, and entering the project into the internet system.

When the effect of science fairs on students is evaluated, it is seen that most of the teachers give the answer of "self-confidence." In addition, they stated that TUBITAK science fairs strengthen students' communication and thus socialize students. In the objectives of the Ministry of National Education's 2018 curriculum, it was emphasized that the individual should interact with his environment and society. When we look at the literature, there are similar studies that have positive effects such as students' academic success, permanent learning, active participation, self-confidence, awareness of taking responsibility, and product design (Bunderson & Anderson, 1996; Ceken 2012; Gültekin, 2007; Korkmaz, 2002; Meyer, 1997; Perry, 1995; Özdener and Özçoban, 2004; Yurtluk, 2003; Zeren, Güngör, & Özkan, 2015). Korkmaz (2002) concluded that project-based learning in science education positively affects students' thinking skills, problem-solving skills, and risk-taking to succeed. When the professional contributions of the 4006 coded TUBITAK science fairs to the teachers were evaluated, the teachers stated that they generally communicated with students and gained experience by establishing a better bond with the students.

When the results are evaluated, it becomes clear how important TÜBİTAK 4006 science fairs are. In particular, the indispensable and most basic result of 4006 TÜBİTAK projects shows that it is beneficial in terms of increasing both emotional and cognitive gains of students, arousing the desire of students to participate in social and civil activities, developing their sense of self-confidence, gaining work discipline, developing their visual and physical skills as well as their creativity (Atalmış, Selcuk and Atac, 2018). In addition to the positive aspects of TÜBİTAK 4006 science fair projects, it is necessary to address the problems in the preparation and implementation phases. There are systemic problems in the preparation and implementation phase, such as determining the subject, time, working environment, writing a project report, working as a group, and insufficient funds. In the study titled "This

Is My Work Project Competition" conducted by Ünver, Arabacıoğlu and Okulu (2015), it was mentioned that the students were not provided with a suitable environment for their studies in their schools, some students did not provide the necessary cooperation in group work, and some students had to work alone. In this context, a suitable working environment should be provided to enable students to learn by doing and experiencing. It is important to ensure the responsibility and duty awareness of each student in group work. For this reason, it is necessary to try to make the students willing and motivate them. As a result of these evaluations, it is seen that thanks to the projects created in TUBITAK 4006 Science Fairs, it strengthens the teacher-student relationship, and the students' self-confidence is formed by teaching project-based learning steps and introducing a new product.

As a result of the evaluation of the findings obtained from the study, the following conclusions were reached:
1. In the study, it was concluded that although some of the teachers participated in science fairs voluntarily, there were teachers who had to attend because the school management and administration wanted.
2. In the interviews, it was concluded that the teachers who performed the executive duty generally had problems uploading the report to the system (systemic) during the preparation phase.
3. It has been concluded that while participating in science fairs, teachers usually leave the choice of subject to students and they help by guiding students in cases where they are inadequate.
4. In the implementation phase of the project; It was determined that teachers had problems such as preparing reports, finding materials, working environment, and problems arising from group work.
5. It was concluded that communication, skills, group work, imagination, active participation, self-confidence, taking responsibility, and duty awareness of students participating in TUBITAK 4006 science fairs improved, contributing to the teachers' development.
6. It has been determined that experienced teachers who have participated in TUBITAK science fairs before are better at managing the process than teachers who have just joined or have little experience.

5. Recommendations

1. It is necessary to compel teachers who do not want to organize activities based on projects, such as science fairs, to carry out these activities. Instead, teachers' attitudes and perceptions towards science fairs can be changed with the studies provided by institutions such as NME and TUBITAK. It may be considered to increase the financial support given to the teacher regarding this situation.
2. Practical project training seminars can be organized to eliminate the problems at the point of application related to the projects carried out by the teachers. In particular, problems such as time management and planning related to teachers who are executives for the first time can be solved by giving in-service training.
3. Opinions can be exchanged between the institutions and organizations that support projects such as TUBITAK on budget support. An increase can be made in the budgets allocated for the project in schools. In addition, the processes that teachers will carry out systematically can be facilitated. Information meetings should be important in schools for teachers who participate in the innovations or will participate for the first time. Motivation and incentive elements can be included to ensure participation.
4. Voluntary participation of students in projects should be encouraged, and students' abilities should be emphasized. For students to demonstrate their abilities, they should be directed and guided to projects related to their areas of interest.
5. Descriptive studies can be done by considering the working hours, ages, experiences, and education fields of the teachers participating in science fairs. In addition, qualitative studies are needed to evaluate these fairs from the perspective of students with the students participating in the science fair.

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The Prediction of Psychological Resilience by Fear of Happiness and Ruminative Thoughts

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Abstract
In this study, it was investigated whether fear of happiness and ruminative thinking predict psychological resilience in university students. In addition, the predictive level of fear of happiness and ruminative thinking of psychological resilience subscales was investigated. Finally, it examines whether there is a significant difference between students' fear of happiness, ruminative thought and psychological resilience levels according to gender. The population of the study is the students studying at the faculty of education of a university located in the Mediterranean region of Turkey in the fall semester of the 2021-2022 academic year. The sample group consisted of 296 students, 212 (71.6%) girls and 84 (28.4%) boys, aged between 17 and 34 ($\bar{x}$=21.81), selected by the easily accessible sampling method. For data collection, a personal information form created by the researchers, Fear of Happiness Scale, Ruminative Thought Style Scale and Psychological Resilience Scale for Adults were used. Findings obtained in the study: It was found that fear of happiness and ruminative thinking together negatively predicted resilience at a significant level. Fear of happiness and ruminative thought explain approximately 12% of the variance in students' resilience scores. Regarding the predictive level of fear of happiness and ruminative thinking of the sub-dimensions of psychological resilience; self-perception (19.9% of variance), future perception (10% of variance), social competence (5% of variance), family adjustment (3% of variance), and social resources (3% of variance) are negative significant predictors. Finally, there is a significant difference between students' psychological resilience and self-perception sub-dimensions of psychological resilience according to gender.

Keywords: Fear of Happiness, Ruminative Thought, Psychological Resilience

1. Introduction

In modern life, individuals have experienced many negativities in recent times. individuals perceived life as a constantly negative and unhappy environment. He thought of happiness as a short-lived feeling. Therefore, individuals were skeptical of the slightest happiness and believed that they would be unhappy after this happiness. This situation is called 'fear of happiness.' This concept, which can also be considered as a type of phobia, can actually be considered as a mood problem. Fear of happiness can be defined as a person's fear of happiness for different reasons (with the influence of culture, environment and experiences), fear of it or fear that something negative will happen to him when he is happy. Therefore, the Individual cannot experience happiness and tends to stay away from it. In addition, the fear of happiness means that in some cases, they do not deserve happiness,

that individuals who experience happiness are not good, and that people who experience happiness will experience negativity as soon as possible. (Joshanloo et al., 2014; Lambrou, 2014).

Those who experience the fear of happiness intensely; They believe that happiness will not last long, that every beautiful and enjoyable life will come to an end in a short time, and that negative and unhappiness experiences will find themselves. For this reason, the individual consciously stays away from happiness in order not to experience situations that will make him or her negative and unhappy (Gilbert et al., 2012; Joshanloo, 2014; Lambrou, 2014). As a result, this turns into a cognitive structure such as not wanting happiness (Şar et al., 2019). The reason why individuals who are distant from happiness stay away from happiness, the thought that happiness triggers negativities, the belief that people who experience happiness are actually bad people, and expressing that they are happy will cause some problems (Joshanloo et al., 2014). This situation is a repetitive, obsessive way of thinking, that is, a ruminative way of thinking.

Ruminative thinking style is a concept that has emerged in many psychopathologies, especially in mood problems such as depression, anxiety and phobia in recent years. Rumination is 'the repetitive reversal of the experienced negativities and thoughts in the mind.' In other words, rumination is 'the re-chewing of the swallowed food after little chewing' (Harper, 2019). Ruminative thinking style is the individual's repetitive thinking about his feelings, problems and experiences (Nolen-Hoeksema et al., 2008; Smith et al., 2009). Ruminative thinking is one of the main causes of depression. A depressed individual think over and over again about the causes, consequences and meanings of depressive feelings, thoughts and behaviors (Nolen-Hoeksema, 1991). With this feature, ruminative thoughts increase the negative or negative thoughts in the individual and therefore the depression experienced becomes more severe. In addition, this situation reduces the problem-solving skills of individuals and may prevent their socialization (Nolen-Hoeksema et al., 2008).

According to the theory of response styles, one of the theories explaining rumination, ruminations are a situation that makes the individual think about himself excessively, intensely and severely, thus increasing the duration and effect of the depression experienced. The repetitive thoughts experienced here are mostly negative and pacifying thoughts. According to Nolen-Hoeksema (1991), people who experience depression with ruminative thinking make a constant mental rumination on the causes and consequences of this condition. Because of these characteristics, these people are insufficient to take steps to solve problems.

Coping with the fear of happiness as a type of phobia and ruminative thinking, which is the most basic way of thinking of depression, brings to mind psychological resilience. Having a high level of psychological resilience can be seen as an important prerequisite for coping with these two negative emotional states. With this feature, it can be said that the concept of psychological resilience has an important place in positive psychology research. Kobasa (1979) is one of the first to define psychological resilience, and according to him, psychological resilience is the ability of individuals to maintain their psychological health despite being exposed to stressful life events and to overcome such events. In another definition of resilience, Terzi (2005) defined resilience as individuals' ability to overcome life difficulties that threaten them, to recover quickly, and to continue adapting to the environment despite life difficulties. On this subject, Arslan (2015), on the other hand, considers psychological resilience as the ability of the individual to overcome this situation by using his family and social resources effectively in the face of negative experiences and to continue his functionality without allowing this situation to affect the adaptation process. In some studies, on this subject, resilience is defined as a personality trait that overcomes extremely stressful life events and uses the healing process quickly and effectively, and is not worried about encountering these situations again in the future (Luthar et al., 2000). Resilience is the ability of an individual to maintain a stable balance despite a traumatic or stressful event (Bonanno, 2004).

The fact that psychological resilience is high in individuals is a situation that increases the adaptability and capacity of people and increases psychological health. Individuals with this characteristic can cope more easily with life difficulties and psychopathologies. Benard (1991) discussed the characteristics of people with high levels of resilience in two groups as innate and acquired characteristics. Innate traits; having a calm temperament, being humane, extroverted, having leadership qualities and being accepted by the people around them. The acquired characteristics are empathy skills, compassion, effective and therapeutic use of communication, high self-esteem,

being spontaneous and self-accepting, having high autonomy, acting in line with their goals and plans, staying away from the environment and people that may be harmed.

Studies on fear of happiness, ruminative thinking and psychological resilience were examined. In studies on fear of happiness, fear of happiness is associated with the concepts of life satisfaction, psychological well-being, subjective well-being, hopefulness, psychological resilience, happiness, well-being and emotional intelligence. In these studies, fear of happiness is negatively correlated with positive emotions at different levels (Baş et al., 2021; Elmas, 2021; Joshanloo, 2013; Muhtar, 2016; Özkan, 2020; Sarı et al., 2016; Tekke et al., 2019; Togo et al., 2019; Yıldırım, 2019). In addition, the relationship between the fear of happiness, age and gender, as demographic characteristics, was investigated (Gilbert et al., 2012; Özkan, 2020; Şar et al., 2019). In particular, the fear of happiness gives different results according to the gender variable.

There are studies on the relationship between ruminative thought and psychopathology. It is associated with cognitive styles incompatible with rumination, negative inferential or attitudinal styles, dysfunctional attitudes, hopelessness, pessimism, self-criticism, low dominance, addiction, sociotropy, neediness, and emotional instability (Ciesla et al., 2002; Flett et al., 2002; Lam et al., 2003; Lyubomirsky et al., 1993; Nolen-Hoeksema et al., 1994).

Within the scope of positive psychology research, the concept of psychological resilience is the subject of many studies. There are different research findings that psychological resilience is positively correlated with positive psychological characteristics (Batan, 2016; Küçüktatlidil, 2016; Tümlü et al., 2013). psychological resilience is negatively related to negative psychological characteristics (Atarbay, 2017; Çapar, 2017; Dündar, 2016; Yakıcı, 2017). There are different results regarding the differentiation of psychological resilience by gender (Aydın, 2010; Bozgeyikli et al., 2014; Hadianfard et al., 2015; Sezgin, 2012; Terzi, 2008; Tümlü et al., 2013).

Both the fear of happiness, which we define as the fear of positive emotions, and ruminative thinking, which is considered as the repetitive presence of negative thoughts in the mind, are among the main fields of study that can be associated with psychological problems in recent times. These two situations are occurring more and more frequently in modern life. For this reason, it is important to investigate the causes, consequences and ways of coping with these two concepts. In particular, it should be investigated how effective psychological resilience is within the scope of ways to cope with this problem situation. This study is important in terms of examining the effect of psychological resilience in coping with the concepts of fear of happiness and ruminative thinking. In addition, the study will contribute to a better understanding of the causes and consequences of these concepts. In the research, the predictive effects of fear of happiness and ruminative thinking on psychological resilience will be examined. In addition, it will be examined whether there is a significant difference between students' fear of happiness, ruminative thought and psychological resilience levels according to gender.

2. Method

2.1. Research Model

Within the scope of the study, firstly, the scores of university students on fear of happiness, ruminative thought and psychological resilience scales were examined according to the gender variable. Then, analyzes were carried out to determine the relationships between fear of happiness, ruminative thought and psychological resilience. Therefore, the present study is a descriptive study.

2.2. Research Group

The students studying at the education faculties of the university where the study was conducted were reached using the easily accessible sampling method, which is one of the non-random sampling methods. Within the scope of the research, 296 students aged between 17 and 34 ($\bar{x}$=21.81, Sd: 3.46) were reached. Of the students, 212 (71.6%) were female and 84 (28.4%) were male. Of the students, 149 (50.3%) are in their 1st grade, 19 (6.4%) are in their 2nd grade, 22 (7.4%) are in their 3rd grade, and 106 (35.8%) are in their 4th grade.

2.3. Data Collection Tools

Fear of Happiness Scale: The scale developed by Joshanloo (2013) is a scale that aims to measure the level of fear of happiness in individuals based on self-report. Its Turkish adaptation was done by Demirci et al. (2016) and was found to be compatible with the original form of the scale. The scale consists of five items in a seven-point Likert type (1: Strongly Disagree, 7: Strongly Agree). There is no reverse coded item in the scale, and the level of fear or happiness of individuals is tried to be measured by obtaining the total score. In this context, high scores obtained from the scale indicate a high level of fear of happiness, and low scores indicate a low level of fear of happiness. In the Turkish version of the scale, item factor loads ranged from .71 to .92, and the internal consistency reliability coefficient of the scale was reported as .90. In this study, the reliability coefficient of the scale was found to be .92.

Ruminative Thought Style Scale: Brinker et al. (2009), the Ruminative Thought Style Scale (RDS) was developed to measure the general ruminative thinking tendencies of individuals. The scale consists of 20 items in a seven-point Likert type (1: Does not describe me at all, 7: It describes me very well) and a single dimension. High scores from the scale indicate the excess of ruminative thinking in the individual. The Turkish adaptation of the scale was made by Karatepe (2010). In the study, a single-factor structure was obtained in line with the original scale; The internal consistency coefficient was found to be .91, and the test-retest reliability coefficient was found to be .84. In this study, the reliability coefficient of the scale was found to be .94.

Resilience Scale for Adults: The first form of the scale was found by Friborg et al. (2003) in five dimensions. Later, Friborg et al. (2005), the scale was revised with its six-dimensional structure, which was stated to better explain psychological resilience. The six sub-dimensions in the scale are stated as structural style, future perception, family harmony, self-perception, social competence and social resources. The scale consists of 33 items, which have a five-point rating scale with different types of responses for each item. The Turkish adaptation of the scale was done by Basım et al. (2011). As a result of the construct validity studies of the scale, a six-dimensional structure was obtained in accordance with its original form. The Cronbach Alpha coefficients of the sub-dimensions of the scale range from .66 to .81; The reliability value for the total score of the scale was reported as .86. In this study, the reliability coefficient of the scale was calculated as structural style (.63), perception of the future (.76), family adjustment (.79), self-perception (.76), social competence (.67) and social resources (.74). The internal consistency coefficient for the total score of the scale was calculated as .89.

2.4. Process

The sample of the study consists of students studying in different departments in the education faculties of a university located in the southern region of Turkey. Ethics Committee Approval (dated 07.02.2022 and numbered 131935) was obtained from the Scientific Research and Publication Ethics Committee of the university where the study was conducted, and the study was carried out in line with these permissions. After explaining the purpose of the research to the students and giving the necessary information about the scales, the data were collected on a voluntary basis.

2.5. Analysis of Data

The data of 421 students participating in the study were examined within the scope of the analysis of the data, and as a result of the analysis, 32 data with high missing values and extreme values were excluded from the sample and the study was carried out with 389 data. In the analysis of the data; Independent groups t-test was used to determine the relationships between the students' scores on the Fear of Happiness Scale, the Ruminative Thought Scale, and the Resilience Scale and the gender variable. Then, the relationship between normally distributed fear of happiness, ruminative thought and resilience were examined, and finally, multiple regression analysis was performed to determine how much of the variance of resilience and its subscales could be explained by fear of happiness and ruminative thinking. In the analysis of the data, it was analyzed using the SPSS 22 program.

3. Results

Within the scope of the research, first of all, the values of the factors that predict the fear of happiness from the Fear of Happiness Scale and the Ruminative Thought Scale and the Psychological Resilience Scale for Adults and its subscales were examined using the t-test in terms of gender. The results of the analysis are presented in Table 1.

Table 1: T-test results of students' Fear of Happiness Scale, Ruminative Thought Scale and Psychological Resilience Scale for Adults scores by gender

	Gender	N	$\bar{x}$	S	sd	t
Fear of Happiness	Female	212	16.27	8.97	294	-1.635
	Male	84	18.14	8.67		
Ruminative Thought	Female	212	102.92	22.95	294	-2.879
	Male	84	94.30	23.89		
Adults Psychological Resilience	Female	212	118.79	19.10	294	-.590*
	Male	84	120.19	16.67		
APR Structural Style	Female	212	13.70	3.16	294	-.929
	Male	84	14.08	3.35		
APR Perception of the future	Female	212	14.47	3.91	294	-.657
	Male	84	14.79	3.36		
APR Family harmony	Female	212	22.39	5.07	294	.182
	Male	84	22.27	4.07		
APR Self-perception	Female	212	20.26	5.09	294	-3.337*
	Male	84	22.36	4.34		
APR Social competence	Female	212	21.18	4.36	294	.649
	Male	84	20.82	4.26		
APR Social resources	Female	212	26.80	5.04	294	1.450
	Male	84	25.87	4.78		

APR: Adults Psychological Resilience

*p<.01

When Table 1 is examined; Fear of happiness [t(294)= -1.635, p>.05] and ruminative thought [t(294)=-2.879, p>.05] scale scores do not differ significantly according to the gender of the students. On the other hand, students' psychological resilience [t(294)= -.590, p<.01] scale scores differ significantly according to gender. The mean psychological resilience of women ($\bar{x}$ = 118.79) is lower than that of men ($\bar{x}$= 120.19). According to this finding, it can be said that there is a significant relationship between gender and psychological resilience. In order to examine this finding in detail, as a result of examining the scores of the subscales of psychological resilience according to gender; structural style [t(294)= -.929, p>.05], perception of the future [t(294)= -.657, p>.05], family adjustment [t(294)= .182, p>. 05], social competence [t(294)= .649, p>.05] and social resources [t(294)= 1.450, p>.05] subscale scores do not differ significantly by gender. However, students' self-perception [t(294)= -3.337, p<.01] scale scores differ significantly by gender. Self-perception mean score of women ($\bar{x}$ = 20.26) is lower than that of men ($\bar{x}$= 22.36).

In the study, multiple regression analysis was used to determine the predictive level of psychological resilience of fear of happiness and ruminative thought scales. In this context, first of all, the relations between the variables, Cronbach Alpha values and descriptive statistics are presented in Table 2.

Table 2: Relationships Between Variables, Cronbach Alpha Values and Descriptive Statistics Results

Değişkenler	1	2	3	4	5	6	7	8	9
1- Fear of Happiness	-								
2- Ruminative Thought	.04	-							
3- Adults Psychological Resilience	-.23**	-.26*	-						
4- APR Structural Style	-.10	-.09	.63**	-					

5- APR Perception of the future	-.20**	-.26**	.73**	.46**	-				
6- APR Family harmony	-.02	-.18**	.66**	.29**	.33**	-			
7- APR Self-perception	-.28**	-.36**	.78**	.48**	.67**	.32**	-		
8- APR Social competence	-.20**	-.14*	.64**	.25**	.28**	.24**	.43**	-	
9- APR Social resources	-.17**	-.05	.77**	.35**	.41**	.51**	.40**	.49**	-
Mean	16.80	100.47	119.19	13.80	14.56	22.36	20.85	21.08	26.53
Standard deviation	8.91	23.51	18.42	3.21	3.76	4.80	4.98	4.33	4.96
α	.92	.94	.89	.63	.76	.79	.76	.67	.74

*p<.05 **p<.01

When the relationship between the scales is examined in Table 2; There was no significant relationship between fear of happiness and ruminative thought (r = .04) (p>.05). However, a significant negative correlation was found between psychological resilience and fear of happiness (r = .-.23) and ruminative thinking (r = -.26) (p<.001). In addition, no significant relationship was found between fear of happiness and adult resilience structural style (r = -.10) and family adjustment (r = -.02) (p>.05). There was a negative correlation between fear of happiness and adult resilience, perception of the future (r = -.20), self-perception (r = -.28), social competence (r = -.20), and social resources (r = -.17). a relationship was found (p<.001). In addition, no significant relationship was found between ruminative thinking and adult resilience structural style (r = -.09) and social resources (r = -.05) (p>.05). There was a negative correlation between ruminative thinking and adult resilience, perception of the future (r = -.26), family adjustment (r = -.18), self-perception (r = -.36), and social competence (r = -.14). a relationship was found (p<.001).

As a result of the multiple regression analysis conducted to determine the predictive level of psychological resilience of the fear of happiness and ruminative thought scales; It was seen that the two predictor variables together explained approximately 12% of the total variance in the psychological resilience scores of the students (ΔR2=.12 p<.001). Multiple linear regression analysis results are given in Table 3.

Table 3: Multiple Linear Regression Analysis Results on Predictors of Adult Psychological Resilience

Variables	B	Standard Error	β	t	p	Double r	Partial r
Constant	146.414	4.767	-	30.715	.000	-	-
Fear of Happiness	-.453	.114	-.219	-3.984	.000		
Ruminative Thought	-.195	.043	-.249	-4.528	.000		
R= .33 R^2= .12 F= 19,006							

When Table 3 is examined, according to the multiple regression analysis conducted to examine the effect of fear of happiness and ruminative thinking on psychological resilience; fear of happiness and ruminative thought significantly explained approximately 12% of the total variance of psychological resilience (ΔR2=.12 p<.001). According to the standardized regression coefficients (β), the relative importance of the predictor variables on resilience is ruminative thought (β= -.249) and fear of happiness (β= -.219). When the t-test results regarding the significance of the regression coefficients are examined, it is understood that ruminative thinking (t= -4.528, p<.001) and fear of happiness (t= -3.984, p<.001) are significant predictors of psychological resilience.

The results of the multiple regression analysis performed to determine the predictive level of the fear of happiness and ruminative thought scales for the resilience subscales are given in Table 4.

Table 4: Multiple Linear Regression Analysis Results for the Predictors of Adult Psychological Resilience Subscales

	Variables	**B**	SE_B	**β**	**t**	**p**
Yapısal Stil	Constant	15.605	.876		17.809	.000
	Fear of Happiness	-.033	.021	-.093	-1.599	.111
	Ruminative Thought	-.012	.008	-.090	-1.552	.122

	R=.132	R^2= .017	F=2,596			
Perception of the Future	Constant	19.929	.979		20.351	.000
	Fear of Happiness	-.080	.023	-.189	-3.409	.001*
	Ruminative Thought	-.040	.009	-.251	-4.532	.000*
	R=.321	R^2= .10	F=16,782			
Family Harmony	Constant	26.002	1.299		20.017	.000
	Fear of Happiness	-.004	.031	-.008	-.143	.887
	Ruminative Thought	-.036	.012	-.174	-3.026	.003*
	R=.175	R^2= .03	F=4,617			
Self-perception	Constant	30.710	1.223		25.101	.000
	Fear of Happiness	-.148	.029	-.265	-5.066	.000*
	Ruminative Thought	-.073	.011	-.347	-6.632	.000*
	R=.446	R^2= .199	F=36,353			
Social Competence	Constant	25.127	1.256		21.737	.000
	Fear of Happiness	-.093	.028	-.192	-3.387	.001*
	Ruminative Thought	-.025	.010	-.134	-2.358	.019*
	R=.239	R^2= .057	F=8,879			
Social Resources	Constant	29.041	1.347		21.563	.000
	Fear of Happiness	-.094	.032	-.169	-2.935	.004*
	Ruminative Thought	-.009	.012	-.043	-.754	.452
	R=.176	R^2= .031	F=4,696			

*p<.01 **p<.001

When Table 4 is examined, according to the multiple regression analysis carried out to examine the effect of fear of happiness and ruminative thinking on resilience subscales; It is understood that fear of happiness (t= -1.599, p>.05) and ruminative thinking (t= -1.552, p>.05) are not significant predictors on structural style. However, it is understood that fear of happiness and ruminative thought significantly explain approximately 10% of the total variance of the perception of future sub-dimension of psychological resilience (ΔR2=.10 p<.001). According to the standardized regression coefficients (β), the relative importance of the predictor variables on the perception of the future is ruminative thought (β= -.251) and fear of happiness (β= -.189). When the t-test results regarding the significance of the regression coefficients are examined, it is understood that ruminative thinking (t= -4.532, p<.001) and fear of happiness (t= -3.409, p<.01) are significant predictors of future perception. Another finding within the scope of the study is that fear of happiness and ruminative thought significantly explain approximately 3% of the total variance of the family adjustment sub-dimension of psychological resilience (ΔR2=.03 p<.01). When the standardized regression coefficients are examined (β), the relative importance order of the predictor variables on family adjustment is ruminative thought (β= -.174) and fear of happiness (β= -.008). When the t-test results regarding the significance of the regression coefficients were analyzed, it was understood that ruminative thinking (t= -3.026, p<.01) was a significant predictor of family adjustment; it is seen that fear of happiness (t= -.143, p>.05) is not a significant predictor of family adjustment. Regarding self-perception, which is a sub-dimension of psychological resilience; fear of happiness and ruminative thought significantly explained approximately 20% of the total variance of self-perception (ΔR2=.20 p<.001). When the standardized regression coefficients (β) are examined, the relative importance order on self-perception is ruminative thought (β= -.347) and fear of happiness (β= -.265). When the t-test results regarding the significance of the regression coefficients are examined, it is understood that ruminative thinking (t= -6.632, p<.001) and fear of happiness (t= -5.066, p<.001) are significant predictors of self-perception. It is understood that fear of happiness and ruminative thought significantly explain approximately 06% of the total variance of the social competence sub-dimension of psychological resilience (ΔR2=.06 p<.001). According to the standardized regression coefficients (β), the relative importance of the predictor variables on social competence is fear of happiness (β= -.192) and ruminative thinking (β= -.134). When the t-test results regarding the significance of the regression coefficients are examined, it is understood that fear of happiness (t= -3.387, p<.01) and ruminative thinking (t= -2.538, p<.05) are significant predictors of social competence. Finally, it is understood that fear of happiness and ruminative thought significantly explain approximately 3% of the total variance of the social resources sub-dimension of

psychological resilience (ΔR2=.03 p<.01). When the standardized regression coefficients (β) are examined, the relative importance of the predictor variables is fear of happiness (β= -.169) and ruminative thinking (β= -.043). When the t-test results regarding the significance of the regression coefficients are examined, it is understood that fear of happiness (t= -2.935, p<.01) is a significant predictor of social resources, while ruminative thinking (t= -.754, p>.05) has a significant effect on social resources. It is understood that it is not a predictor.

4. Discussion and Conclusion

The main purpose of this research is to examine the predictive level of psychological resilience of fear of happiness and ruminative thinking in university students. The research also examines whether the sub-dimensions of resilience predict fear of happiness and ruminative thinking. Finally, it was investigated whether there was a significant difference between the students' fear of happiness, ruminative thinking style and pacicological resilience scores according to gender.

According to the first result obtained within the scope of the research, it was seen that the fear of happiness and the ruminative thinking style together negatively predicted resilience at a significant level. It was determined that the fear of happiness and ruminative thought explained approximately 12% of the variance in the psychological resilience scores of the students. On the other hand, regarding the level of predicting fear of happiness and ruminative thinking of the sub-dimensions of psychological resilience; self-perception (19.9% of variance), future perception (10% of variance), social competence (5% of variance), family adjustment (3% of variance), and social resources (3% of variance) were found to be significant predictors in the negative direction. As a positive psychological trait, it is seen as an expected situation in the research that resilience predicts negatively with negative psychological traits such as fear of happiness and ruminative thinking. In the literature review, no findings were found in which psychological resilience was directly investigated together with fear of happiness and ruminative thinking. However, there are many studies on the negative and significant relationship between psychological resilience and other negative psychological characteristics (depression, anxiety, loneliness, etc.) similar to fear of happiness and ruminative thinking. Atarbay (2017) investigated the predictive level of social anxiety on psychological resilience in his study with university students, and at the end of the study, it was found that social anxiety predicted psychological resilience total score and sub-dimensions significantly negatively. In his study, which examined the psychological resilience levels of individuals, it was revealed that the psychological resilience of healthy individuals was significantly higher. In another study, the relationship between the psychological resilience of high school students and their anger and expressing anger was examined. According to the results of the research, there is a statistically significant relationship between psychological resilience and anger and anger expression styles in high school students (Dündar, 2016). In the study of Yakıcı (2017), in which psychological resilience levels in adults were examined in terms of various variables, a significant negative correlation was found between loneliness and resilience total and sub-dimension scores.

The literature review reveals that resilience is also a protective factor for positive psychological characteristics. In other words, while psychological resilience shows a negative relationship with negative psychological characteristics, it shows a positive relationship with positive psychological characteristics. Considering the studies, Tümlü et al. (2013) conducted a study on academic staff and examined the relationship between the level of resilience of academic staff and their life satisfaction. found that as the level of resilience of academic staff increases, their life satisfaction also increases at a significant level. In another study, Batan (2016) examined the relationship of psychological resilience with the level of using religious coping methods and life satisfaction, and found that those with high levels of psychological resilience also had a high level of life satisfaction and that these individuals used positive religious coping methods more. Küçüktatlidil (2016) examined the effect of psychological resilience on the attitudes of coping with stress among people working in insurance companies. The findings of the study concluded that there is a significant relationship between the levels of coping with stress and the levels of psychological resilience of insurance company employees.

The fear of happiness and ruminative thinking has a negative effect on the psychology of individuals, and it is positively related to positive psychological characteristics and negative to negative psychological characteristics. Tekke et al. (2019) conducted on 211 undergraduate students, students' fear of happiness is significantly negatively

related to the variables of hope and life satisfaction. Joshanloo (2013) found that there was a significant negative correlation between the scores obtained for the fear of happiness variable and the scores of life satisfaction and well-being. Togo et al. (2019) discussed the relationship between being positive and fear of happiness in postgraduate students in physical education and sports. A moderately negative relationship was found between being positive and fear of happiness. In another study, Gilbert et al. (2012) found a significant and positive relationship between university students' fear of happiness and their depression levels. In addition, a significant positive relationship was found between the fear of happiness and stress, alexithymia and anxiety. Lyvers et al. (2022) found that fear of happiness was moderately positively correlated with alexithymia, fear of compassion, and negative mood in a study of young adults.

It is an expected situation that ruminative thinking style has a negative correlation with psychological resilience. ruminative thinking style has an effect that increases the duration and severity of negative emotional states such as depression and anxiety (Nolen-Hoeksema, 1991). Various studies have shown that rumination interacts positively with many psychopathologies (traumas, anxiety, depression, suicide, eating disorders, etc.) in individuals (Guastella et al., 2007; Kim et al., 2017; Matthews et al., 2004; Michael et al. et al., 2007; Morrison et al., 2008; Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 2007; Raes et al., 2008). Therefore, ruminative thinking, which is a causal factor in these pathologies, cannot make a positive contribution to psychological resilience, like the fear of happiness. On the contrary, its decrease in resilience and its negative correlation with resilience are consistent with the literature.

Another finding is that male students' levels of resilience and self-perception, which is a sub-dimension of psychological resilience, are significantly higher than that of females. The levels of fear of happiness and ruminative thought do not differ significantly by gender. As a result of the literature review, it was found that the gender factor was not an effective factor in both psychological resilience, fear of happiness and ruminative thinking, but when combined with other variables, it had significant effects. There are different findings, especially that psychological resilience is not affected much by the gender factor. In one of these studies, Hadianfard et al. (2015) discussed quality of life and resilience in multiple sclerosis patients. Although the psychological resilience of male patients is higher than that of female patients, this difference is not statistically significant. In a study conducted by Sezgin (2012), it was examined whether psychological resilience in primary school teachers caused a differentiation according to gender. Teachers' psychological resilience levels did not differ significantly by gender. Tumlu et al. (2013) determined that there was no significant difference between the level of resilience in male academic staff and the level of resilience in female academic staff. Terzi (2008) determined whether university students' resilience differs according to gender and to what extent internal protective factors predict resilience. Psychological resilience of university students did not differ significantly by gender. Aydın (2010) examined general intelligence, hopefulness and psychological resilience in undergraduate students and in the study, the psychological resilience levels of the students did not show a significant difference according to gender. In addition to studies in which gender did not cause significant differentiation, studies with significant differentiation were also found. Bozgeyikli et al. (2014) conducted a study on teachers. In the study, the level of resilience of male teachers was found to be significantly higher than the level of resilience of female teachers. In another parallel study, Karademir et al. (2019) investigated psychological resilience in university athletes and revealed that the psychological resilience of male athletes was significantly higher than that of female athletes.

There is no significant difference between the students' ruminative thinking style levels and their fear of happiness scores. Gender is not an effective variable on its own in the level of ruminative thinking and fear of happiness. When considered together with different variables (age, culture, education level, etc.), the effect of the gender factor is seen. Looking at the literature, there are different findings. In the study where Kurtarankartal (2019) investigated the meaning of life and ruminative thinking in undergraduate students, there was no significant difference between ruminative thinking styles of students according to gender. ruminative thinking style does not differ significantly by gender (Efe, 2018; Yaya et al., 2019). In another study, Bugay et al. (2011) female students have a higher level of rumination than male students in terms of rumination levels. Similar to this result, there are results showing that women's rumination levels are significantly higher than men (Abak, 2019; Erdur et al., 2009; Jose et al., 2008; Neziroğlu, 2010; Özcan, 2021). Regarding the fear of happiness, Gilbert et al. (2012) on individuals in western culture. women's fear of happiness level is significantly higher than men's fear of happiness.

Sar et al. (2019) with undergraduate students, the fear of happiness does not differ by gender. Özkan (2020), in his study with 243 undergraduate students, did not find a significant difference in the fear of happiness scores of male and female students. While some of the studies in the literature support this research finding, some do not support this research finding.

Considering the results obtained in the research; Fear of happiness and ruminative thinking together make a significant negative impact on psychological resilience. Fear of happiness and ruminative thought explain approximately 12% of the variance in students' resilience scores. Regarding the predictive level of fear of happiness and ruminative thinking of the sub-dimensions of psychological resilience; self-perception (19.9% of variance), future perception (10% of variance), social competence (5% of variance), family adjustment (3% of variance), and social resources (3% of variance) are negative significant predictors. In addition, there is a significant difference between students' psychological resilience and self-perception sub-dimensions of psychological resilience according to gender. other variables do not differ significantly in terms of gender. According to the findings reached within the scope of the research, it can be suggested to include activities and practices that eliminate the adjustment problems of university students and increase their psychological resilience. In addition, students' psychological resilience levels can be increased by offering educational seminars and programs on strategies to cope with rumination, fear of happiness or in general anxiety, fear, stress and irrational thoughts. As another suggestion, the connection of fear of happiness, ruminative thought and resilience can be handled with different sample groups and different variables, and findings related to the causes, consequences and coping strategies of these concepts can be obtained.

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Designing a Scale for Measuring Multicultural Self-Efficacy of High School Students

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Abstract
Assessing students' multicultural self-efficacy was a challenging duty for high school counselors, particularly in conjunction with the understanding function of school counseling. The main objective of this development research was to design and validate a scale for measuring the multicultural self-efficacy of high school students. The 851 public high school students from seven regions of Indonesia participated as respondents. After reviewing pertaining literature, the study set 40 preliminary items about cultural insight, communication, cultural value, cultural awareness, and flexibility. A school counselor educator and a high school counselor experienced in the field examined its construct validity and suggested improving item clarity. The revised scale had sequential testing to determine its practicality, validity, and reliability values, namely the practicality test, the pilot test, and the main test. The results showed that 36 of 40 items met the validity and reliability criteria. In addition, most respondents were in significant agreement about the scale practicality. This evidence indicated that this assessment instrument was suitable for measuring the multicultural self-efficacy of high school students.

Keywords: Multicultural Self-Efficacy, High School Student, School Counselor

1. Introduction

In the Indonesian education system, high school students are teenagers who attend public or private schools and have a commonality in developmental tasks. One of their developmental tasks was to achieve a positive attitude toward cultural identity, social group, peers, and socially acceptable behavior (Manning, 2016). This task was essential because, in the learning activities, they should communicate, relate, cooperate, and collaborate interpersonally with culturally diverse peers (Lalonde & Hynie, 2004). By establishing a harmonious relationship with one another, the students benefit from them in the long run for their learning (Altugan, 2015; Kang & Chang, 2016).

There are some reasons for high school students have to develop adequate multicultural self-efficacy. There is a need to promote a learning society where students can "learn to know, to do, to be, and to live together" (Delors, 1996). Students from various cultural backgrounds will relate with one another on varied occasions, particularly during curricular and extracurricular activities. To achieve the common goal of being members of the learning community, they need to establish a multicultural atmosphere. Emphasizing the fourth, students with adequate multicultural self-efficacy will show socially acceptable and responsible behavior when working with diverse

peers.

High school students will be future adults. They need education and skills to become lifelong learners, to secure for productive work, make informed decisions, and positively engage in their communities (UNICEF, 2021).They will meet, relate, and collaborate with other people who may be culturally different. To be successful adults in a plural society, very early, they should learn to be competent culturally. School is the best place to learn harmonious relationships with people of different cultures, namely with peers and teachers. It will promote a larger perspective on students under a multicultural education umbrella, which according to Banks (2013) encompassed content integration, knowledge construction process, prejudice reduction, equity pedagogy, and empowering school culture and social structure dimensions. School counseling as part of high school service has a central role in developing multicultural self-efficacy and meeting the need of diverse students (Hughey, 2011). By having the efficacy adequately, they may get along and work together productively with peers who come from other cultures confidently.

Multiculturalism is one of the crucial issues in today's society, including in school settings. Discussion about it occurred in various contexts, such as multicultural competence concerning self-regulated learning (Hladík et al., 2012), ethnic identity and attachments to the nation-state (Banks, 2014), the responsibility of educators in multicultural education (Yılmaz, 2016), teachers' multicultural competence in teaching students with diverse cultural backgrounds (Lehman, 2017), culture clash in the multicultural classroom (Hansen-thomas & Chennapragada, 2018). In the Indonesian context, similar issues get attention published in several professional works of literature, such as multicultural practice among Muslim students (Wibowo, 2018)and multicultural practice among pre-service teachers (Mulya et al., 2021) These studies indicated that multicultural education still needs more attention from all educators.

Culture is an essential part of each society. It is a social construction (Diaz-Leon, 2013), an incomparable knowledge system (Hong & Khei, 2014), and its elements will be different among societies (Oettingen, 1995). The cultural practices will be more complicated if it is associated with other cultural relations in various settings, such as at schools (Bishop, 1994; Reitz et al., 2009; Zhao, 2007) and families (Sengstock, 2001; Want, 2013). Moreover, studies of cultural relations like Chao et al. (2011) and Chie et al. (2013) suggested that the cultural competencies were fractious to generalize to other societies. In this challenging atmosphere, students who are adequately in self-efficacy---described as one's belief in their capability that could produce given levels of attainment (Bandura, 1997)--- would be ready to relate with various people, including in provoking multicultural interaction. As such, enactive mastery of learning, vicarious experience, verbal persuasion, and physiological and affective states were essential factors that contributed to ramping up multicultural self-efficacy (Bandura, 1982; Bandura & Locke, 2003). This complexity gave a meaningful clue that not all high students would have adequate multicultural self-efficacy since family, education institutions, and larger communities influenced the development of self-efficacy (Rateau & Moliner, 2012). Lacking the adequacy may limit their courage and confidence to relate with peers. In turn, it will lessen the success of their learning.

One of the school counseling functions is to help the student to understand self and others (Myrick, 2011). Multicultural self-efficacy is a pivotal part of their understanding to their learning be successful. For the students, achieving it will be beneficial in the long run since they can figure out, comprehend, analyze, and ramp up their multicultural self-efficacy. To school counselors, having such data is not only for understanding their function but also importantly enables them to plan various kinds of intervention purposively (Myrick, 2011). Primarily, it aims to prevent and develop students' multicultural self-efficacy or solve problems for deficits through responsive service. To assess students' efficacy satisfactorily, the school counselors, firstly, should be skillful in several issues of multiculturalism (Sue & Sue, 2013), and secondly, they demand to use of an adequate instrument (Hays, 2013). Unfortunately, a current open-source scale is scarce. For example, it is available only for college students majoring in guidance and counseling (Yosef et al., 2020) which might be less applicable to high school students. Because multicultural education has been a crucial issue and to ensure school counselors have adequate data for providing evidence based-service, it is necessary to design a multicultural self-efficacy scale for high school students (MSES-HS).

2. Methods

2.1. Participants

Researchers contacted the high school counselors by a telephone call to recruit their students as respondents. Their telephone numbers were available on several social media group, such as the Whatsapp and Telegram. A total of 813 students, from ten public high schools, in 7 provinces in Indonesia (North Sumatera, Riau Islands, South Sumatera, West Java, Central Java, West Kalimantan, and East Kalimantan) participated in this study. The description of respondents was displayed in Table 1.

Table 1: Demographic Information of Participants

Categories	*n*	*Mean*	*SD*
Number of students	813	16.08	.90
Gender			
Male	272		
Female	541		
Grade level			
10^{th}	283		
11^{th}	262		
12^{th}	268		
Assignment			
Practicality test	9		
Pilot Test	45		
Main Test	759		

2.2. Instruments

In this study, a school counseling educator and a high school counselor estimated the construct validity of MSES-HS by filling out the MSES-HS Review Sheet. They rated each preliminary item by stating a measure or not measure. Especially for the not measuring items, the validators provided suggestions on whether to delete or revise them. In addition to validation, in the MSES-HS Review Sheet, they ought to review the manual of MSES-HS for its completeness. To measure the practicality of MSES-HS, the researchers wrote a ten item-questionnaire. It asked the students to rate aspects of the scale, namely content, fairness of the items, easiness to respond, readability, diction, duration of responding, number of items, and technical matter to respond via Google Form in 1-5 Likert-type.

2.3. Procedures

The procedures for producing MSES-HS consisted of two parts, the design and validation phase (Harlacher, 2016). In the design phase, firstly, the researchers did a literature review for choosing the goals, aspects of the scale, writing the items, writing the manual, and preparing the scale review sheet for validators and a practicality questionnaire for students. Secondly, to examine the construct validity and manual of MSES-HS, the study involved a school counseling educator and an experienced school counselor. They judged the validity of the scale by completing the MSES-HS Reviewing Sheet. Both should consider the accuracy of all preliminary items according to the designed constructs by putting a statement of measuring or not measuring each item. For correcting an item, they also might suggest if an item yielded in the not measuring category. After completing the first part, they ought to review the manual of MSES-HS by giving their judgment on its completeness. The researchers followed up the results by revising the items and the manual.

In the validation phase, firstly, the study set an orderly practicality test, pilot test, and main test to investigate the practicality, validity, and reliability values of MSES-HS. The scale, formatted in Google Form, was administered to 9 respondents, three 10th grades, three 11th grades, and three 12th grades. Upon completing the scale, they examined the scale in terms of the easiness of filling out, readability, and time to answer the separated

questionnaire. Referring to Lim and Lee (2008), the following steps were conducting the pilot test and the test to measure the validity and reliability of the MSES-HS in a small and large number of subjects. The pilot test involved a sample of 45 respondents and asked them to complete the MSES-HS by one week. Finally, the researchers administered the main test involving 759 respondents, which they had to finish within two weeks.

2.4. Data Analysis

The interrater agreement procedure was utilized to determine items of MSES-HS. When both validators agreed to an item, it would be a valid item, and vice versa, the item would be reviewed by the researchers based on their comments and suggestions. The item might be deleted or revised. In addition to the construct validity analysis, practicality data of the scale gathered from the student questionnaire was analyzed by calculating the given scores of each aspect. Mean scores ≤4.0 indicated the scale had good practicality. Lastly, the researchers also included an analysis of respondents' answers in the practicality test. Designedly engaging a small number of respondents (9 students) in the practicality test, the researchers utilized Rho of Spearman to analyze the validity and reliability of the scale. In continuance of the first step of data analysis, in the second step, the researchers analyzed the validity and reliability of MSES-HS by referring to Cohen & Swerdlik (2017), Gall et al. (2003), and Howitt & Cramer (2017). In determining the scale validity of the pilot and the main test, the study employed Pearson's r formula, whereas for measuring its reliabilities, it utilized Cronbach's alpha. For analyzing all computerized data of the measure, the researchers used SPSS software version 28.0.

3. Results and Discussion

The main emphasis of the current study was on designing and validating the scale to measure the multicultural self-efficacy of high school students (MSES-HS). It had been working accordingly. In the design phase, the study selected cultural insight, communication, cultural value, cultural awareness, and flexibility as subscales based on reviewing the literature, particularly Yosef et al. (2020). Different from this particular reference, the current scale resulted in 40 items, of which eight items for each subscale. The scale had A 0-10 response format, ranging from 0 (cannot do at all) to 10 (highly certain can do), allowing the respondents to express their responses more freely than a Likert-style response. In addition, MSES-HS had a manual for guiding the high school counselor in using it. The manual described the rationale of the scale, goals, measurement aspects, characteristics, validity and reliability, instruction, informed consent, the scale, scoring procedure, and reporting of the assessment results.

After completing MSES-HS and its manual, two assigned validators judged its construct validity. They considered 7 out of 40 items were not favorable and suggested reformulating be more measurable. They were item number 20, 21, 24, 30, 31, 32, 37. Their judgment encompassed the redundancy of items, clearness of item sentences, incomplete sentences, and chosen diction. Revision of the items worked out accordingly to meet the suggestion. In addition, the reviewers examined the manual of the MSES-HS, pertaining aspects of content (8 items), display (4 items), and language (3 items).

Both reviewers agreed with the completeness of the manual, which had all aspects required in the instrument manual. Their decision indicates that the manual had an introduction that informs the rationale, the goal of the instrument, construct, characteristics, indicators, number of items set orderly, a letter of informed consent, direction to fill out scoring methods, and spent time to fill out. It also had an appropriate display in terms of size manual, lovely cover, and readable text size. For the language aspect, the manual considered using the standard Bahasa and was readable for high school students. Instead of the completeness of the manual, they also gave some suggestions to enhance it, for instance, giving examples of how to fill out the scale and identifying some uncommon words. They were followed up by adding some examples and replace with common words.

The results of the practicality test revealed that the MSES-HS fulfilled an easiness of use. The respondents scored it 4.25 out of 5 on average. However, in terms of validity, 13 items had a validity coefficient below the requirement for four subscales, except the communication subscale. The flexibility subscale had the most items below the rho value of Spearman. Only 2 of 8 items had high correlation coefficients in Spearman's rho. Since the practicality test only explored the possibility of validity and reliability values, mainly to identify the weakness of the items,

those items below the rho value was revised. In addition, respondents noted several items to reconsider since they might perceive the meaning of the items as unclear, especially on unfamiliarity dictions. They were items 2, 3, and 8 of cultural insight, item 23 of cultural values, items 27 and 28 of cultural awareness, and items 37 and 39 of flexibility. Rewriting these items was completed before doing the pilot test. The final number of the items of MSES-HS was still 40.

Continuing the practica, lity test step, the pilot and the main test of the MSES-HS took place orderly. The first test involved 45 high school students selected from the three cities. On this trial, they filled out the online scale and returned after completing it by a week. Data from the pilot test were analyzed to determine the validity and reliability values. Only items that met the requirement finally became part of the scale. Meanwhile, in the second test, 759 selected students from 6 public high schools participated and returned the scale for one month. Tables 2, 3, and 4 displayed the statistical data of the pilot test and the main test.

Concerning the pilot test of MSES-HS, the results found a slight difference between the pilot test and the main test validity coefficient. However, the study reduced four items due to the validity coefficient according to Pearson's *r* below the requirement. The validity coefficient range of the subscales after the test was .70 - .89 indicating that MSES-HS was feasible for measuring students' multicultural self-efficacy. Meanwhile, the inter-subscale correlation matrix displayed in Table 4, suggested correlation coefficient among subscales of the MSES-HS was.492 - .755. These values surpassed the critical value of .30 ($p < .05$) indicating that MSES-HS fulfilled the reliability requirement of the instrument.

Table 2: Mean, Standard Deviation, Item Validity of Scale, and Item Validity of Subscale MSES-HS in the Scale and Subscales in Main Test (N=759)

Items of each subscale	Mean	SD	Validity of the Scale (Pearson's *r*)	Validity of Subscale (Pearson's *r*)
A. Cultural Insight				
1. Introduce your cultural customs to peers.	7.383	2.620	.586**	.720**
2. Be familiar with the uniqueness of other cultures.	7.834	2.223	.595**	.736**
3. Learn about other cultures through a relationship with peers.	7.942	2.167	.634**	.735**
4. Identify factors relating to cultural differences.	7.323	2.277	.641**	.769**
5. Discuss cultural tradition differences with other students openly.	7.371	2.554	.645**	.755**
6. Understand that culture can change over time.	7.710	2.273	.611**	.709**
7. Recognize the effects of contrasting one's own culture with other cultures.	7.322	2.773	.522**	.618**
8. Perceive cultural differences as a reality of life.	7.558	2.396	.584**	.665**
B. Communication				
9. Recognize speech that can belittle other cultures.	6.180	3.234	.413**	.659**
10. Converse with interspersed words in the local language.	6.918	2.692	.506**	.718**
11. Avoid gestures that lead to misunderstanding.	7.709	2.444	.581**	.687**

12. Use knowledge of other cultures to help deliver messages.	7.729	2.133	.682**	.708**
13. Avoid using words that can lead to misunderstanding.	8.445	2.012	.594**	.602**
14. Use dialect of peer local language.	6.329	2.613	.483**	.649**
C. Cultural values				
15. Remember well the cultural uniqueness of all group members.	7.795	2.007	.699**	.779**
16. Identify the similarities between own and group members' cultural values.	7.578	2.170	.714**	.805**
17. Be aware of customs in one's own culture that may offend other group members.	7.526	2.486	.662**	.731**
18. Capture the importance of cultural values often conveyed by group members.	8.012	1.911	.771**	.847**
19. Know the different traditions of each group member.	7.889	1.996	.723**	.814**
20. Avoids judging group member behavior based on one's cultural measures.	7.889	2.278	.602**	.700**
21. Accept the politeness of group members in speaking according to their culture gracefully.	8.610	1.763	.653**	.710**
D. Cultural awareness				
22. Respect their less-than-favorable customs.	8.312	2.081	.568**	.676**
23. Show a positive attitude towards their cultural advantages.	8.679	1.691	.672**	.716**
24. Always have a good attitude towards their culture.	8.588	1.842	.576**	.662**
25. Convey their cultural shortcomings openly.	6.806	2.785	.510**	.650**
26. Expresses the attractiveness of the culture eagerly.	8.095	1.944	.731**	.763**
27. State frankly the influence of one's culture in treating people of other cultures.	7.046	2.487	.569**	.699**
28. Accept criticism of one's tradition calmly.	8.082	2.051	.564**	.695**
29. Encourage others to preserve their own culture.	8.244	1.967	.673**	.693**
E. Flexibility				
30. Take the initiative to get to know other students first.	7.946	2.281	.627**	.799**
31. Build togetherness with other students.	8.379	1.942	.648**	.852**
32. Mingle with other students without feeling awkward.	7.714	2.389	.547**	.775**
33. Accept other cultural perspectives in dealing with conflicts with peers.	8.130	1.930	.699**	.768**

34. Take part in any cultural preservation activities.	7.750	2.119	.674**	.775**
35. Take lessons from the positive side of other cultures in overcoming adversity.	8.445	1.844	.688**	.770**
36. Work together regardless of cultural differences.	8.754	2.000	.484**	.585**

*Pearson Correlation** p<.001*

Table 3: Cronbach's α of MSES-HS by Subscales and Scale

Subscale	Practicality Test (N=9; N of Item=40)	Pilot Test (N=45; N of Item=40)	Main Test (N=559; N of Item=36)
Cultural Insight	.924	.816	.859
Communication	.884	.267	.745
Cultural value	.961	.850	.881
Cultural awareness	.926	.871	.837
Flexibility	.894	.848	.878
Full Scale	.976	.862	.954

Table 4. Subscale Inter-correlation of Main Test

	Cultural Insight	Communication	Cultural value	Cultural awareness	Flexibility	Total
Cultural Insight	-	.649**	.706**	.646**	.606**	.864**
Communication			.650**	.616**	.492**	.792**
Cultural value				.755**	.694**	.894**
Cultural awareness					.699**	.874**
Flexibility						.819**
Total						-

*Pearson Correlation** p<.001*

Reflecting its development in the design stage, MSES-HS has five subscales, each consisting of 8 items that meet practical requirements, so there is no obstacle to trying it with a large number of respondents. The level of its practicality is closed to Bandura's (2006) guide for construction self-efficacy, as he recommended utilizing a 0-100 scale in constructing self-efficacy assessment. Meanwhile, other researchers preferred to use a Likert-type scale response format, such as 1 (strongly disagree) to 6 (strongly agree) (Dullas, 2018; Panc et al., 2021), or used a 0-10 scale response to give respondents more choices (Bijl & Shortridge-Bagget, 2001).

Test of each subscale validity found that MSES-HS reached .70 - .89 of Pearson's *r*. Meanwhile, its reliability value was .98 in Cronbach's α. These results prove the MSES-HS has good validity and excellent reliability and thus can be used to assess student multicultural self-efficacy in high school. The validity value of MSES-HS based on Pearson's *r* critical value is at a moderate level (r_{xy} = .70). Referring to Jackson (2009), one of the functions of correlation is for an individual prediction of a phenomenon, and the correlation coefficient below .30 had a less predictive value. With a validity coefficient of .70, in the range of .60-.80 for its subscales, all items of the scale are coherent. In other words, the MSES-HS has an acceptable validity value. Referring to Christensen et al. (2014), this value is meaningful because to reach it, the samples involved in the study are large enough (n >100). The research finding concludes that this scale is valuable for school counselors to plan basic service, responsive service, or individual planning programs in guidance and counseling services.

In addition to the validity test, a requirement that should meet a measurement instrument is reliability (Taherdoost, 2016). Testing for the reliability of MSES-HS is critical to proving the degree to which separate items on the measuring scale are related to each other consistently. The results of the main test, involving 759 students, showed that the MSES-HS' reliability value reaches .98 (≥ .90, Cronbach's α). For comparison, there are several methods

to test reliability, such as test and retest reliability, split-half reliability, reliability by Cronbach's α, and reliability by Kuder-Richardson (Livingston, 2018). This study chooses Cronbach's alpha internal consistency approach because it involves a modesty procedure, but the level of accuracy remains high. The use of Cronbach's α is theoretically permitted to determine the internal complexity value of scale-shaped instruments such as MSES-HS. The number of items 36 has the advantage in achieving the desired magnitude of reliability. Moreover, some authors argue that a convincing level of reliability falls in alpha values of .90 to .95. In this alpha scale, the items of an instrument are in a very high correlation. In order to test reliability more precisely, inter-subscale correlation needs to calculate. As displayed in Table 4, the coefficient correlation among subscales yields between .375 - .864. In this value, the MSES-HS confidently performs a measuring requirement, although Lyons-Thomas (2014) reminds us that utilizing strong correlation may not be suitable for the intention of the scale since if there are separate subscales, to begin with, the purpose would be to measure separated constructs.

In several instrument development studies, an instrument should meet validity and reliability requirements. Specifically, according to Taherdoost (2016), testing the questionnaire's validity and reliability before being used for collecting data in research is unavoidable. The testing may encompass several validity types, such as face, content, construct, or criterion validity. Some types of validities are mandatory, and others are advisory. In addition to the validity test, the reliability test was considered mandatories. Since they provide the relationship among items and the whole items, construct validity and reliability internal consistency tests are mandatory. Furthermore, for its practicality, the scale should fulfill additional requirements, such as accessibility, readability, and duration of response. All of the completed tests prove that MSES-HS meets such criteria.

Referring to the self-efficacy of Bandura (1977) and related studies, such as Davis-Kean et al. (2008), Ouweneel et al. (2013), and Isa et at. (2019), analogically, multicultural self-efficacy may be dissimilar to individual's actual ability, but rather his belief of what he can do in given multicultural circumstances. MSES-HS is a type of self-report questionnaire intended to assess beliefs. Theoretically, this type of instrument can be used to collect any information. It helps the researcher in obtaining quick or easy, cheap, and efficient means of collecting a large amount of information from a large sample of respondents (Demetriou et al., 2015; Etikan & Bala, 2017). In the current era, using a questionnaire in online surveys has some advantages. In their review, Durga (2019) found some of its strengths. As proved by this study, MSES-HS enables to obtain information from large students anywhere in a relatively short period of time as long as an internet connection is available. In other words, an online questionnaire has no time limit and gives more chances to respondents to complete it quickly and truthfully.

An instrument for measuring multicultural self-efficacy is ideally applied across cultures in similar settings by referencing its required criteria. Statistically, MSES-HS meets the practicality, validity, and reliability criteria. Nevertheless, the designing and validating process of the scale still has some limitations. Despite many respondents participating in the study, namely 851 students, most respondents are students who come from the western part of Indonesia. In the meantime, high school students in the middle and eastern parts of Indonesia are less participated, even though there was a good intention from the principals and school counselors to participate in the study. These results certainly have given a slightly comprehensive picture of the scale represented by students of such a limited region.

For these limitations, several suggestions need consideration. First, the incoming research may reach more schools and diverse students, so the conclusion of the scale's validity and reliability will be more confident. They have to include representative students from all regions of Indonesia, currently consisting of 33 provinces. Because the current study only involves students of public high schools, to be more representative, future research may ask private high school students since their numbers are comparable to that of public high schools. By involving more diverse students, the generalization of MSES-HS as an instrument will be solid. Second, considering the number of items in the current scale, further research may reduce them so that this scale will become more practical without decreasing its validity and reliability.

4. Conclusion

Some conclusions are apparent from the findings of the current study. MSES-HS has the proper design to measure the multicultural self-efficacy of high school students. Its five subscales, namely cultural insight, communication, cultural values, cultural awareness, and flexibility, represent necessary indicators for measuring efficacy. Next, based on the rigorous analysis, MSES-HS is considered to have good construct validity judged by reviewers. The 36 items of the scale meet the construct validity. It also has practicality value in which it potentially can be used by school counselors to measure students' multicultural self-efficacy accordingly without difficulty. Since MSES-HS meets the practicality, validity, and reliability criteria, as a practical implication, it can be used by school counselors to measure multicultural self-efficacy for designed purposes.

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GR-IDEA: An Innovative Model of Mentoring in Adult Education

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Abstract
The various models of mentoring presented in the international literature can be placed into two main categories, namely, those based on behaviourism which support knowledge transmission, and those based on constructivism which support knowledge transformation. The model presented in this paper is based on constructivism and it has been developed as a supporting practice of adult educators. The two dimensions Group and Reflection are the pillars of the model, while its key components, which are at the same time developmental stages, are: Inspiration, Development, Empowerment, and Action.

Keywords: Mentoring, Adult Education, Group, Reflection, Inspiration, Development, Empowerment, Action

1. Introduction

1.1 Models of Mentoring

Mentoring is in essence a learning process, which adheres to a diverse range of models, is based on different theoretical foundations (Koutsoukos, 2021). A critical examination of the international literature on the various mentoring models reveals that they basically fall into one of two approaches; namely the behaviourist or the constructivist. Needless to say, the former endorses the transmission of knowledge, where there is a clear differentiation between the mentor/mentee roles, whereas the latter supports the transformation of knowledge, where the mentor/mentee roles take place in a reflective, collaborative context and are characterized by equality (Schon, 1987; Tang & Choi, 2007).

More specifically, behaviourism implements a technocratic model to teaching, where the mentor is the knowledge supplier and the mentee is the "apprentice" who acquires the knowledge and skills (which are procedural) in order to be able to effectively perform the job. The mentor has the upper hand in the relationship, not only through the provision of theoretical knowledge and practical knowhow, but through control and assessment as well, while the mentee, through observation and emulation, learns to perform set tasks and duties (Jones, 2009). Obviously, in this case, mentor instruction and mentee learning are carried out through linear practices, subject to assumptions and goals at both a theoretical and institutional level (Collins, 1991; Rogers, 1996; Day, 1999). This traditional form of teaching, which Freire (1970) refers to as the "banking model of education" means that the mentor-expert

"deposits" knowledge, which more often than not is based on personal experiential bias or theoretical assumptions, obstructing the achievement of Freire's "freedom through learning" (Illeris, 2007), as the mentee-learner's self-judgment and self-efficacy are significantly impeded. At times, behavioural-based models have been accused of having overly simplistic teaching/learning assumptions and are criticized by some for their strict adherence to the way knowledge is transmitted, as they implement neither problem- nor action-oriented learning practices (Kwo, 1994; Tomlinson, 1995; Rice, 2007).

On the other hand, constructivism applies a dynamic, adaptable, learner-centered, interactive teaching model, where mentoring is a proactive rather than reactive approach to professional development for both mentors and mentees (Hargreaves & Fullan, 2000). In a democratic environment where a relationship of mutual trust is fostered, mentees are assisted to engage in reflective practices in order to recognize their (dys) functional or biased mental attitudes and behaviours, develop problem-solving strategies, and reconstruct their reference frames, perceptions, and actions through collaborative dialogues (Koutsoukos & Sipitanou, 2020) The mentor in the role of critical collaborator facilitates the learning process with the aim of encouraging the mentee to become a responsible, autonomous professional who constructs their own knowledge instead of merely adopting established traditional theories and practices. (Schon, 1987; Tang & Choi, 2007)

1.2 Mentoring and Adult Education

Adult education can provide a theoretical foundation for mentoring, the application of which uses the theoretical knowledge of adult learning (Cox, 2006). For instance, the "instructional support" advocated by behavioural models, reflected in Kram's (1983) and Noe's (1988) initial conception of mentoring, can be linked to the area of learning which Mezirow (2000) calls "instrumental knowledge" and which refers to the acquisition of technical knowledge. The perception of role modeling being a part of mentoring (Scandura & Ragins, 1993) can be linked to the area of learning called practical or communicative knowledge, which refers to the learner's ability to negotiate his or her own meanings and emotions (Cranton, 2006).Finally, reflective mentoring models can be associated to emancipatory knowledge, which includes both instructional and communicative learning, but focuses on learning through a critical approach to both the self and the environment, as well as one's ability for self-reflection and self-determination (Mezirow, 2000).

A key feature in adult learning is the experiences that each adult brings to the learning process. Experiences -direct or indirect- and their meaning are a central point of reference in the theory of adult education. However, it must be kept in mind that not every experience necessarily leads to learning. When the individual does not reflect on their experience, then a situation of either non-learning or non-reflective learning is created. Real learning only takes place when the individual analyzes and contemplates on their experience. This constitutes a higher form as it is what is termed reflective learning (Jarvis (2005), and it is then that skills are developed which can produce a new or revised interpretation of an experience (Mezirow, 2000).

Experiences and reflection are characteristics of adult learning and constitute a point of osmosis in the fields of adult education and mentoring. In accordance with the theory of adult education, instead of simply providing it, the mentor leads mentees to discover new knowledge based on their previous knowledge (Knowles, 1998). It is in this way that the systematic processing of experience becomes a catalytic tool which the mentor-trainer can use to encourage mentee-learners to consciously and critically reflection their assumptions (Mezirow, 2000). In both the theory of adult education and the theory of mentoring, the educational value of experience is generally well accepted, since knowledge is acquired through reflection on one's experiences, generating, on the one hand, ideas that lead to new action (Kolb, 1984), and on the other, hypotheses that can be verified on new experiences (Rogers, 1996).

The framework for developing a mentoring process, which incorporates self-directed learning approaches, and thus releasing learning from the bonds of traditional methods, such as mnemonics, explicit teaching, etc., is based on the notion that knowledge is created by reflecting on one's experiences, the aim of which, one the one hand, is to ideas for action, and on the other, to gain a better understanding of the new experiences that follow (Kolb, 1984; Rogers, 1996).On this basis, mentoring is linked to Knowles' theory of andragogy, and at the same time is related

to the student-centered learning of Carl Rogers' humanistic theory in education. It also includes processes of critical thinking and revised action related to Mezirow's transformational learning and Freire's social action (Illeris, 2007). On account of the emancipatory dimension they accord adult education, these approaches are predominant in the search for a theoretical mentoring framework (Hansford, Tennent &Ehrich, 2003; Furlong & Maynard, 1995). The concept of freedom, in its various dimensions, is the focal point of this framework (Boud, Keogh & Walker, 2002), i.e., freedom as learners (Knowles, 1980), freedom to learn (Rogers, 1996), and freedom through learning (Freire, 1970; Mezirow, 2000).

2. Method

2.1 Research Methodology

The aim of the study was to present a study aimed at exploring Greek adult educators' views on mentoring, and from their responses develop a model of mentoring as a tool to support their teaching work. The proposed GR-IDEA mentoring model for the instructional guidance of adult educators is in line with the principles of adult education.
The research questions were the following:

- Do adult educators show a desirability for instructional guidance?
- How do adult educators perceive mentoring?
- What are adult educators' views on the design of an integrated mentoring model to support their teaching work?
- Do the views of adult educators differ depending on their age, experience in adult education and EOPPEP accreditation?

After having taken into consideration all the alternatives in conjunction with the needs of the study, gradual sampling was selected as the most appropriate sampling method, and the sample size was determined at 300 adult educators.

An online questionnaire based on the research questions was developed, whose aim was to collect data on the views of adult educators the responses of whom were closed questions on a five-point Likert scale, with 1 being the least value and 5 the most (Robson, 2010). The questionnaire was pilot tested on 50 adult educators, and its reliability and validity were checked. After the relevant adjustments, the final version was built through the Google Drive platform. Three hundred and thirty-seven (337) questionnaires were completed, which was a satisfactory Response Rate of 82.6%, in accordance with the relevant literature (Groves, 2006). Statistical analysis was conducted using the Statistical Package for Social Sciences (SPSS 21). In the processing and analysis of the data, a reliability analysis of the questionnaire was performed by calculating Cronbach's alpha reliability coefficient, as well as exploratory factor analysis and comparisons.

3. Results

Table 1 shows the characteristics of the study participants. It can be clearly seen that they not only have different scientific backgrounds, but also different knowledge and experience in adult education, and obviously different teaching needs. The largest group consists of accredited adult educators (73.6%), which was expected since, according to current legislation, accredited educational competence is now a prerequisite for employment as an educator in non-formal education programs (Law 4485/2017). They have a relatively high mean age (45.1% are in the 46-55 age group, followed by 43.6% in the 36-45 age group), however, relatively little experience as adult educators. More specifically, while over half (53.7%) have 1-10 years of experience as adult educators, over a third (37.1%) have 11-20 years' experience. This indicates that teachers in Greece do not tend to enter the field of adult education immediately on completion of their studies, but only after having gained experience in other places of work. This finding is in agreement with that of a relevant study in EU countries, according to which adult educators have 10-15 years of professional experience in other jobs before turning to the teaching of adults (Buiskool, Broek, Van Lakerveld, Zarifis & Osborne, 2010).

Table 1: The demographic profile of adult educators

Gender	Males: 128 (38%) Females: 209 (62%) Total: 337 (100%)				
Age Groups	25-35	36-45	46-55	Total	
	38 (11.3%)	147 (43.6%)	152 (45.1%)	337 (100%)	
Postgraduate Studies	Master's Degree		Doctoral Degree		Total
	Yes: 192 (57%)	No: 145 (43%)	Yes: 18 (5.3%)	No: 319 (94.7%)	337 (100%)
Years of service in Adult	1-10	11-20	21-30	>30	Total
	181 (53.7%)	125 (37.1%)	28 (8.3%)	3 (0.9%)	337 (100%)
EOPPEP Accreditation	Yes: 248 (73.6%)	No: 89 (26.4%)			Total: 337 (100%)

Next, participants were asked to rate how important six given factors describing the desired relationship with a mentor were (Lankau & Scandura, 2002; McDonald& Flint, 2011; Rippon & Martin, 2003; Rogers, 1996). As can be seen in Table 6, the three factors that were rated at an aggregate score of over 90% by the overwhelming majority of participants as to what the mentor-mentee relationship should be based on were the following: two-way cooperation and interaction at an aggregate of 95.3% (66.8% and 28.5%, respectively; with another 4.2% moderately important); mutual respect at an aggregate of 94.6% (69.7% and 24.9%, respectively; plus 4.5% moderately important); and empathy at an aggregate of 92.6% (62.6% and 30.0%, respectively; with another 6.2% moderately important). It is interesting to note that for all three factors no participant rated them as not important at all, while they were rated as slightly important by only 0.6%, 0.9%, and 1.2%, respectively. This was followed by the factors: transfer of knowledge at an aggregate of 74.8% (47.5% and 27.3% respectively, with another 19.0% moderately important). The lower rating given to the transfer of knowledge from mentor to mentee indicates that many adult educators do not prefer linear learning of professional skills (Collins, 1991; Day, 1999; Rogers, 1996).

The factor equal partners at an aggregate of 67.4% (which was almost equally divided by extremely important at 36.2% and very important at 31.2%, with another 23.4% moderately important) were next. It would, thus, appear that adult educators perceive not only the mentor but also themselves as mentees, as a source of knowledge which can best be utilized only in an equal relationship (Brookfield, 2006). Lastly, the factor hierarchical mentoring was divided into almost equal thirds at an aggregate of 32.6% rating it as extremely and very important (15.4% and 17.2%, respectively); a slightly higher 32.9% stating it was moderately important; and finally, a little higher still at an aggregate of 34.5% rating it as slightly or not important at all (21.1% and 13.4%, respectively). The fact that participants expressed a low importance of hierarchical mentoring, meaning they were negatively inclined towards the existence of contemporary hierarchical leadership approaches to mentoring practice, is in line with the literature findings, according to which hierarchical relationships: prevent the mentee from becoming actively involved in the process, hinder the exchange of opinions, impede learning (Brown, Pryzwansky & Schulte, 2001), and often destroy the sense of mutual trust that should underpin the mentoring relationship (Ambrosetti & Dekkers, 2010). Finding that almost a third of participants rated hierarchical mentorship as moderately important (32.9%), indicates that a substantial portion of adult educators hold a more traditional view of mentoring roles (Mc Connell & Geesa, 2019). A possible explanation for this might be that these adult educators have experienced forms of education where hierarchical roles were prevalent.

Overall, study participants stated that the key components of a desirable mentoring relationship are a two-way cooperation and interaction and mutual respect between mentor and mentee, as well as empathy on the part of the mentor towards the mentee, findings which are consistent with previous research (Terrion& Leonard, 2007; Eller, Lev & Feurer, 2013).

Table 2: Adult educators' views on a desired mentoring relationship

Factor	Not important at all	Slightly important	Moderately important	Very important	Extremely important
Mutual respect	-	0.9%	4.5%	24.9%	69.7%
Empathy	-	1.2%	6.2%	30.0%	62.6%
Two-way cooperation and interaction	-	0.6%	4.2%	28.5%	66.8%

Transfer of knowledge	1.2%	5.0%	19.0%	27.3%	47.5%
Hierarchical Mentoring	13.4%	21.1%	32.9%	17.2%	15.4%
Equal Partners	2.1%	7.1%	23.4%	31.2%	36.2%

Finally, participants were asked to rate on a 5-point Likert scale the time frame or duration they would be prepared to participate in the mentoring process based on four given options. As can be seen in Table 10, the timeframe which adult educators rated the highest with an aggregate of 73.5% (41.5% definitely and 32.0% very probably) was that of lifelong mentoring, with another 17.2% saying they possibly favour this option. The next two options were participating in mentoring outside of teaching hours in the form of seminars with an aggregate of 64.7% (30.9% and 33.8%, respectively; plus 25.5% possibly), followed by the first period of starting work as a teacher at an aggregate of 57.9% (30.9% and 27.0%, respectively; plus 24% possibly). The choice for these two frameworks (outside of teaching hours and in the first period of starting work as a teacher) reflect adult educators' experiences of standard training practices from which they have formed established perceptions. Finally, the timeframe during teaching hours was rated by just under half of the participants, at an aggregate of 49.2% (23.7% and 25.5%, respectively; plus 24.9% possibly). Whereas over a quarter of the participants, at an aggregate of 25.8% (15.1% and 10.7%, respectively) stated they probably would not and definitely would not participate in mentoring during working, i.e., teaching hours. This finding, with its relatively low rating could indicate adult educators' willingness to devote personal time, rather than worktime, to something they find very useful.

Time frame	Definitely not	Probably not	Probably	Very Probably	Definitely
Any time during teaching	10.7%	15.1%	24.9%	25.5%	23.7%
Outside teaching hours in seminars	3.3%	6.5%	25.5%	33.8%	30.9%
In the first period of starting work as a teacher	6.8%	11.3%	24.0%	27.0%	30.9%
Lifelong learning	2.7%	6.5%	17.2%	32.0%	41.5%

4. The GR-IDEA Mentoring Model

The mentoring model described below is derived from the key conclusions of the research findings of an empirical study conducted on Greek adult educators' views about mentoring. According to the findings, adult educators want formal and well-organized, but flexible mentoring, in a collaborative environment, with reflective processes. The developed model is established on the principles of adult education and its theoretical foundation is constructivism, which regards learning as an active process, integrating reflection on past and current knowledge in order to produce new ideas and concepts (Cox, 2006). The learning path to knowledge acquisition is characterized by relationships built on cooperation and equality. In the proposed model, mentoring is based on a Group Reflective learning process whose principal components are: Inspiration, Development, Empowerment and Action. As can be discerned, the name given to the model is an acronym of these key words.

The model's framework was developed on Kolb's experiential learning cycle (2015), making use of the individual's tendency for self-determination, self-guidance, and self-management of learning as emphasized by Knowles' theory of andragogy (1980), as well as the individual's potential for critical reflective practice as supported by Mezirow's transformative learning theory (2000). Stepping on Jarvis' (2005) critique of the knowledge-focused Kolb's learning cycle, the proposed model has two focal points. The first concerns the group and its members as individuals, giving the mentoring process a humanistic dimension (Jarvis, 2005). The second focuses on critical reflection, which in conjunction with emotions, are important factors in the mentoring process that leads to reflective learning (Rogers, 1996; Boud, et al., 2002). The model adopts the assertion that participants in a mentoring process go through various stages with different developmental skills at each stage, learn from their experiences, examine and challenge assumptions and behaviors, and through self-reflection end up making

commitments (Taylor, 2000). Mentoring, thus, becomes a continuous process and not merely a destination point. Research data have shown that constructivism, which is the model's foundation, supports a mentoring style that is more developmental (Furlong & Maynard, 1995; Richter, Kunter, Lodtke, Klusmann, Anders & Baumert, 2013). Also, unlike the other models of mentoring discussed in the literature, which present a linear structure, the proposed model is based on a cyclical sequence structure comprised of four stages, which make it innovative in representing the viewpoint of mentoring as a continuous process, highlighting its lifelong education characteristics, and promoting a framework for transformational development.

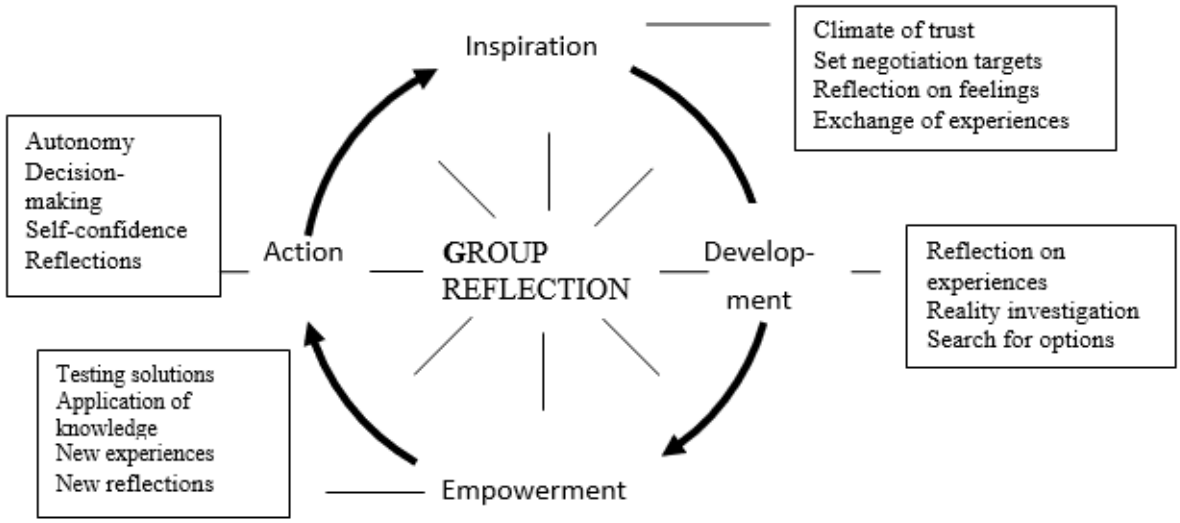

Figure 1: The GR-IDEA Mentoring Model

The dimensions Group Reflection are the two pillars of the model, while its components are Inspiration, Development, Empowerment and Action which simultaneously comprise the developmental stages of the mentoring process.

The Group dimension of the GR-IDEA model places great emphasis on the importance of social interaction in the learning process, as highlighted in constructivist theory (Vygotsky, 1978). It expresses the views of Kram (2004) and Limbert (1995) according to which individuals learn best through relationships with their peers, moving away from traditional one-to-one mentoring which supports an individualistic approach. The group dimension of the proposed model refers either to mentoring between educators who have more or less the same experience and can simultaneously be mentors and mentees (peer mentoring), or to one mentor with knowledge and experience in adult education and a group of mentee teachers (mentoring circles). It can also be in the form of a pyramid, i.e., it comprises a group of young mentee teachers at the base of the pyramid who are guided by a smaller group of experienced teachers in the middle of the pyramid and a few more specialized and experienced teachers supervising at the top of the pyramid (Ramani, Gruppen & Kachur, 2006).

The particular form of group mentoring depends on the educational organization where it is implemented, but in every case, it is collaborative and is characterized by equality in the relationships. It has the flexibility for teams to be formed on the initiative and responsibility of the participants, characterizing it as self-managed mentoring. This aspect of mentoring is clearly associated with self-directed learning (Cunningham, 2017). It adheres to the fundamental principle of adult education for self-regulation, as well as supporting the freedom of learners to define their learning sources and objectives, granting them the ability to construct their own learning experiences (Knowles, 1998). On a practical level, a group is considered functional when its size ranges between 6 and 8 people (Darwin & Palmer, 2009).

The dimension of Reflection is prevalent at every stage of the GR-IDEA mentoring model. Mentees are encouraged to approach teaching practice with a reflective attitude. Through reflective practices, they are called

on to challenge established perceptions, beliefs, and the mental habits on which they operate, which may be unfounded, stereotyped, and problematic, hindering them from understanding reality. Mentees themselves explore their actions, critically reflect, and actively participate in the process of their personal learning. Critical reflection is a key attribute of adult learners (Mezirow, 2000; Jarvis, 2005; Illeris, 2007; Freire, 1970) and develops during action (reflection in action), after action (reflection on action), for action (reflection for action) (Bell & Mladenovic, 2013). In the proposed model it is sought in all the stages of the mentoring process: from descriptive depictions of the mentees' experiences to the more critical perspective of challenging beliefs and assumptions (Brookfield, 1995). Reflective practices enhance the learner's sense of self-efficacy as a thinking professional (Tonna, Bejrkholt & Holland, 2017) and lead to liberating learning (Mezirow, 2000; Galbraith, 2003). A reflective practice occurs when each individual compares their views with those of the mentor and the other group members, when they focus on specific experiences and respond to them through a cyclical process (Kolb, 2015). The ways reflection can be enhanced include: feedback (Tonna, et al., 2017), exploratory questions that allow mentees to deconstruct and reconstruct their teaching practices (Bjerkholt, Ødegård, Søndenå & Hjardemaal, 2014), personal profession narrative and story exploration (Bolton, 2001), keeping a reflective journal (Thorpe, 2010), commentaries on videotaped teachings, (Harrison & Lee, 2011), and discussions (Deglau, Ward, O'Sullivan & Bush, 2006). In essence, reflection is the product of a group process and as a social activity can be considered an indispensable extension of cooperation in the group. It is in fact, co-reflection which touches a collective zone of impending development (Vygotsky, 1978) and creates prospects for the development of new patterns of thinking (Senge, 1990).

Group processes and reflective practices are of particular value as they provide the framework within which four flexible stages are developed, each of which has specific developmental goals. These involve the development of different competencies that depict situations equivalent to the four stages of Kolb's learning cycle (Cox, 2006). The stages of the GR-IDEA mentoring model are as though on a roundabout, each one driving the other. Obviously, these stages are not of equal duration, intensity or form for all people. They differ depending on each individual's personality, experiences, assumptions, as well as the internal and external obstacles to their learning. Firstly, the stage of Inspiration is important for the establishment of the mentoring relationship and the development of the learning process. According to Illeris (2007), it is one of the three dimensions of learning, the other two being content (learning object), and environment (social context), which need to interact organically in order for integrated learning to occur. Inspiration concerns the emotional involvement of participants in the learning process (Illeris, 2007). It is activated by building a positive supportive climate, developing relationships of mutual trust and cooperation, and creating intrinsic incentives for participants (Knowles, 1998). In other words, it is a kind of "pre-educational inspiration" which is an important condition for transition to the next stages. It primarily involves the setting of targets as a way of motivating the adult learner (Knowles, 1998), as well as a learning contract of cooperation which comprises an important self-directed learning strategy (Brookfield, 1995). Individuals share experiences, thoughts and feelings and are encouraged to interact. All actions taken at this stage are in response to the need for adults to realize their full potential (Knowles, 1998; Kolb, 1984), by focusing on the strengths of each individual. Placing the emphasis on feelings rather than on a systematic approach to dealing with problems is a key feature, which is related to the first stage in Kolb's learning cycle (1984). Reflecting on one's feelings is, although the most difficult, the most critical step for two reasons: firstly, it creates a secure, collaborative climate of trust in which issues of concern to the group are identified, and mentoring needs (consciously explicit, implicit, and latent) are explored (Knowles, 1998); and secondly, the mentees enter a "field of reconciliation" with their feelings by reflecting on them. In addition, they develop empathy, recognize dysfunctional patterns, re-examine beliefs, attitudes, assumptions, and set goals (Cox, 2006). The mentor as an inspirational coach creates an environment of acceptance, where no one role dominates, and motivates the members of the group to acquire empathy for each other's needs. Furthermore, the mentor generates conditions that encourage, motivate and support the mentee to start a dialogue with emphasis on their teaching work. At this stage, the mentor is a "source of inspiration" (Ross, 1995) and participates as a group member rather than being the possessor of knowledge (Freire, 1970). Basic principles of the first stage are equality, respect, acceptance, cooperation, freedom of expression, and team spirit. The exchange of experiences and the setting of goals are equivalent to the stage of concrete experience in Kolb's cycle of experiential learning.

In the second stage, that of Development, individuals look for functional patterns of interaction in the group and develop skills related to critical reflection. They reflect on their experiences, identify and critically review their own cognitive models that influence their teaching behavior. They look for new options and solutions to teaching issues that concern them. For the heuristic path to knowledge, methods are chosen that promote interaction, the connection of learning with real problems, and the exchange of experiences (Knowles, 1998). Exploring reality at this stage is equivalent to the stage of reflective observation in Kolb's cycle of experiential learning.

The third stage, Empowerment, includes the emotional, social and cognitive empowerment of the participants (Lee & Nie, 2014). In fact, it involves having critical awareness of the situation and refers to the ability to make decisions for action. In this sense it is associated with self-directed learning and the empowerment of synergistic interaction (Vogt & Murell, 1990). It is related to the autonomy of individuals to create thought, make decisions and construct knowledge, as well as to their ability to communicate more effectively and adopt changes in relation to the object of their employment (Kappelman & Richards, 1996; Short, 1992). At this stage, the self-confidence of individuals who can deal with internal conflicts by controlling their behavior and feel more secure about their teaching choices is enhanced. They use knowledge to strengthen their weaknesses and capitalize on their strengths (Cox, 2006). Through teamwork they utilize their reflective skills and are encouraged to try new perspectives by taking control of their learning. According to Rogers (1996), the only learning that influences behavior is when a person becomes the agent of knowledge discovery, acquisition and appropriation. "Choices" made at this stage are equivalent to the stage of abstract conceptualization in Kolb's cycle of experiential learning.

In the fourth stage, that of Action, the participants try out solutions and implement suggestions that were discussed in the group. In essence, this concerns action learning in which knowledge is directly applied and the mentee becomes the researcher of their own actions (Schon, 1999). The acquired knowledge is tested by creating new experiences which activate new reflections. In this learning process, reflection and action are in a dialectical relationship, where meaning is extracted from experience and is reflected on (Kolb, 1984). As a result of reflecting on the experience, mentees critically examine their perceptions which constitute the interpretive framework of their personal experiences, and in so doing activate a process of transformation (Mezirow, 2000). The skills associated with this stage are readiness for action – making any necessary adaptations and improvements - and the willingness to critically reflect on the action. Critical thinking is not related to the "how" but to the "why" of an action, which results in either understanding the action or modifying it. In terms of application, the actions that can be taken at this stage include co-teaching of a subject, participatory observation and feedback, and group planning of teaching units. This stage in the GR-IDEA mentoring model is equivalent to the stage of active experimentation in Kolb's cycle of experiential learning.

The reflective processes that take place in the fourth stage of the cycle activate internal psychological processes which in turn instigate a return to the first stage, thus creating a process of continuous reconstruction of the experience. In this way, a continuous circular course of mutual exchange and continual reflection is generated. Feedback from the group is in a dialectical two-way relationship with reflection: reflection is strengthened by feedback and feedback is enhanced by reflection.

In sum, the GR-IDEA mentoring model can be implemented in small groups of mentees who teach the same subject, which form the communication framework, meeting at regular intervals and sharing ideas and experiences. The number, frequency, content and duration of the meetings are decided by the group members and determined by their needs. Findings in the international literature support compatibility of the mentor and mentee based on their teaching the same subject (Koballa & Bradbury, 2009). The communication framework of each group can be expanded by creating open discussion spaces in which adult educators of various specialties and subjects participate, and in which each group communicates its concerns with the other groups, jointly seeking solutions on adult teaching issues. Vocational learning practices are applied at each stage (Cosner & Jones, 2016) such as: case studies, experiential exercises, observing others teach, self-assessment, etc. All the practices are collaborative and promote reflection. The GR-IDEA mentoring model has the flexibility to adapt to the particular conditions and contexts of the educational organization in which it will be implemented.

5. The e-GR-IDEA Mentoring Model

The proposed GR-IDEA mentoring model can also be converted into an educational application able to be used in a digital environment, which will be able to be implemented either in conjunction with face-to-face mentoring practices or independently, depending on the circumstances. Its parallel use essentially extends mentoring by combining the group process in physical encounters and reflective practices via the internet (Redmond, 2015). Its autonomous use removes space-time constraints, and can be applied in cases where mentoring practices are not used in person. It can be adopted by adult educators, mentors, and educational organizations. The name of the application is e-GR-IDEA, and will be available through Android and IOS operating systems on personal computer, tablets and smart phone. The application can be extended to all educational organizations wishing to promote tele-mentoring practices. Users of the application can be current adult educators, their mentors, as well as directors of educational organizations by registering and obtaining a username and password. The application incorporates the logic of peer-to-peer teaching, which serves the basic forms of interaction within the context of the educational process in an online environment (Moore, 1989; Su& Beaumont, 2010). The online team can be set up to interact at various combination levels, such as: adult educator-mentees with mentors; educators with each other; mentors with each other; educators and mentors with directors of educational organizations. Mentoring that is developed electronically through the e-GR-IDEA application does not differ qualitatively from the in-person model, as it involves collaborative and reflective practices, and in addition offers flexibility, facilitates accessibility, diminishing time and space barriers (Bierema, 2002; Branch, 2016).The enhancement of participants' initiative and responsibility encompasses elements of self-directed learning (Cunningham, 2017) which is completely consistent with the adult education principle of self-regulation and learners' freedom to define their sources of learning (Knowles, 1998).

In order to design the digital application for e-GR-IDEA, reference was made to the relevant literature (Rowland, 2012; Branch, 2016; Neely, Cotton & Neely, 2017; Brailas, Avani, Gini, Deilogkou & Dimitriadis, 2020), whose content structure was based on adult education appropriate teaching methodology. The application's main educational goal is the exchange of experiences and feedback on teaching issues through online group-collaborative and reflective practices (Fragkaki & Lionarakis, 2011). A brief explanation of the application at a technical level follows. The application's initial template is dispayed in Figure 2; users click on this. Then by clicking on an option listed on the Menu, users enter that space (Figure 3). It should be noted that on this webpage, there is also the possibility for stakeholders to enter a forum, which acts as a virtual discussion space

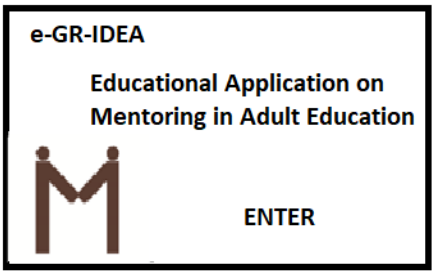

Figure 2: e-GR-IDEA, Entry to the application

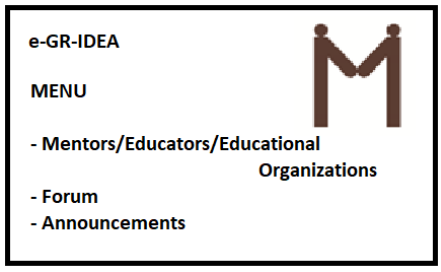

Figure 3: e-GR-IDEA, Menu

Then, according to their user status, i.e., mentor/educator/educational organization, they follow the successive routes which correspond to the different types of interactions they want to achieve (Moore, 1989). All three user types interact with the same content. As an example, Figure 4 shows the list of options available once the interaction 'Educational Techniques' has been selected, each of which provides support material, available in real time. Taking 'Groupwork' as an example, (Figure 5), it can be seen that there are subsections providing useful details on this technique, such as the factors that endorse its effective use (benefits), points that require particular attention (difficulties), examples by specialty (subject), as well as relevant literature sources, research and publications on the subject (references), which are to be updated at regular intervals. In this space there is also "Add other," which is for users to contribute another option they may wish to. As is widely accepted, teaching material constitute an aspect of communication, thus sharing it instigates attitudes of reciprocity and

interdisciplinary cooperation. In this way, they set their own learning goals and construct their own learning experiences (Knowles, 1998).

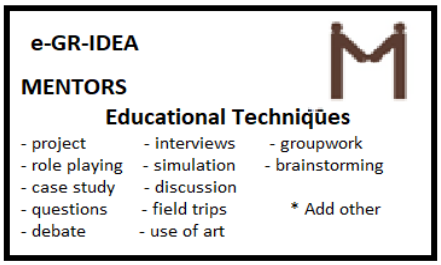

Figure 4: e-GR-IDEA, Educational Techniques

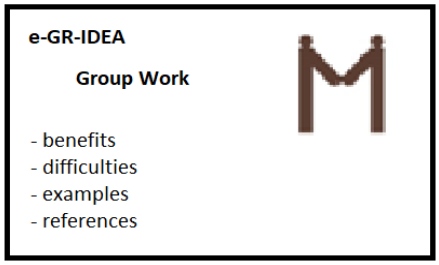

Figure 5: e-GR-IDEA, Example of 'Group Work' option

One other option in the application, mentioned previously, is that of 'Forum' (Figure 6), comprising open asynchronous topic discussions, whose function is to provide users with a means of two-way communication and interaction between adult educator and mentor, or educators with one another (Moore, 1989). Users are given the opportunity to share experiences, views, thoughts and personal evaluations, alternating between mentor and mentee roles. Thus, the aim is for there to be a creative, fruitful, and productive exchange of views, as well as constructive bidirectional feedback on the various issues concerning adult education and teaching. Indicatively, topics which can be developed include: innovations and good practices in adult education; suggestions for lesson plans for various subjects; views and reviews on research and publications; as well as dialogue on problems faced by adult educators in the application of various educational techniques and how these can be managed. In essence, it is the virtual space where reflective practices take place. Users share their experiences, reflect critically, post their personal reflections, explore and experiment with new ideas, as well as confer before, during and after an activity (Bell & Mladenovic, 2013). After all, each individual reflection is fueled by other people's reflections, which, in turn, produces a new reflection, leading to a new action.

Regarding the 'Announcements' option (Figure 7), taking educational organizations, as an example, they can go into the relevant compartment and promote their activities, such as workshops, face-to-face and online training, seminars, etc.), or report whatever they consider can promote and upgrade the quality of the educational work provided, as well as the development of cooperation between educators and educational organizations.

Figure 6: e-GR-IDEA, Forum

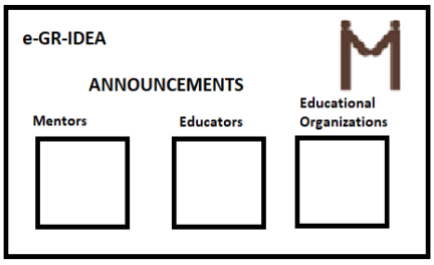

Figure 7:e-GR-IDEA, Announcements

The e-GR-IDEA application broadens the number of adult educators who can benefit from mentoring practices as it is not limited to those belonging to an educational organization. It enables for the creation of an online network of educators and directors, who alternate between the roles of mentor and mentee, and it induces the establishment of an internet community with a participatory culture of action and synergy based on elements of autonomous and transformative learning (Fragkaki & Lionarakis, 2011). In relation to the original GR-IDEA Mentoring Model, its electronic counterpart mainly reinforces skills in the stages of Development, Empowerment, and Action.

6. Discussion

Whether face-to-face or online, the GR-IDEA (and e-GR-IDEA, respectively) Model of Mentoring applies theoretical knowledge for adult learning and serves the principles of adult education. Moreover, it provides a space where active inclusive education, as well as personal and professional development can take place. By promoting self-regulation and the freedom for adult educators to define both their learning resources and learning objectives, it empowers them to construct their own learning experiences. As supportive practice, it can be adapted to the specific circumstances of all educational organizations which want to adopt innovative actions in order to consolidate the educational endeavors and teaching practices of its educators. Finally, of particular interest for further research is the examination of the most opportune conditions for the implementation of the GR-IDEA Mentoring Model in adult education environments, the study of which will not only facilitate equality in the mentorship relationship but just as importantly will also develop a cognitive basis for a positive transformation of adult education structures in learning organizations.

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Practicing Collaborative Teachers to Strengthen Student's Visionary Leadership Skills

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Abstract
This research aimed at strengthening the visionary leadership skills of students through Participatory Action Research (PAR) methodology, which is a spiral cycle of Planning, Acting, Observing, and Reflecting (PAOR). In this study, the researchers conducted this investigation over the course of two cycles (each lasting one semester) in the Academic Year of 2021. The three expected outcomes of the development were as follows: 1) there would be changes from both anticipated and unanticipated practices; 2) the learning would be obtained from the practices at the research level, the group level (co-researchers), and at the organizational level (school); and 3) there would be knowledge gained from the practices in the specific context of Phayakkhaphumwittayakarn School (the research area). There were 12 teachers, who were the co-researchers, and 425 students, who comprised the target group for the development. The research results contributed to the anticipated changes. In other words, the students had higher average scores from the visionary leadership skills assessment results when the 3 phases were compared (before and after the 1st cycle and after the 2nd cycle). In addition, the co-researchers and the students were exposed to unanticipated effects. In addition, the research team, the co-researchers, and the school also learned the lessons from the practice considered as the knowledge, which is a model called Six Driving Forces that Affect the Success of the Project entitled 'Practicing Collaborative Teachers to Strengthen Student's Visionary Leadership Skills.'

Keywords: Visionary Leadership Skills, Participatory Action Research, Participation, Democratic Leadership

1. Introduction

Visionary leadership skills are important for several reasons as follows: 1) knowing the purpose and working approaches is important to accomplishing the desired success; 2) individuals can be inspired to work in order to achieve goals; 3) explanations can be given for what is happening in the present as a reason for making a decision about the vision of the future; 4) perspectives can be broadened without sticking to the unnecessary details; 5) regarding situations, individuals can be reminded that no matter how difficult a situation is, the ultimate goal, which has been previously set will remain unchanged; 6) individuals can be empowered to have the courage to take risks and turn those risks into opportunities in order to achieve the highest goals; 7) individuals can gain an understanding of learning, which promotes the development of personal skills and the ability to make effective decisions; 9) efforts can be undertaken to find better and faster ways to achieve success; 10) individuals can be encouraged to undertake self-exploration and to express the attitudes of visionary leadership; and 11) individuals

can be inspired to take on change and to solve internal problems (Achieve, Center for Leadership, n.d.; Akbarzadeh, n.d.; Kinsey, 2018; and Wroblewski, 2019).

There are some interesting statements about the concepts of leadership and visionary leadership. Some examples are as follows: "Everyone can be a leader. Everyone has the potential to be a leader when they use their ability to influence and take action." (Patulli, 2018); "Education is the mother of leadership."- *Wendell Willkie*"; "Leadership and learning are indispensable to each other." - *John F. Kennedy* (Kruse, 2012); "Without strong visionary leadership, no strategy will be executed effectively*." - Robert S. Kaplan*; and "When the world is in the midst of change, when adversity and opportunity are almost indistinguishable, this is the time for visionary leadership and when leaders need to look beyond the survival needs of those they're serving*." - Chip Conley* (AzQuotes, n.d.). Some researchers have explained the characteristics of visionary leadership skills. Kinsey (2018) stated that the 15 characteristics of these skills consisted of the following: 1) being detail-oriented and aware, 2) being innovative, 3) having conviction, 4) being determined, 5) being persistent, 6) being an excellent communicator, 7) having strategic thinking, 8) being dedicated, 9) being humble, 10) being empowered, 11) being service-oriented, 12) being growth-oriented, 13) being ethical, 14) being caring, and 15) being inspiring. Moreover, Schine (n.d.) mentioned that the 10 characteristics of visionary leadership skills were as follows: 1) being innovative, 2) being persistent, 3) being willing to take risks, 4) being organized, 5) being enthusiastic, 6) staying focused, 7) being willing to listen to others, 8) having charisma, 9) having a sense of responsibility, and 10) being optimistic. In addition, others articulated attitudes towards visionary leadership skills. For instance, Indeed Career Guide (2020) stated four guidelines for visionary leadership: 1) define your vision, 2) create a sense of purpose, 3) motivate your team, and 4) adjust your goals as needed. Furthermore, Anyado (2012), a UK based multiple award-winning Global Leadership Speaker, Corporate Trainer, Futurist, and Author stated that there were five steps to developing visionary leadership skills: 1) leading with excellence; 2) seeing what others do not see; 3) achieving in the present, but planning for the future; 4) positively impacting different generations; and 5) raising up other visionaries.

In accordance with the importance of visionary leadership skills, the concepts of "Everyone can be a leader" and "Education is the mother of leadership.", and the approaches to developing visionary leadership skills, the research team was inspired to carry out the project, "Practicing Collaborative Teachers to Strengthen Student's Visionary Leadership Skills," for the students of Phayakkhaphumwittayakarn School, at which the first researcher was the Director of the school. The research was conducted utilizing Participatory Action Research (PAR) methodology, in which the researcher and co-researchers participated and collaborated with equal status in the process of Planning, Acting, Observing, and Reflecting (PAOR) in a continuous spiral cycle, which focused on making sustainable changes due to the obligation to what had been created at all stages of participation.

2. Research Objectives

This research aimed at strengthening the visionary leadership skills of the students of Phayakkhaphumwittayakarn School through the methodology of Participatory Action Research (PAR). The three expected outcomes of the development were as follows: 1) there would be changes from both anticipated and unanticipated practices; 2) learning would be obtained from the practice at the researcher level, the group level (co-researchers), and at the organizational level (school); and 3) the knowledge gained from the practice would be used as a theoretical foundation in the specific context of Phayakkhaphumwittayakarn School.

3. Literature Review

Participatory Action Research (PAR) methodology was employed in this research, which focused on a review of the literature. The goal was to obtain more theoretical suggestions on a wide range of issues and perspectives, which the researchers could present to the co-researchers, and which could contribute to the co-researchers by helping them to gain knowledge and to develop an understanding of how to best integrate the suggestions in accordance with their prior knowledge and experiences. This created a stronger power of development commensurate with the following principle: "Practice without additional theories is like a blind person, who can't

go far, but (who) continues using the same old methods." The research team, therefore, studied the theoretical perspectives on the following 6 issues:

1) The definitions of visionary leadership skills were derived from: Eden Project (n.d.), Jeffrey (n.d.), Kinsey (2018), Lucas (2021), Meier (n.d.), Status Net (n.d.), and Team Technology (n.d.).
2) The significance of visionary leadership skills was derived from the attitudes of: Achieve, Center for Leadership (n.d.), Akbarzadeh (n.d.), Kinsey (2018), and Wroblewski (2019).
3) The characteristics of visionary leadership skills were derived from the attitudes of: Cecere (2014), Cecere (2015), Cedricj (2017), Dream Achievers Academy (n.d.), Ginger Leadership Communications (2017), Jeffrey (n.d.), Kinsey (2018), Setzer (2014), and Status Net (n.d.).
4) The developmental approaches to visionary leadership skills were derived from the attitudes of: Altman (2016), Anyado (2012), Constantino (2017), Indeed Career Guide (2020), McMinn (n.d.), Meinert (2015), Taylor (2017), and Work Front (2018).
5) The procedures of the development of visionary leadership skills were derived from the attitudes of: Adams (2013), Kerr (2014), McMinn (n.d.), Northwest Executive Education (2020), Orr (2018), and Williams (n.d.).
6) The assessment of visionary leadership skills was derived from the attitudes of: Dhammika (n.d.), Gilley (2005), and Simons and Abramms (1996).

Considering the results of the literature review, which were related to the six issues previously mentioned, the researchers determined that the perspectives on the developmental approaches (principles / concepts / techniques / methods / activities) had been important knowledge because it had allowed the co-researchers to understand the various developmental approaches that can enable "Practicing Collaborative Teachers to Strengthen Student's Visionary Leadership Skills." to become more effectively utilized. As a result, the researchers were able to present 41 developmental guidelines (principles / concepts / techniques / methods / activities), which were derived from a synthesis of the viewpoints of the cited scholars. Each guideline serves to empower teachers to motivate students to perform the following actions:

1) think the unthinkable
2) understand that it is not about them
3) play nice with others
4) do not think that they know it all
5) have the right mindset
6) visualize the future
7) study the past
8) see yourself
9) see things early
10) connect the dots
11) initiate the process of crafting vision
12) invent alternate "pictures of the future" and choose the best
13) submit all potential vision to robust dialogue
14) write the vision down
15) allow vision to mature
16) communicate the vision
17) initiate the process of crafting a vision
18) immediately connect vision with execution
19) continually adjust the vision
20) lead with hope
21) talk about extraordinary goals
22) include things that are attainable
23) make certain that it has been clearly communicated
24) live in the present, but always look to the future
25) always seek knowledge, never stop learning
26) paint a clear picture for those you lead
27) personify the vision

28) welcome and encourage feedback
29) strive to motivate
30) lead with excellence
31) see what others do not see
32) achieve in the present, but plan for the future
33) positively impact different generations
34) raise up other visionaries
35) have a diagnostic perspective
36) have a perspective of innovation
37) have an unseen perspective
38) define the vision
39) create a sense of purpose
40) motivate the team
41) adjust goals as needed

4. Research Methodology

4.1 Types of Action Research

According to Sanrattana's analytical and synthetic study (2018) on Action Research and based upon the perspectives of Arhar, Holly, and Kasten (2001), Carr and Kemmis (1992), Coghlan and Brannick (2007), Creswell (2008), James, Milenkiewicz, and Bucknam (2008), Kemmis and McTaggart (1992), McTaggart (1991), McTaggart (2010), and Mills (2007), it was found that Action Research was first developed in 1952 by Kurt Lewin and was followed by several other scholars, such as David Kolb in 1984 and Wilfred Carr and Stephen Kemmis in 1986. Carr and Kemmis (1992) categorized action research into three levels. Firstly, in **Technical Action Research,** the key concept is that the researcher acts as an outside expert, who brings the ideas, plans, or projects that he or she has been thinking about or has developed to the co-researchers. Secondly, in **Practical Action Research,** the researcher becomes more involved with the co-researchers. Unlike Technical Action Research, the researcher's own ideas, plans, or projects are not taken, but the researcher acts as a consultant, who provides stimulation, sets the issues, and gives direction to bring about collaboration through the sharing of ideas, taking action, making observations, and reflecting upon the results. Thirdly, in **Emancipatory Action Research / Participatory Action Research**, the researcher participates in the research together with the co-researchers in a manner of collaboration in which all of them share equal status (Equality). This research was conducted utilizing Participatory Action Research (PAR) methodology. According to a study by Sanrattana (2018), it is a research methodology that is based on Critical Social Theory and on the Theories of Post-modernism that places emphasis on participation in and the democratization of the actions and consequences that can contribute to changes, learning, and the body of knowledge that are obtained from the practice. It is a research methodology, in which the researcher participates in the research with the co-researchers in a manner of collaboration in which all have an equal status in Planning, Acting, Observing, and Reflecting (PAOR) as an endlessly continuous spiral cycle.

4.2 Cycles Steps and Ethics of the Study

The Participatory Action Research (PAR) methodology was used as a spiral cycle in which the aforementioned steps of planning, acting, observing, and reflecting (PAOR) were repeated indefinitely. However, due to the time constraints of the course curriculum, the research team established two research cycles lasting one semester each in the Academic Year of 2021. Twelve teachers volunteered to participate, and 425 students made up the target group for development. Each step in the research cycle was carried out as follows:

Cycle1

Step 1: The preparation included 3 activities: 1) Explaining the research procedures to the co-researchers in order that the decision to participate in the research was voluntary in accordance with the Code of Conduct: "(a) the participants must be notified about the nature of the research procedures and the benefits at the beginning, and (b)

those who do not wish to participate in the research must be accepted and respected for individual rights."; 2) Designing a collaboration practice in accordance with the research ethics: "(a) Involving the research participants in the design of the research process, and (b) having joint consultations in which suggestions are accepted by all parties."; and 3) Learning lessons was based on the principles of "(a) analyzing, critiquing and performing self-assessment; and (b) learning from both successful and unsuccessful actions and contributing to the process of learning together in a systematic manner."

Step 2: Planning included 4 activities: 1) the "co-researchers" brainstormed to find out "how students develop visionary leadership skills based on their knowledge and experiences in accordance with "The Principle of awareness of potential, expertise, and being a stakeholder of the community."; 2) the approaches for theoretical development, which were based on a review of the relevant literature, were transferred to the co-researchers in response to the principle: "The research participants are able to equally access information."; and 3) following the brainstorming, an action plan was developed to integrate the developmental approaches that the "Co-investigators jointly determine" and the "Theoretical developmental guidelines are based on the researcher's relevant literature studies.", which was in accordance with the principle of "Listening to the opinions of all research participants" and the Code of Conduct: "The consultation and suggestions were agreed upon by all parties." (Note: The action plan construction resulted in 50 developmental guidelines, as shown in Tables 1.) The lessons, which were learned, were applied in accordance with the aforementioned principles.

Step 3: Taking action consisted of 4 activities: 1) The evaluation form with the implementation of alternative suggestions and the student development assessment form was constructed to assess three phases (before and after the implementation of the First Cycle and after the implementation of the Second Cycle) and was in accordance with the ethical principle of "Research direction and expected outcomes arise from joint decisions."; 2) The conditions prior to the implementation of Cycle 1 were assessed by using the evaluation form on the practice of alternative suggestions and the student development assessment form; 3) The jointly formulated action plan was implemented based on the following principles: "(a) Specific context, (b) Multi-skills, (c) Focusing on change, (d) Focusing on action to achieve results, and (e) sustainable development" and were conducted in accordance with the Code of Conduct: "Participants influence work."; and 4) the lessons learned were applied in accordance with the aforementioned principles.

Step 4: Observing is being aware of the collection of information from activities and practices through the use of observation forms, in-depth interview forms, group interview forms, and examining or recording forms (Examining/Record), such as journals, maps, audiotapes and videotapes, artifacts, and field notes. It is carried out in accordance with the principle of "Recording all participants involved with the activities and practices" in response to the Code of Conduct: "(1) observations or examinations of documents for other purposes must first be authorized, and (2) never infringe upon the copyright of others' writings or views without first negotiating before publishing or disseminating."

Step 5: Reflection consisted of 3 activities: 1) assessing the current condition after the implementation of the first cycle by using the evaluation form, which focused on the practice of making alternative suggestions and on the student development assessment form; 2) reflecting upon the performance results from the brainstorming to analyze the results of all the steps in Cycle 1 in accordance with the following principles: "(a) listening to the opinions of all research participants, (b) analyzing, critiquing, and performing self-assessment, (c) learning from both successful and unsuccessful actions, and contributing to a jointly systematic learning process" and in accordance with the Code of Conduct: "Performance will remain visible and allow others to give feedback."; and 3) identifying the lessons, which had been learned, was based on the aforementioned principles.

The researchers used Kurt Lewin's Force-Field Analysis (Lunenburg & Ornstein, 2000) to examine the following: 1) what the former conditions had been like, 2) what the expected outcomes had been, 3) what the driving forces that were used to bring about change had been, 4) how much of that driving force had led to the expected change, 5) what anti-changes had been made, and 6) what guidelines had been suggested from the anti-changes to increase the powerful drive and/or to reduce or to remove the anti-changes in the performance, which may involve the

following: a) improving the efficiency of the existing drive in order to make it more efficient, b) adding new drive power that is more effective, or c) both improving the existing drive power and adding the new drive power.

Cycle 2

Step 6: Planning consisted of 2 activities: 1) creating the action plan and 2) taking the lessons learned**.**

Step 7: Taking action consisted of 2 activities: 1) Implementing the action plan from Step 6 and 2) taking the lessons learned.

Step 8: Observing refers to taking note of the collection of information from various activities by using the observation form, the in-depth interview form, the group interview form, or an examining/recording form (Examining/Record) as conducted in Cycle 1.

Step 9: Reflecting consisted of the 3 following activities: 1) assessing the current conditions after the implementation of the second Cycle by using the evaluation form on the practice of giving alternative suggestions and the student development assessment form, 2) reflecting on the performance results from brainstorming to consider the results of every step of the second Cycle; and 3) and embracing the lessons learned.

Step 10: The Conclusion of the Research was marked by holding workshops together for both the researcher and the co-researchers. The results were derived from the observations, the lessons learned, the three phases of the current condition assessment (before and after the implementation of the First Cycle and after the implementation of the Second Cycle), the evaluation form on the practice of alternative suggestions, the student development assessment and from the results from the reflections in Step 5 and Step 9. All were summarized as the research results according to the following principles: "(1) specific contexts; (2) listening to the opinions from all the research participants; (3) analysis, critiques, and self-assessments; (4) Learning from both successful and unsuccessful actions by bringing about a jointly systematic learning process;" and (5) being in accordance with the Code of Conduct: (a) "Consultation and suggestions are agreed upon by all parties, and (b) the performance results will remain visible and allow others to make suggestions."

4.3 Research site and research participants

The areas of research were chosen based on convenience, the potential of the research team, and the possibility of obtaining cooperation from the co-researchers from Phayakkhaphumwittayakan School, where the first researcher is the Director of the school. Following the activities, the research procedures were explained to 12 volunteer co-researchers (school teachers), and 425 students, who were the target group for development.

4.4 Research tools

1) **The tools for collecting data from all the activities:** To consider the appropriateness and the situations, the research team considered using the following tools based on the concept of Mills (2007): 1) an observation form, 2) an in-depth interview form and group interview form, and 3) an Examining or recording form (Examining/Record) (i.e., journals, maps, audiotapes and videotapes, artifacts, and field notes, etc.).

2) **The co-researchers' practice level assessment form:** The researcher and co-researchers jointly constructed a self-assessment form to assess the co-researchers' practice level in 3 phases (before and after the practice in Cycle 1 and after the practice in Cycle 2). It was designed with a 5-level rating scale (mostly agree, agree, moderate, disagree, and mostly disagree). However, in terms of content validity (IOC: Indexes of Item-Objective Congruence), this assessment form was not approved by the experts nor was it tried out with the sample group to find the Alpha Coefficient of Reliability because the questions in the assessment were "Developmental Guidelines" that had been the joint intentions of the researcher and the co-researchers and had been the results of brainstorming to integrate the "Developmental

Guidelines jointly determined by the co-researchers" and the "Theoretical development guidelines based on the results from the researcher's relevant literature study" from the Action Plan activities of Cycle 1.

3) **Visionary leadership skills assessment of students**: The researcher and the co-researchers jointly constructed the results of studies indicating the characteristics of visionary leadership skills from the perspectives of Cecere (2014), Cecere (2015), Cedricj (2017), Dream. Achievers Academy (n.d.), Ginger Leadership Communications (2017), Jeffrey (n.d.), Kinsey (2018), Setzer (2014), and Status Net (n.d.) and from studies that examined the concept of the assessment of visionary leadership skills by Dhammika (n.d.), Gilley (2005), and Simons and Abramms (1996). A self-assessment form was used for the students, who were a target group of the development. It was a 5-level rating scale form (mostly agree, agree, neither agree nor disagree, disagree, mostly disagree). There were 30 questions in total. The assessment form was reviewed for the Indices of Item-Objective Congruence (IOC), which was consistent with the perspectives of Rovinelli and Hambleton (1977). In addition, the form was examined by 5 experts in the fields of the educational administration and educational measurement. It was discovered that all questions had exhibited an IOC value of greater than the specified threshold of 0.50, which indicated that the questions in this assessment had been consistent with the development's objectives or expectations (Chachanawirote & Vantum, 2017). Furthermore, Cronbach's method was used to analyze the Alpha Coefficient of Confidence with 30 students from a school that was not in the research area (Buayaipittayakom School). It was discovered that the overall Alpha Coefficient of Reliability had been 0.93 and had been classified as follows: 'My visionary aspect' had been 0.79, 'My visionary leader's attribute' had been 0.70, "My visionary leader's habit' had been 0.88, and 'My commitment to being an excellent visionary leader' had been 0.86. All of these had been equal to or higher than 0.70 (UCLA: Statistical Consulting Group, 2016).

4.5 Data Collection and Analysis

In accordance with the principle of "There is a record of all participants of their activities and practice," the researchers and co-researchers played a role in data collection at every step by using the aforementioned tools. Descriptive statistics, such as means and standard deviations, were used to analyze the quantitative data from the two self-assessment forms. In addition, observations, interviews, and recordings were used to collect qualitative data. The process of data analysis was as follows: 1) the integrity of the data was checked to examine whether or not it had met the desired objectives; 2) the reliability of the data was verified in order to examine whether or not it had matched the actual situation by comparing the results of the recording of each participant with the recording results from the other forms of data collection; and 3) the data was presented in the form of Thick and Critical Description through story-telling based on a Factual and Neutral Manner. The descriptive evidence consisted of numbers, statistics, tables, graphics, photographs, direct quotes (verbatim), or the informant's improvised dialogue, which indicated feelings and viewpoints on the same issue, and which may have supported or contradicted each other.

5. Results

5.1. Changes

5.1.1. Anticipated Changes

By following the implementation of the project "Practicing Collaborative Teachers to Strengthen Students' Visionary Leadership Skills" for students at Phayakkhaphumwittayakarn School, the researchers and co-researchers had two expectations as follows: 1) there would be greater changes in the co-researchers' practice given the results of the three comparative assessment phases (before and after the First Cycle, and after the Second Cycle); and 2) there would be greater changes in the students' visionary leadership skills based on the results of the three comparative assessment phases (before and after the First Cycle, and after the Second Cycle).

The First Expectation: The total mean was found to be 2.32, 3.09, and 4.43, respectively, based on the assessment of the degree of adoption of the developmental guidelines (principles / concepts / techniques / methods / activities) in three phases (before and after the implementation of the First Cycle and after the implementation of the Second Cycle), which indicated that when seeking to enhance the visionary leadership skills of students, the co-researchers had more actively utilized the developmental alternatives. The findings from both the overall analyses and the discrete data analyses are shown in Table 1.

Table 1: A comparison of the results of the assessment with regard to the implementation of the developmental guidelines in the **3** phases (before and after the implementation of the first Cycle and after the implementation of the second Cycle)

Developmental Guidelines (Principles / Concept / Techniques / Methods / Activities)	**Assessment results from the Pre-practice in Cycle 1**		**Assessment results from the Post-practice in Cycle 1**		**Assessment results from the Post-practice in Cycle 2**	
	$\bar{\chi}$	**S.D.**	$\bar{\chi}$	**S.D.**	$\bar{\chi}$	**S.D.**
1) Students are given self-confidence.	3.17	0.58	3.33	0.49	4.50	0.67
2) Students are given the courage to make decisions and to take responsibility.	2.58	0.79	3.25	0.45	4.42	0.51
3) Teachers organize activities to make students into leaders with ethical visions.	2.08	0.67	2.67	0.78	5.00	0.00
4) Teachers provide a classroom environment that is conducive to the development of visionary leadership.	2.25	0.75	3.17	0.72	4.42	0.79
5) Students are provided with a wide range of language proficiency.	2.58	0.79	3.25	0.62	4.33	0.65
6) Students are provided with technological knowledge and skills.	2.42	0.90	2.83	0.83	4.17	0.58
7) Students are enabled to discover their own visionary leadership.	2.42	0.90	3.08	0.79	4.42	0.51
8) Teachers investigate the students' readiness and differences with individual analysis.	2.42	0.90	3.17	0.72	4.33	0.49
9) Teachers organize the activities for students to integrate different ideas.	2.00	0.74	2.58	0.79	4.17	0.94
10) Students are empowered to think the unthinkable.	2.08	0.79	2.83	0.58	4.33	0.49
11) Students are taught to know what should be avoided.	2.67	0.49	3.33	0.49	4.75	0.45
12) Students are taught to create a friendly atmosphere with others.	2.50	0.67	3.33	0.78	4.25	1.06
13) Students are taught not to assume that others know everything.	2.08	0.90	3.00	0.60	4.75	0.45
14) Students are taught to think carefully.	2.25	0.75	3.33	0.89	4.67	0.65
15) Students are taught to visualize the future.	2.17	0.72	3.17	0.58	4.83	0.39
16) Students are taught to study the past.	2.00	0.60	2.92	0.67	4.17	0.72
17) Students are enabled to analyze information by themselves.	2.75	0.87	3.42	0.51	4.42	0.51
18) Students are enabled to take a notice at an early stage.	2.42	0.67	3.00	0.60	4.25	0.87
19) Students are enabled to connect the dots.	2.42	0.67	3.08	0.51	4.83	0.39
20) Students are enabled to initiate the process of crafting a vision.	2.25	0.87	2.92	0.90	4.92	0.29
21) Students are enabled to invent 'Pictures of the Future' and choose the best.	2.08	0.67	3.25	0.45	4.17	0.94
22) Students are taught to be straightforward.	2.58	0.67	3.33	0.78	4.75	0.45
23) Students are taught to write down their visions in their notebooks.	2.25	0.75	3.00	0.60	4.75	0.45
24) Students are enabled to develop and grow their visions as much as they can.	2.08	0.90	2.92	0.51	3.83	0.58
25) Students are enabled to communicate their visions.	2.08	0.51	2.67	0.78	4.33	0.49

Developmental Guidelines (Principles / Concept / Techniques / Methods / Activities)	Assessment results from the Pre-practice in Cycle 1		Assessment results from the Post-practice in Cycle 1		Assessment results from the Post-practice in Cycle 2	
	$\bar{\chi}$	S.D.	$\bar{\chi}$	S.D.	$\bar{\chi}$	S.D.
26) Students are enabled to initiate the process of crafting their visions.	2.17	0.94	3.17	0.72	4.50	0.52
27) Students are enabled to connect to their visions by immediately taking action.	2.17	0.72	3.17	0.72	4.42	0.51
28) Students are allowed to adjust their visions at any time.	2.08	0.67	3.00	0.74	4.33	0.49
29) Students are enabled to become promising team leaders.	2.42	0.67	3.17	0.72	4.50	0.52
30) Students are allowed to talk about extraordinary goals.	2.33	0.49	2.92	0.51	4.17	0.39
31) Students are enabled to set achievable goals.	2.00	0.74	3.08	0.67	4.25	0.45
32) Students are enabled to be confident in communicating clearly.	2.33	0.49	2.92	0.79	5.00	0.00
33) Students are enabled to live in the present moment, but to look to the future.	1.92	0.90	2.75	0.75	4.33	0.49
34) Students are enabled to consistently seek knowledge and never stop learning.	2.83	0.39	3.42	0.51	4.42	0.51
35) Students are enabled to show a clear and reliable image of being a team leader.	2.17	0.72	2.75	0.45	4.17	0.39
36) Students are allowed to question and to express their visions on their own.	2.25	0.75	3.08	0.51	4.33	0.49
37) Students are enabled to welcome suggestions.	2.50	0.52	3.25	0.75	4.17	0.58
38) Students are enabled to show commitment.	1.83	0.72	3.00	0.85	4.33	0.49
39) Students are enabled to become a leader with their abilities.	2.33	0.89	3.08	0.79	4.50	0.52
40) Students are enabled to see what others do not see.	2.58	0.79	2.92	0.29	4.33	0.49
41) Students are enabled to become successful in the present and to plan the future.	2.00	0.74	3.08	0.51	4.42	0.51
42) Students are enabled to produce positive results that impact different generations of people.	2.83	0.72	3.25	0.45	4.33	0.65
43) Students are enabled to increase the vision of others.	2.67	0.49	3.25	0.45	4.42	0.51
44) Students are enabled to have analytical perspectives	2.00	0.60	2.92	0.79	4.25	0.45
45) Students are enabled to have innovative perspectives.	2.50	0.67	3.33	0.49	4.50	0.52
46) Students are enabled to have perspectives that others cannot see.	2.42	0.90	3.25	0.62	4.42	0.51
47) Students are allowed to define their own visions.	1.92	0.67	3.17	0.72	4.33	0.49
48) Students are enabled to build rigid adherence to the goals.	2.33	0.78	3.08	0.67	4.17	0.58
49) Students are enabled to build motivation for the team	2.50	0.80	3.33	0.89	4.83	0.39
50) Students are allowed to adjust their goals if needed.	2.50	0.67	3.25	0.45	4.25	0.75
Total	2.32	0.27	3.09	0.11	4.43	0.20

Note: The standard deviation value was low in all 3 phases, indicating that the opinions of the assessors in each of the phases had had a low variance.

The second anticipated case: From the results of the assessment of visionary leadership skills of the students in the 3 phases, it was found that the overall average had been higher (an average of 2.64 in the pre-practice of Cycle 1, an average of 3.69 after the post-practice of Cycle 1, and an average of 4.52 after the post-practice in Cycle 2). This indicated that the development had brought about better changes, in accordance with the results of the analyses from the overall data, the aspects, and the items as shown in Table 2.

Table 2: A comparison of the results of the students' visionary leadership skills assessment in the **3** phases: before and after the First Cycle and after the Second Cycle.

The characteristics of the anticipated visionary leadership skills	**Assessment results from the Pre-practice in Cycle 1**		**Assessment results from the Post-practice in Cycle 1**		**Assessment results from the Post-practice in Cycle 2**	
	$\bar{\chi}$	**S.D.**	$\bar{\chi}$	**S.D.**	$\bar{\chi}$	**S.D.**
The desired visionary characteristics	2.70	0.54	3.64	0.57	4.49	0.40
1) Being a strategic thinker	2.82	0.61	3.36	0.67	4.30	0.57
2) Being committed	2.53	0.73	3.70	0.70	4.56	0.51
3) Creating positive energy	2.68	0.74	3.70	0.85	4.52	0.60
4) Being creative	2.69	0.73	3.62	0.70	4.51	0.52
5) Focusing on the overview	2.79	0.81	3.84	0.72	4.66	0.49
6) Being open-minded and appreciating new ideas	2.58	0.85	3.99	0.79	4.69	0.48
7) Being able to communicate in an excellent manner	2.76	0.78	3.30	0.87	4.19	0.67
8) Being meticulous and having awareness	2.78	0.76	3.60	0.71	4.49	0.54
The characteristics of a visionary leader	2.70	0.50	3.50	0.59	4.39	0.43
9) Loving innovation and new things	2.81	0.62	3.55	0.77	4.40	0.53
10) Being flexible	2.75	0.62	3.45	0.72	4.36	0.58
11) Having manageable skills	2.84	0.72	3.50	0.72	4.42	0.57
12) Having the courage to wisely take risks	2.65	0.81	3.55	0.75	4.45	0.59
13) Having emotional intelligence	2.76	0.81	3.62	0.76	4.49	0.57
14) Getting strong attention from people	2.54	0.72	3.37	0.86	4.26	0.67
15) Being service-minded	2.64	0.61	3.55	0.80	4.44	0.60
16) Loving to ask questions	2.58	0.73	3.41	0.94	4.29	0.69
The habits of a visionary leader	2.65	0.57	3.68	0.58	4.53	0.39
17) Having a clear vision and goals.	2.84	0.69	3.72	0.78	4.54	0.54
18) Performing pro-active work	2.68	0.66	3.61	0.76	4.47	0.56
19) Prioritizing work effectively	2.52	0.99	3.74	0.73	4.58	0.52
20) Utilizing the efficiency of team performance	2.71	0.78	3.75	0.72	4.61	0.53
21) Focusing on continuous learning	2.60	0.85	3.67	0.69	4.57	0.50
22) Having a strong desire for new information	2.55	0.89	3.58	0.78	4.43	0.55
23) Building working relationships between different work groups.	2.57	0.85	3.88	0.85	4.65	0.53
A commitment to leadership with a great vision	2.52	0.64	4.08	0.81	4.74	0.47
24) Taking into account the opportunity	2.67	0.97	3.87	0.71	4.67	0.47
25) Being a good colleague	2.35	1.09	4.11	0.75	4.78	0.43
26) Accepting failure in order to move forward	2.39	0.96	3.95	0.79	4.68	0.50
27) Having a broad perspective about situations	2.41	0.93	3.85	0.78	4.64	0.53
28) Trying to work outside of the old framework	2.56	0.99	3.74	0.74	4.58	0.54
29) Accepting the unknown and learning to ask for help	2.66	0.89	4.00	0.68	4.77	0.42
30) Keeping an open mind with regard to changes	2.53	0.92	4.08	0.81	4.74	0.47
Total	2.64	0.49	3.69	0.52	4.52	0.35

Note - The standard deviation value was low in all 3 phases, indicating that the opinions of the assessors in each phase had had a low variance.

5.1.2. Unanticipated changes

In addition to the anticipated changes, this research contributed to unanticipated changes in the following positive ways:

1. The co-researchers were actively involved in this research, especially during the discussions about the research techniques. In addition, they were interested in asking questions, in providing suggestions, and in giving a summary of the guidelines for the practice.

2. The co-researchers explored the theoretical concepts of some academics and academic officials until they understood the concepts. Then they took the creative initiative to enhance their students' visionary leadership skills.
3. The co-researchers shared their expertise within the team, which led to a better understanding of the success of the work compared to when each of them had worked independently in the past.
4. The researchers and the co-researchers exchanged knowledge, issues, obstacles, and solutions through their discussions, which were crystallized into guidelines for further practice.
5. Within the group, a positive work atmosphere and a sense of sincerity were created. In order to achieve quality and successful work, the principles of teachings in Buddhism were applied by fostering goodwill, generosity, and support for one another.
6. By utilizing the Active Learning model, students learned from real practice, which resulted in teamwork, the courage to express ideas, analytical and synthetic skills, communication, and the exchange of knowledge within the team, self-confidence when presenting, and visionary leadership with integrity.

5.2. Learning by practice

As specified by the project "Practicing Collaborative Teachers to Strengthen Student's Visionary Leadership Skills," which was conducted for the students in Phayakkhaphum Wittayakarn School over the course of 2 semesters in the Academic Year 2021, both the researchers, the co-researchers, and the school learned from the many practices.

Regarding this research article, the most important collaborative learning consisted of the following: 1) the working methods, which should be assessed to examine the current situation before the practice; 2) a realization of the importance of exchanging knowledge within the team, which would result in success and in better work results than when working independently; 3) the application of Buddhist teachings to serve as a reminder to work with the goal of achieving results; and 4) an enhancement of the visionary leadership skills of students, by placing emphasis upon the following: a) teaching and learning in an active learning style, b) assisting students have the courage to express their thoughts, c) building analytical and synthetic skills, d) working as a team, e) communicating and exchanging knowledge within the team, and f) developing the ability to present ideas with confidence.

5.3. Knowledge gained from the practice

The project, "Practicing Collaborative Teachers to Strengthen Students' Visionary Leadership Skills," was conducted for the students at Phayakkhaphumwittayakarn School over the course of two semesters in the Academic Year 2021. It generated grounded-theory knowledge from field collaboration according to Kurt Lewin's Force-Field Analysis framework, which was employed in this research. It is a body of knowledge that serves as a reminder that priorities must be assessed in order to determine the following: 1) what the previous conditions are in any work or development, 2) what the expectations are, 3) what the driving force to bring about change is, 4) how much driving force it will take to make the anticipated changes, 5) what that anti-changes are that will emerge, and 6) what suggestions are available to increase the efficiency of the driving force, while lowering or even eliminating the anti-changes. The findings were then used in planning for the next cycle, which would contribute to improving the efficiency of the existing driving force, or seeking a new and more efficient drive, or possibly both.

According to the results of the assessment of the previous condition before the practice of both enhancing visionary leadership skills for students and examining the existing visionary leadership skills of the students, it was found that they were at a low level (the means were 2.32 and 2.64, respectively). Therefore, the researchers adopted the following driving forces: 1) the principles, concepts, and ethics of participatory action research (as written in the research methodology); 2) the Dharma principles that are the teachings of Buddhism; 3) the alternative academic suggestions, which were derived from the researcher's study of the relevant literature, which was supported by the suggestions that were based on the co-researchers' experiences, and which yielded 50 practical alternative suggestions; 4) the principles and strategies of teamwork, which were determined in advance of the performance;

5) an action-oriented work goal, which was set to achieve changes based on the concept: 'Change is not an Event, but a Process;' and 6) reflection on the performance to discover the anti-changes and how to best deal with them. The results of the application of the 6 important driving forces used in this research resulted in the expected changes; the co-researchers applied the developmental guidelines (principles / concepts / techniques / methods / activities), which were implemented in the phases of pre-practice and post-practice in Cycle 1 and in the post-practice phase in Cycle 2, which contributed to higher averages at 2.32, 3.09, and 4.43, respectively. Similarly, the results of the assessment of the students' visionary leadership skills were also found to have higher overall averages (2.64 in the pre-practice of Cycle 1, 3.69 in the post-practice of Cycle 1, and 4.52 in the post-practice of Cycle 2).

6. Discussion

Based on the perspective of Carr and Kemmis (1992), action research can be categorized into the three levels mentioned above: 1) Technical Action Research, 2) Practical Action Research, and 3) Emancipatory Action Research / Participatory Action Research. Regarding the project, "Practicing Collaborative Teachers to Strengthen Student's Visionary Leadership Skills," for students in Phayakkhaphumwittayakarn School, the research team chose Participatory Action Research (PAR) methodology for this research in accordance with the analytical and synthetic study conducted by Sanrattana (2018) given that the research methodology places emphasis on Democratic leadership. Cherry (2022) noted that Democratic leadership, also known as participative leadership or shared leadership, is a leadership style in which members of the group participate in decision-making processes. This type of leadership can apply to any type of organization, from private businesses to schools to the government. With a democratic leadership style, everyone is given the opportunity to participate, to freely exchange their ideas, and is encouraged to join in the discussions. While this process tends to focus on group equality and the free flow of ideas, the democratic leader is still there to offer guidance and control. The democratic leader is also charged with deciding who is in the group and who gets to contribute to the decisions that are being made. Research has found that a democratic leadership style is one of the most effective types and leads to higher productivity and better contributions from group members, as well as increases group morale.

Similarly, PhD students in the field of Educational Administration at the Isan Campus of Mahamakut Buddhist University also chose this research methodology for the following studies: "Participatory Practice "Teach Less, Learn More": A Case of Srikranuanwittayakom School" by Roobtam and Sanrattana (2021); "Development of Learning by E-Learning System: A Case of Mahamakut Buddhist University, Mahavajiralongkorn Rajaviyalaya Campus" by Phramaha Paijit Uttamadhammo (Sakhong) and Phrakrusutheejariyawattana (2021); "Cooperative practices to enhance the quality of work-integrated learning at Nong Khai Technical College" by Sarapoom and Phrakrudhammapissamai (2021); and "Teachers and participatory action research for developing learning environments" by Thawinwong and Sanrattana (2022). Results from the studies found both anticipated and unanticipated changes. The researchers, the co-researchers, and the educational institutions learned from several important practices and this knowledge resulted in a new body of knowledge that was gained from the practices. These findings demonstrated the benefits of Participatory Action Research (PAR) methodology, which can be used as the main driving force together with the initiative to use other principles, concepts, and practices to create an additional driving force. Therefore, it is a research methodology, the use of which should be supported and promoted so that any work in educational institutions or other organizations can be developed.

7. Recommendations

According to the research findings from the practices mentioned above, grounded theory from collaboration within the field of a specific local context is represented. In other words, it is not a universal theory to be referenced with other populations. However, if any educational institution is interested, it could also be used as a case study. In addition, Coghlan and Brannick (2007) and James, Milenkiewcz, and Bucknam (2008), stated that "Despite the limitations of dissemination or reference of the action research, it can be taken as a point of view or an important event that arises as a recommendation for (its) use in other similar situations or that are aiming for a similar change." Therefore, other educational institutions will be able to apply the model of *Six Driving Forces for Success*

in the project, 'Practicing Collaborative Teachers to Strengthen Student's Visionary Leadership Skills,' for students in Phayakkhaphumwittayakarn School (as shown in Figure 1) as a case study.

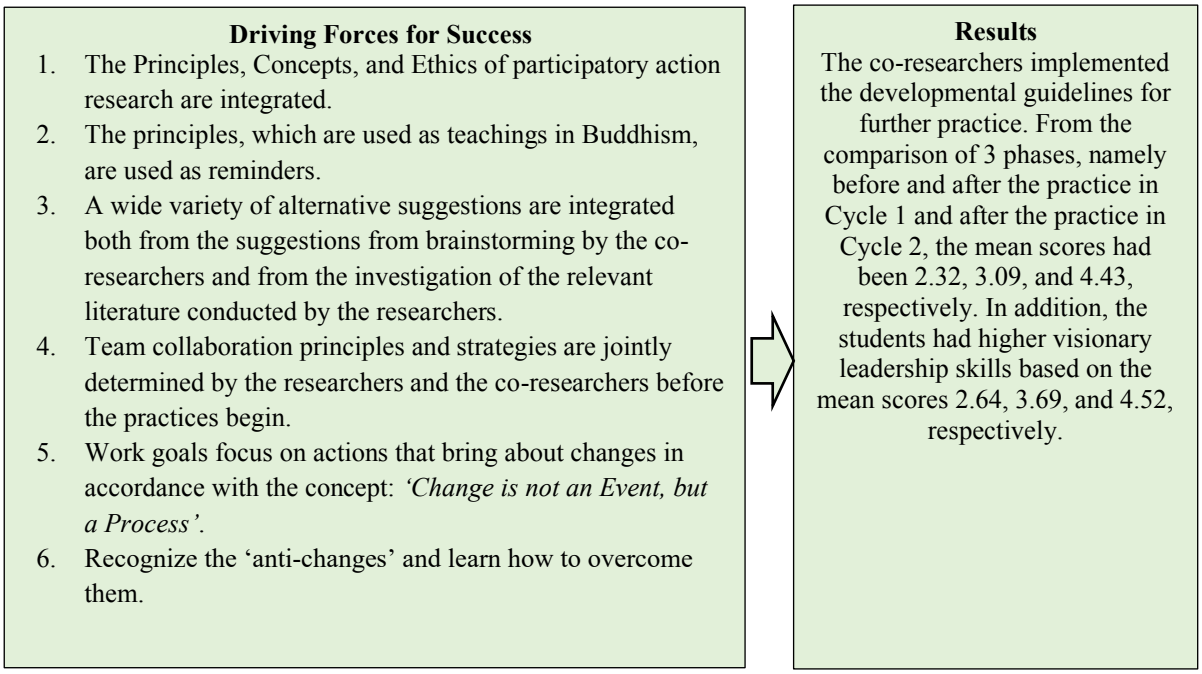

Figure 1: The model of the Six Driving Forces for Success used in the project, 'Practicing Collaborative Teachers to Strengthen Student's Visionary Leadership Skills,' for students in Phayakkhaphumwittayakarn School

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Examination of The Perceptions of Students Learning Arabic Language through Drawings

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Abstract
The Arabic language is one of the essential and lively communication languages of today's world, making it inevitable to benefit from new methods that will develop four basic language skills in an equal and balanced way in Arabic teaching. However, it is essential to determine how effective and appropriate this teaching is in terms of feedback. Therefore, this study aimed to examine the perceptions of 5th and 6th-grade students towards Arabic through the pictures they drew. Participants in the study were determined using the criterion sampling strategy. The research data consists of pictures drawn by 168 students about the Arabic language. The content analysis technique was used to analyze the obtained data. Student drawings were examined in five categories: theme, environment, human characters, tools and motifs, and expressions and symbols that reflect emotions. As a result of the evaluations, most students associate Arabic with foreign language and religious phenomena. At the same time, in light of the data obtained, it is concluded that the students have a favorable view of Arabic.

Keywords: Arabic, Arabic Teaching, Student Drawings, Content Analysis

1. Introduction

In today's world, learning one or more foreign languages is necessary. Accordingly, it is no longer possible to establish social and cultural communication with only the mother tongue in this period. Every individual now tends to learn a foreign language to establish an international level of communication in cultural, political, economic, and commercial aspects. In education institutions in Turkey, at least one foreign language education is given starting from primary school and even recently from kindergartens, and this education process continues until the university education ends. In this process, foreign language teaching studies are carried out by researchers for more permanent and effective teaching of a foreign language, and the problems in language teaching are eliminated. Foreign language education is given faster and higher quality day by day.

A language is a thinking tool and a communication system. In every society, civilization and culture are hidden in language. Language and culture walk together on the same road. Therefore, it is impossible to talk about human civilization without linguistic development. The Arabic language is one of the oldest living languages globally, associated with faith. This language has been living and spoken for more than ten new centuries. The Arabic

language is learned as a foreign language for various purposes. One of the dimensions of learning Arabic is the dimension of religion. Since Arabic is the language of the Qur'an, which is the primary source of Islam, it has a special place in the eyes of Muslim societies. So much so that, after the Turks became Muslims, they regarded Arabic as a sacred language and taught this language as a tool for Islamic sciences in madrasahs (Kervankaya, 2014: 126).

At the same time, Arabic is used as one of the communication languages used internationally in today's world. It is generally spoken as a mother tongue in the Middle East and Africa. The Arabic language has the feature of being a religious language because it is also the language of the holy book of Islam, the Qur'an. For this reason, Arabic can be seen as both a language and a religious element for both native speakers and those who speak Arabic as a foreign language.

It is possible to say that many factors influence learning a foreign language. The factors in question are students' age, gender, profession, desire to learn, language ability, language experience, interest, ethnic origin, cultural level, and personality (Can, 2018: 66). Arabic language problems should be handled in all aspects, and the current difficulties and problems encountered in Arabic teaching should be given importance. Furthermore, as a result, all problems should be classified as problems related to students, teachers, the courses given, and teaching methods, and necessary evaluations should be made for their solution (Kahyaoğlu, 2008, s. 130). For this reason, it is essential to evaluate the Arabic as a foreign language lesson given in schools in terms of educational quality and to evaluate the students' thoughts and background information about foreign language lessons to identify and solve the problems experienced in Arabic teaching.

Various methods and techniques are used in the field of education for the detection and solution of such problems. One of these methods and techniques is picture drawing. This method is frequently used to determine the thoughts and perspectives of especially young children. The interest and importance in the activity of drawing pictures, which is thought to be an analytical tool for revealing a child's subconscious emotions and thoughts, has increased since 1940 (Thomas & Silk, 1990). Freud observed that repressed impulses could be brought to the surface through dreams or pictures and confirmed his observations with studies on this subject (Dilci, 2014). The main reason for the emergence of the method of drawing and evaluating pictures and the delay in developing this method was that this method was not scientific in the 1900s and was applied based on intuitive and subjective interpretations (Yavuzer, 1997). However, it is seen that studies on the evaluation of students' thoughts about scientific concepts in various disciplines, especially in the fields of psychology and education, have been increasing and gaining importance in recent years (Turgut and Turgut, 2020; Yaman, 2018; Latham and Ewing, 2018; Einarsdottir, Dockett, & Perry, 2009).

Many factors should be considered when evaluating children's drawings. It is possible to examine the drawings from the following aspects: the colors used, the use of the drawing paper, the lines that reflect the emotions, the size of the drawn figures, the positioning of the figures on the paper, an object in the drawing with which a figure is associated. In addition, human drawings can be analyzed in many ways. These aspects of the investigation are clearly illustrated in the table below:

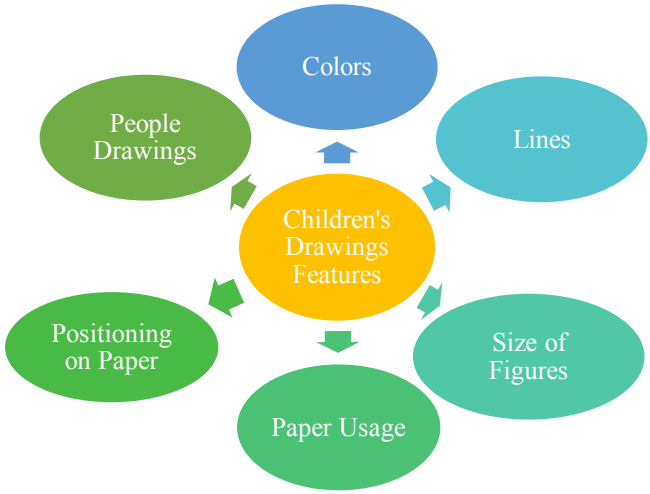

Figure 1: Children's Drawings Features

Interest in children's painting intensified between 1885 and 1920. During this period, studies in many countries evaluate children's drawings according to different dimensions (Doğru, Turcan, Arslan, & Doğru, 2006: 224). Children's thoughts, ideas, and knowledge are reflected in their drawings. Therefore, their inner world and social structures can be reflected and evaluated in such drawings. The development of children's drawing is discussed in five stages:

1. Scribble period (2-4 years)
2. Pre-schema period (4-9 years)
3. Schematic period (7-9 years old)
4. Realism (grouping) period (9-12 years old)
5. Naturalism period (12-14 years)

In these stages, children start with primitive lines and eventually get rid of the weak state of lines, and they tend to conform to some criteria of the culture and society they live in (Yavuzer, 1997, p.31). In order to evaluate the child's picture, we need to go down to his mental level and make our judgments accordingly. We should not seek a regulatory power in children or conformity with specific aesthetic rules determined by adults. The child always draws childish pictures. Undoubtedly, every drawing of the child is not an artist's drawing, but it is natural creativity in terms of its purity (San, 2019, 24). For this reason, the study group in this study was chosen from students in the realism period (9-12 years old) since it is a period when lines become original and thought comes back as a form of expression.

Determining the perceptions of secondary school students learning Arabic as a foreign language reveals the students' perspectives on Arabic and helps the teachers who prepare the curriculum and attend the classes to increase the quality of teaching by making use of the results obtained from the research, and to enable students to use Arabic as a foreign language in daily life and the future. It is thought that it will shed light on teachers and researchers about providing an awareness.

2. Method

2.1. The Aim of The Study

In this study, the phenomenological design was used as a method. Phenomenological studies are an inquiry strategy applied to reveal the researcher's human experiences about a phenomenon defined by the participants (Creswell, 2007). Phenomenology, one of the qualitative research methods, is a method that focuses on evaluating lived experience (Jasper, 1994; Miller, 2003). There are some reasons for using the phenomenological design in the research. All of the students participating in the research consisted of students studying in the 5th and 6th grades of Imam Hatip Secondary School and taking Arabic lessons. Since Arabic is taught as a foreign language, it is targeted to examine the students' perspectives on Arabic in schools where teachers graduated from the Department

of Arabic Language Education. In addition, students experience Arabic both in their classes and in their religious subjects. Therefore, it can be said that these features provide the essential qualities required by phenomenological research. This study aims to determine students' thoughts, attitudes, and behaviors about Arabic with student drawings and to reveal the deficiencies in this subject.

2.2. Population and Sample of the Research

Criterion sampling, one of the purposive sampling strategies, was used to determine the participants. In phenomenological studies, criterion sampling is the most appropriate method for determining the participants (Çilesiz, 2011). Criterion sampling is the study of situations that meet a predetermined set of criteria. The criterion or criteria can be created by the researcher (Yıldırım & Şimşek, 2011). The two criteria for determining the research participants are that the students take Arabic lessons and study in the 5th or 6th grade secondary school. The research participants were 5th and 6th grade students of 4 Imam Hatip Secondary Schools in Yozgat city and 1 Imam Hatip Secondary School in Bartın city in the 2021-2022 academic year. The research was carried out with the participation of 168 students. The personal characteristics of the participants are presented in Table 1.

Table 1: Personal Characteristics of the Participants

Specifications	f	%
Gender		
Girl	72	42,85
Boy	96	57,14
Grade		
5th grade	78	46,42
6th grade	91	54,16

42.85% of the students participating in the research are girls, and 57.14% are boys. 46.42% of the participants are in 5th grade, and 54.16% are 6th grade students.

2.3. Data Collection Tool and Process

In this study, student drawings were used as a data collection tool. Children's verbal explanations about what they will draw and what they draw are generally similar and also show the relationship between language ability and drawing abilities (Brittain & Chien, 1983). Students were asked to draw on the subject of "What comes to mind when I say Arabic." The teacher asked the students to draw a picture reflecting their feelings and thoughts about the Arabic language by the instruction on the A4 paper he handed out. Students were asked to draw pictures using pencils and paints, and no direct restrictions were placed on the material to be used. While explaining what to do to the participants, care was taken not to use any guiding expressions to reflect their thoughts. Students were given 15-20 minutes to draw their pictures reflecting their thoughts on the subject. The application was carried out in the Arabic course given in Imam Hatip Secondary Schools.

2.4. Analysis of Data

The data collected in the research were analyzed by the content analysis method. Content analysis is the objective, systematic and quantitative description of the presented communication content (Berelson 1952: 17). According to another definition, content analysis is a research technique used to draw reproducible and valid conclusions from data about its content (Krippendorff 1980: 25). In addition, although there are different definitions for content analysis, two critical issues that they all emphasize are that the method should be "systematic" and "impartial" (Koçak and Özgür, 2006: 22). While the data were analyzed by content analysis, the drawings were evaluated independently. The data were examined repeatedly during the analysis process, and the similarities and differences between the drawings were revealed. In this context, information about the students' perspectives on Arabic and the themes that Arabic reminds them of are presented.

3. Findings

The data obtained from the research were analyzed with interpretive content analysis, and the codes and themes obtained are included in the findings section. While the findings were exemplified, the students' personal information was not included, and the pictures were given as examples. The data obtained were analyzed under five main headings: theme, environment, people, tools and motifs, and expressions and symbols that reflect emotions.

3.1. Themes in Student Drawings

The number and percentage distribution of the students' drawings in 5 subcategories of the themes reflected in their drawings are presented in Table 2:

Table 2: Themes in Student Drawings

Themes	f	%
Arabic language	36	21,30
Religion (Islam)	98	57,98
Education	8	4,73
Arabic Teaching	23	13,60
Life in the Arab Country	4	2,36

Table 2. When examined, the drawings made by the students to explain their thoughts on Arabic were divided into five categories: Arabic Language, Religion (Islam), Education, Teaching Arabic, and Life in an Arab Country. Among these categories, most drawings (98, 57.98%) were related to "Religion (Islam)," followed by "Arabic Language" with 21.30%. It is seen that the least number of drawings (4, 2.36%) are those belonging to the category of "Life in the Arab country."

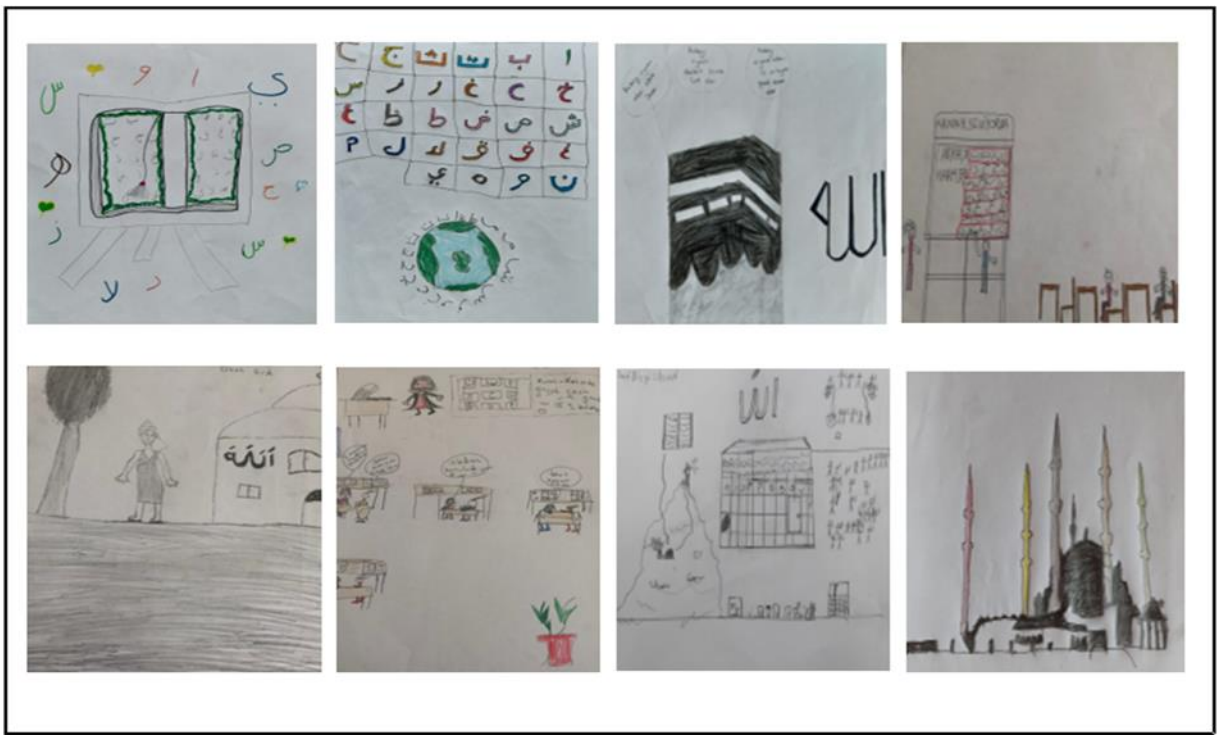

Figure 1: Sample Drawings of Themes Included in Student Drawings

When we look at the drawings in Figure 1 regarding the themes in the student drawings, there are various drawings with letters related to the Arabic language and world-shaped drawings about the awareness that Arabic is a foreign

language. In addition, the religious dimension of Arabic is also included in the drawings. As an example, there are The Kaa'ba and mosque drawings. In addition to this, drawings on education and teaching of Arabic also appeared in students' minds, teaching Arabic in the classroom and the classroom environment. It is noteworthy that some of the pictures in which the classroom environment is drawn include the expressions "I love Arabic" "أحبّ العربية" in Turkish and Arabic. Finally, there are drawings of the Arabic characters with a minor percentage. Therefore, the themes related to this category, such as the fact that Arabic is a foreign language, its religious dimension, and its reflections on education and Arabic culture, are among the main subjects discussed in the drawings.

3.2. Environments in Student Drawings

The number and percentage distribution of the students' drawings in the form of 9 subcategories of environments and spaces reflected in their drawings is presented in Table 3:

Table 3: Environments in Student Drawings

Environment and Space	**f**	**%**
The Cave of Hira (غار حراء)	3	2,91
Mosque	56	54,36
School	7	6,79
Quran course	4	3,88
The Kaa'ba (الكعبة)	10	9,70
World	3	2,91
Class	13	12,62
Nature	3	3,91
Arab Country	4	3,88

When Table 3 is examined, the category of environment and spaces in the students' drawings is divided into nine subcategories: The Cave of Hira, Mosque, School, Qur'an Course, The Kaa'ba, World, Classroom, Nature, and Arab Country. Among these categories, the most drawings are 56 drawings, 54.36% are mosque drawings, the most diminutive drawings are three drawings each, and The Cave of Hira and world drawings with 2.91%. In addition to the mosque drawings, it is seen that 13 drawings with a ratio of 12,62% are related to the "classroom environment," and ten drawings with a ratio of 9.70% are related to the "The Kaa'ba."

Figure 2: Sample Drawings of Spaces in Student Drawings

When the sample drawings given in Figure 2 regarding the spaces in the student drawings are examined, a The Cave of Hira drawing and information describing The Cave of Hira in the lower and upper parts of the drawing, a mosque drawing with a tree in its garden, The Kaa'ba, school, world, a nature with Arabic dialogue, a palm or a tree. Various drawings include an Arab country with a date palm and a classroom environment where Arabic is taught. Although such drawings are very diverse, it is noteworthy that especially mosque drawings are in the majority, and it is seen that students associate Arabic more with religion. At the same time, the high rate of drawings related to the classroom environment and teaching of Arabic can be deduced that the students see Arabic in both religious and Arabic learning dimensions.

3.3. Human Characters in Student Drawings

The number and percentage distribution of the human characters reflected in their drawings by the students in 6 subcategories are presented in Table 4:

Table 4: Human Characters in Student Drawings

Characters	f	%
Girl	12	21,42
Boy	12	21,42
People Praying	5	8,92
Student	13	23,21
Teacher	11	19,64
Arabs	3	5,35

When Table 4 is examined, the category of people in student drawings is divided into six subcategories: girls and boys, praying people, students, teachers, and Arabic characters. Among these categories, the most drawings are 13 drawings and students with 23.21%, 12 drawings each and girls and boys with a total rate of 42.84%, 11 drawings and teacher drawings with a rate of 19.64%. The lowest rate is five drawings and 8.92% for praying people, three drawings, and 5.35% for Arabic character drawings. Although the students deal with Arabic in

different themes and environments, it is seen that the student-teacher profile does not go beyond the category of human drawings.

Figure 3: Examples of Human Drawings in Student Drawings

When the sample drawings given in Figure 3 regarding the drawing of human characters in the student drawings are examined, it is seen that the drawings of the characters are generally compatible with their age groups. Most of the drawn characters are in student profiles, boys and girls. It is understood that the drawings of students learning Arabic and Arabic teachers connect Arabic with education, and most students try to express their inner world in their drawings. In the pictures above, mostly the materials, letters, words, and possible teaching methods applied by the teachers in the lessons of Arabic teaching are drawn. For example, in the above pictures, it can be inferred that the teacher teaches the seasons with shapes, the subject of teaching fruits is taught, and it is taught by writing on the board. At the same time, not only the students teaching Arabic but also the characters who read the Qur'an and the possible Arab characters living in the Arab culture are drawn.

3.4. Tools and Motifs in Student Drawings

The tools and objects in the students' drawings are divided into ten subcategories. The number and percentage distributions of these drawings are presented in Table 5:

Table 5: Tools and Motifs in Student Drawings

Tools	f	%
Arabic Letters	33	38,37
The Qur’an	6	6,97
Prayer rug	7	8,13
Arabic Book	4	4,65
Rosary	2	2,32
School Supplies	4	4,65
Arabic Words	13	15,11
Arabic Numbers	1	1,16
Flower	5	5,81
Tree	11	12,79

It is seen that the category of tools and motifs in student drawings is divided into ten categories, as seen in Table 5. Arabic letters are divided into various subcategories such as the Qur'an, prayer rug, Arabic Books, tasbih, school equipment, Arabic words, Arabic numbers, flowers, and trees. Among these categories, 33 drawings and Arabic letters with 38.37%, Arabic words with 13 drawings and 15.11% with Arabic words, and 11 drawings and tree drawings with 12.79% constitute the most drawings. The most diminutive drawings are one drawing and Arabic numbers with 1.16%, two drawings and 2.32% with rosary drawings, four drawings, and 4.65% with school equipment and Arabic book categories.

Figure 4: Sample Drawings of Tools and Motifs in Student Drawings

Sample drawings of tools and motifs in student drawings are given in Figure 4. When the pictures above are examined, it is seen that the students generally deal with the letters in Arabic. Although rare, Arabic words and Arabic numbers are used, students generally go on a more straightforward path in Arabic, and it draws attention that drawings are made about the teaching of letters, which are the first stage of a language, considering their education level. In addition, the students' Arabic language, Arabic teaching, and other than religious subjects, flowers, hearts, etc., appear to have been drawn. It can be said that such drawings leave a positive connotation in the minds of the students when Arabic is mentioned.

3.5. Expressions and Symbols that Reflect Emotions in Student Drawings

Expressions and Symbols that reflect emotions in student drawings The number and percentage distribution of drawings in 2 subcategories are presented in Table 6:

Table 6: Expressions and Symbols Reflecting Emotions in Student Drawings

Emotional Expressions	f	%
Positive Symbols and Expressions	35	94,59
Negative Symbols and Expressions	2	5,40

The categories of expressions and symbols that reflect emotions in student drawings are divided into "positive symbols and expressions" and "negative symbols and expressions," as seen in Table 6. In this category, it is seen that most drawings were made in the "positive symbols and expressions" category with a rate of 94.59%, and most miniature drawings were made in the "negative symbols and expressions" category. This category is essential in

terms of evaluating students' perspectives on Arabic. Because most of the students "What comes to mind when I say Arabic?" They answered the question with cheerful symbols and expressions. However, very few students used negative symbols or expressions related to this question in their drawings.

Figure 5: Sample Drawings of Emotional Expressions and Symbols in Student Drawings

Example drawings of emotional expressions and symbols in student drawings are given in Figure 5. When the percentages and drawings above are examined, it is seen that most of the students have a positive attitude towards Arabic. The smiling faces in the mutual dialogues of the students and the smiling faces in the teacher characters were considered positive expressions. In addition, there is a smiling face in the drawn world picture. In addition, the expressions "أحب العربية" in some of the drawings are also considered a positive expression of Arabic. In addition, flower and tree pictures were drawn in some drawings, as mentioned in Table 5. All these can be interpreted as positive expressions in student drawings. In addition, it is seen that daily expressions such as " ,"مرحبا "عليكم السلام", "السلام عليكم", "صباح النور", "صباح الخير"" are included in the dialogues in the student drawings. This shows that teachers attach importance to using daily language and Arabic in practice. However, it is possible to interpret the angry teacher in the drawing of 2 students as a situation arising from the teacher-student relationship. In short, it is understood that the majority of the students gave positive reactions to the Arabic language and teaching Arabic.

3.6. Evaluation of Student Drawings in the Scope of the Curriculum

The themes of the 5th and 6th grade Arabic lessons in the Primary Education Arabic Language Teaching Program of the General Directorate of Religious Education of the Ministry of National Education are given in Table 7 (DOP, 2016, p.17-18):

Table 7: 5th and 6th Grade Arabic Lesson Themes

5th Grade Arabic Lesson Themes	6th Grade Arabic Lesson Themes
Sounds and Letters	Daily life
I'm Reading and Writing	Food and drinks
Greetings and Meetups	Health
My Family and My Home	clothes
My school and My Friends	Sacred Sites
Values	Transportation

When the student drawings were compared with the themes in the Primary Education Arabic Lesson Curriculum, it was determined that the students reflected the subjects they learned in their drawings. Examples of this are given below:

Figure 6: Examples of Drawings Compatible with Curriculum Themes

There are 12 different themes in the 5th and 6th grade Arabic lesson program of the Ministry of National Education. When these themes are compared with student drawings, it is seen that basic greeting expressions such as "There are sounds, letters" and Arabic letters related to the theme of "greeting and meeting" are written as speech expressions in the drawings concerning the theme of "my school and my friends," the school and classroom environment, students and students, etc. Drawings describe the school environment. We see pictures of "cherries, apples, watermelon" related to the theme of "food and drinks" in the drawings. "An ambulance was drawn in a drawing related to the health theme, and its Arabic equivalent was stated on the drawing paper as "سيارة الإسعاف." Finally, there are the Kaa'ba, Mosque, and the Cave of Hira related to the "Sacred Places" theme and "car" drawings related to the "Transportation" theme. Therefore, based on this information, it can be said that the teachers are teaching within the program's framework determined by the Ministry of National Education and that the students remember the relevant themes and visualize them in their minds.

4. Result and Discussion

This research aims to determine the thoughts and perspectives of Imam Hatip Secondary School students about Arabic. In this context, drawings about Arabic were made for 168 students assigned to study in these schools in the 5th and 6th grades to evaluate them with content analysis. The evaluations were analyzed into six categories. When the data obtained from the students were analyzed in the study, the following results were obtained:

Most of the 5th and 6th-grade students of Imam Hatip Secondary School remember religious themes when Arabic is mentioned. It can be said that the religious lessons given in addition to the Arabic lesson during the education process are effective in remembering the Arabic in this direction. In addition, students see Arabic as a foreign language simultaneously. When evaluated in terms of environment and space category, the students considered religious places in their drawings. From this point of view, we see that students use Arabic in religious places by reading the Qur'an and praying. In terms of human characters, students mainly included student and teacher characters. The educational aspect of Arabic comes to the fore in these drawings.

When the data obtained are examined in terms of tools and motifs, it is prominent that the students included Arabic letters and words in their drawings. They actively used the Arabic language in their drawings. Also, when it is analyzed emotionally, it can be said that students like Arabic أحب العربية or heart, flower, tree etc. It is seen that the drawings exhibit a positive perspective on Arabic. After all these examinations, the themes discussed in the drawings are compatible with the themes in the 5th and 6th grade Arabic curriculum of the Ministry of National Education General Directorate of Religious Education. Arabic is taught as a foreign language in secondary education institutions, and the subjects within the program's scope are covered. Students reinforce the Arabic language practically and with dialogues about daily life.

In addition, Kervankaya (2014), in one of the open-ended questions he directed to students in his research, "Why did you choose to study at Imam Hatip High School?" he asked. According to the data obtained, 52% of the students answered that they should acquire Islamic knowledge in addition to positive sciences, 27% answered that Imam Hatip High School has a calmer and more respectable environment compared to other high schools, and 21% responded as a family request. As can be understood from the answers, most students prefer Imam Hatip High School to acquire Islamic knowledge. Therefore, the information obtained in our drawing analysis research is in parallel with the research in question, and we conclude that the students see Arabic as related to their religious knowledge. Temel (2015) mentioned that Arabic should be popular with students and should be taught as a foreign language in his research. In this direction, when the student drawings are examined, it is possible to conclude that the students like Arabic and learning Arabic and that this problem has been solved.

As a result, it is seen that the students who learn Arabic as a foreign language in the 5th and 6th grades of Imam Hatip Secondary Schools have a positive approach to Arabic within the scope of the Primary Education Arabic lesson curriculum, and it is seen that importance is given to gaining listening-understanding, speaking, reading and writing skills. The student's ability to use Arabic for their purposes is reflected in their drawings.

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Digital-Based Smart Campus at Telkom University, Indonesia

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Abstract
A Smart Campus is a new educational paradigm developed in this study, and numerous changes are achieved in the sectors of technology, environment, management, education, mobility, life, security, and the university's economy. A smart campus is a way for institutions to compete in the industrial era 4.0. The smart campus system assists colleges in offering timely, accurate, and real-time services to all academicians. Previous research on smart campuses covers numerous dimensions, including the environment, education, management, mobility, people, economy, and security. The purpose of this research is to determine the components of Telkom University's digitally-based smart campus. To achieve this goal, the researcher enlisted the help of 98 Telkom University students. This research method employs a quantitative approach. A quantitative technique is used in this research strategy. The data used in this study are primary data gathered from the questionnaire responses. Confirmatory Factor Analysis was employed in this investigation, which was carried out with the assistance of the SmartPLS tool. Based on the findings of this study's analysis, it was determined that Telkom University has adopted nine components that reflect a digital-based smart campus. Among the 9 components examined, three have shown to be successful on this campus: Campus Application, Digital Presence with QR Code, and Campus Development Dashboard, while three require further improvement: Campus Academic System component, E-learning, and Job Fair System and Career Center.

Keywords: Smart Campus, Digitalization, E-Learning, ICT, Artificial Intelligence

1. Introduction

Smart initiatives continue to be developed in the digitalization era to provide convenience for humans in various components of life (E. Ahmed, Yaqoob, Gani, Imran, & Guizani, 2016; Boni, Xu, Chen, & Baddoo, 2020). To make human life easier, several applications and technologies have been developed. The Internet of Things (IoT), Information and Communication Technology (ICT), and Artificial Intelligence are examples of this (AI). Smart technologies linked to these SDGs have the potential to improve human habitation. (Boni et al., 2020; Cesconetto et al., 2020; Gubbi, Buyya, Marusic, & Palaniswami, 2013; Husain & Jain, 2020).

The term "Smart" should apply to institutions, homes, offices, communities, and universities rather than being restricted to specific product characteristics like those of telephones and computers. Given the disparities in development between the Global North and South, the process of "amortization," or "the method to be smart" (Nesti, 2020), adopts a variety of approaches in both regions. While this is going on, Smart Cities in the Global North deploy technology networks and frameworks on top of mature institutional infrastructure. Cities in the

Global South have various forms and articulations for smart city projects because of their greater public service deficits, lack of resources, vibrant informal sector, and weaker institutions. (Offenhuber, 2019; Söderström, 2020).

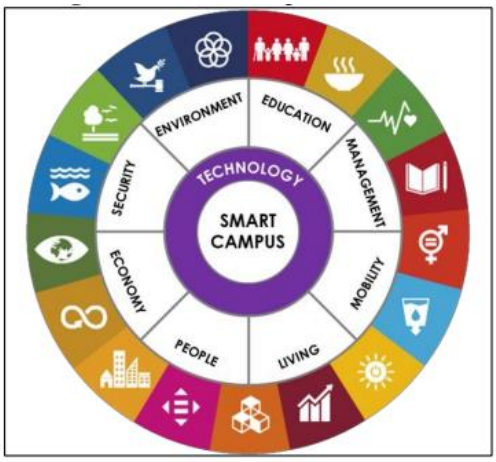
A new educational paradigm is developed on what is sometimes referred to as the "Smart Campus" in smart educational efforts. In the areas of technology, the environment, management, education, mobility, life, security, and universities, numerous advancements are achieved. economics (Ahmed, Alnaaj, & Saboor, 2020; Min-Allah & Alrashed, 2020). Telkom University is in the digitalization stage toward the smart campus category. Even though this campus uses the concept of a corporate university, it can still follow digitalization. This is because A path is a smart campus to a future institution of higher learning that should be concerned with stakeholders' demands, including students and teachers. A university is hoped to become a driving force for realizing sustainable education development as a smart campus (Clark II & Eisenberg, 2008; Coccoli, Maresca, & Stanganelli, 2017).

Shrewd campus supports all activities of the academic community during the execution of the three trees of Higher Education obligations by using information technology. The implementation is not easy because it involves many facilities that should be realized, such as smart classrooms, laboratories, buildings, departments, and faculties (Dharma Putra, 2017). The implementation needed to develop from a conventional or usual campus management situation and then switch to implementing a system using technology. A well-developed campus can implement the obligations of the three trees of Higher Education as a responsibility to science, society, and the environment.

The three pillars of higher learning have the domains of providing education, research, and community service. One of the domains that can be improved in terms of service and efficient use of technology in education. Applying technology systems in the management of the education sector will increase efficiency and stakeholder satisfaction. Making an environment and procedure conducive to learning is a deliberate and planned endeavor. Students actively cultivate their potential for morality, spirituality, self-control, personality, intelligence, and other qualities. (Wibawa, 2017).

In several universities abroad, the concept of technology on smart campuses is expected to support the learning process and further research, as well as streamline the process of delivering administrative services. Dalhousie University applies this concept to improve service satisfaction and efficiency factors. There has not been much research on smart campuses, and to Pedro (2021), a smart campus has Environment, Education, management, mobility, people, economy, and security, as shown in Figure 1.

Figure 1: Smart Campus Dimensions



The dimension that is being intensified at Telkom University and several campuses in Indonesia is the digitalization-based technology, hence, researchers are interested in researching the implementation of digital-based smart campus programs.

2. Theoretical Review

2.1. Smart Campus

Research on smart campuses has been widely carried out by experts who adopted the definition of a smart city. Based on the research conducted (Atif et al., 2014), a smart campus is an approach presented with the composition of a study room, a physical learning environment coupled with digital and social services. Meanwhile, campus facilities support all operations of the academic community in implementing the Tri Dharma of Higher Education, which leverages information technology as its backbone and is a development of conventional or ordinary campus administration, (Cordiaz, 2017).

(Iqbal et al., 2018) stated that a smart campus combines a learning system with the use of information technology, thereby facilitating the teaching and learning process and other activities. According to (Sulistyohati et al., 2018), the development of Information and Communication Technology (ICT), science, and human resources are the main supporters of smart campuses.

(Syidada & Wahyuningtyas, 2019) also stated that the Smart campus is a means for universities to win the competition in the industrial era 4.0. The system provides fast, accurate, real-time services for all academics. (Huertas Celdran et al., 2019) suggested it provides geographically dispersed online tools to access learning resources and laboratories. (Supratman et al., 2019) reported that the success of universities in utilizing Information and Communication Technology (ICT) or smart campus as a competitive and competitive effort essentially lies in several indicators such as technoware, info was, or aware, and humanware.

2.1. Smart Campus Components

Based on the research above, some components support the implementation of smart campuses. The technology and features to be owned by campuses include the following:
The research conducted (Mardiyanto & Rahayu, 2019) showed that the development of a smart campus in its application requires several components, including:

1. Provision of infrastructure- This is a basic component that functions as a smart campus service medium at a university. The services can be in the form of applications, infrastructure, and campus services.
2. Provision of basic campus services- Campus basic services provide systems or applications to the students.
3. Provision of applications and content- This is a campus service that needs to be implemented to support the convenience of students
4. Management of customer business- Business management is a development effort to achieve the goals of a campus. Good management can increase customer satisfaction.

In another research by (Supratman et al., 2019), the data were obtained using questionnaires. The results can be concluded that the development of cyber campuses is in the form of the following components:

1. ICT Use includes the dimensions of need and alignment as well as processes and governance that are not ready to be applied.
2. ICT Readiness which includes the dimensions of technology resources in the category almost successfully applied to the research.
3. ICT Capability, which includes the community dimension that has not been successfully implemented and
4. ICT Impact covers the dimensions of complaints and benefits within the near-success category.

According to (Kisworo 2020), the 6 dimensions of the smart campus consist of:

1. Smart Governance. This is a way to manage campus efficiently, and it is the most basic dimension driving others.
2. Smart Branding. Each campus should have a unique brand image as the face of the campus, and it is realized in focused governance.

3. Smart Economy. This is concerned with the ways to carry out the tri dharma in research with a simple process.
4. Smart Living. This makes the campus safe, and comfortable by paying attention to the health component or hygiene compatibility.
5. Smart Society. This is concerned with community relations on campus, both in learning and using the right technology.
6. Smart Environment. A campus should have a well-maintained environment, efficient facilities, and a comfortable green environment, using renewable energy.

According to (Hasibuan 2020), the 3 components of the smart campus consist of:

1. Infrastructure in the form of ICT devices, including smart applications, devices, and data
2. Big data includes analysis to foster a culture of appreciation
3. AI dominates s-learning

There are 10 components and variables that can be input for the implementation of digitization at Telkom University. Based on the Sevima article (Sevima 2019), there is 10 digitization conducted by universities in the disruptive era, including:

1. SPMB Online (New Student Admission System). This innovation aims to convince or attract prospective students.
2. Online Payment System. It aims to be more efficient and avoid long queues for student payments.
3. Digital Presence with QR code. Students only need to scan the QR code shared by the lecturer, and this certainly makes it easier to monitor class attendance in real time.
4. E-learning. Online learning can be a richer experience and can be conducted anywhere.
5. Campus application to monitor student dashboard and update information
6. The campus academic system aims to manage academic and non-academic systems and report student data for campus development decisions.
7. Job system and Career Center. This is important to give a fair job application and facilitate alumni employment.
8. Campus development dashboard. This intends to showcase student status and graphs depicting patterns in lecture performance and graduation projections, hence, they may assist students to organize their lectures.
9. E-certificates. This makes it simpler for students to work effectively, as certificates can be distributed by email and a QR code may be included to verify their legitimacy.
10. Online Financial System to avoid errors in manual calculations is needed for the campus.

3. Methodology

3.1. Research Design

This research uses a quantitative approach to identify the factors that support Telkom University's becoming a digital-based smart campus. There are 10 digital-based indicators derived from the Enterprise Architecture model by the Ministry of Education and Culture using the porter value chain method and the linkage of minimum standards of universities.

3.2. Population and Sample

The population consisted of the students of Telkom University. Determination of the number of samples was conducted using the Slovin formula with a significance level of 10%. Since the number of students at this university is 4,549 (PDDikti; 2021), the minimum sample number is 98 respondents using the Slovin formula.

$$n = \frac{N}{1 + (0{,}1)^2 N}$$

$$= \frac{4549}{1 + (0,1)^2 4549} = 97,85 \sim 98$$

Data collection was obtained from the results of distributing questionnaires, which used a Likert scale of 1-5 with a gradation of answers Strongly Disagree (STS) = 1; Disagree (TS) = 2; Doubtful (RR) =3; Agree (S) = 4 and Strongly Agree (SS) = 5. The number of indicators is 5, and they have gone through the expert validation process, with the statistical validity of the instrument test. The reliability level of the instrument is reached at the Cronbachs alpha value of 0.980, while the r count for each question item is in the range of 0.575 - 0.841. Therefore, the instrument has a high level of reliability, and all question items are valid because it has an r value < r table α=0,05; df=28 (0,361).

3.3. Data Analysis Techniques

The data were examined using a three-stage process that included (1) a descriptive analysis of the characteristics of the respondents, (2) a descriptive analysis of the research variables, and (3) a confirmatory factor analysis (CFA analysis). The SPSS program was used to perform a descriptive analysis of respondent characteristics and research variables. On the other hand, PLS analysis was carried out using SmartPLS version 3. Since there were only about 100 samples and both small and large samples were successfully analyzed by this program, it can be used for CFA analysis. (Hair et al., 2000).

4. Result and Discussion

The digital-based smart campus factor was determined at Telkom University Indonesia using CFA analysis, and FIG. 2 displays the specifications of the prototype. The stages in the CFA analysis include (1) Testing for Convergent Validity (viewed from the AVE values and the loading factor); (2) Discriminant Validity Testing (assessed from the HTMT value), (3) Construct Reliability Testing (assessed from CR and Cronbachs Alpha), (4) Goodness of fit model testing (evaluated using the SRMR, Q Square, and R square models), and (5) AVE Construct assessment which will show the most dominant factor in reflecting Telkom university's digital-based smart campus.

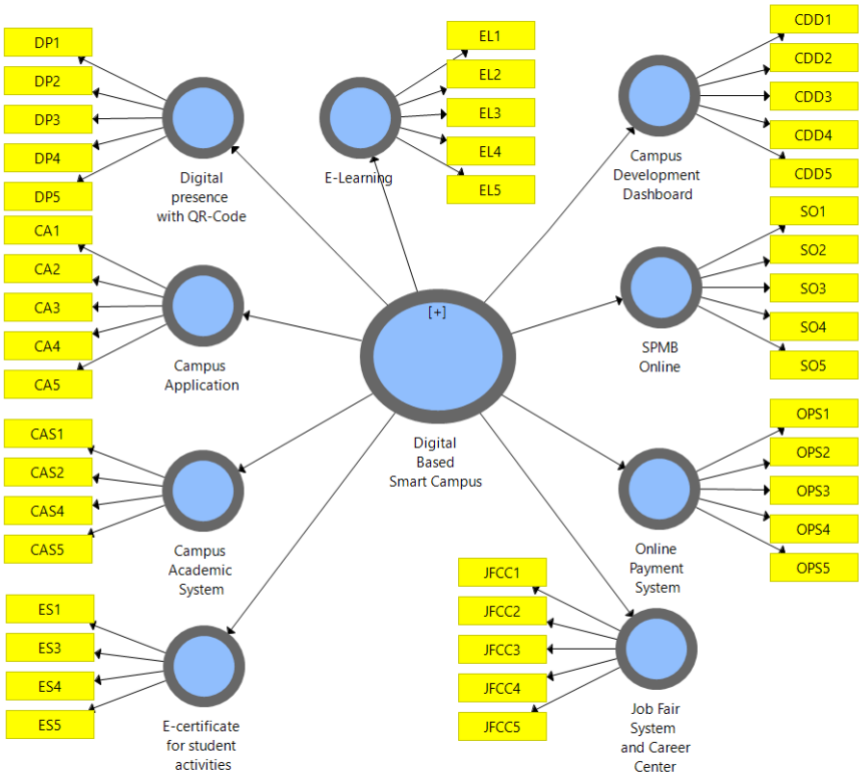


Figure 5: PLS Model Specifications

4.1. Convergent Validity

Each correlation between the indicator and the latent construct was examined using a convergent validity test. When the loading factor value is greater than 0.7 and each construct has an AVE value greater than 0.5, the indicator is deemed legitimate in this test. The results of the outer model test in Table 3 showed that several indicators are not valid in measuring the constructs [CAS3 (ʎ = 0.598) and ES2 (ʎ = 0.593)], the loading factor value is low < 0.6, while in exploratory research, the minimum loading factor limit required is 0.6. Exploratory and confirmatory and development research use a loading factor limit of 0.6 and 0.7 and 0.5, respectively (Hair et al., 2000).

Invalid indicators were removed from the SEM model, which was re-estimated to obtain an arrangement with all valid indicators in measuring each factor indicating a digital-based smart campus at Telkom University Indonesia. The display of the PLS-SEM Model with all valid indicators can be seen in Figure 3.

Besides the loading factor, convergent validity is also assessed from the AVE value. All indicators are declared to meet convergent validity when they can form an AVE construct > 0.5.

4.2. Discriminant Validity

Discriminant validity ensures that the concept of each latent model is different from other variables. In this test, the indicator is declared to meet the required discriminant validity criteria when the HTMT between constructs is below 0.9. The results in Table 4 show that the HTMT value between constructs has been below 0.9, which means that the discriminant validity was met by each construct.

4.3. Cronbach Alpha and Composite Reliability

The genuine value of a variable is measured by Composite Reliability, and the lowest reliability is measured by Cronbach Alpha. The needed Cronbach Alpha and Composite Dependability values are > 0.7 and > 0.7, respectively, for measuring construct reliability. All of the constructs in the PLS-SEM model are trustworthy, according to the results in Table 5, which also reveal that the composite reliability value is > 0.7.

4.4. PLS Model Inner Test

The calculation of the coefficient of determination, evaluation of the path coefficient, the test of the significance of the partial effect of exogenous variables on endogenous, and evaluation of the goodness of the fit of the structural model are all included in the inner model test. At this point, the hypothesis can be examined using the test results.

4.5. The goodness of Fit Model PLS

Assessment of the Goodness of fit can be assessed from the value of R and Q Squares.

1. R square. This shows the strength of the model in predicting endogenous variables. It ranges from 0-1 and is categorized into strong, moderate, and weak. According to Chin (1998), an R square value > 0.67, 0.33 – 0.67, and 0.19 – 0.33 indicate the PLS model is in a strong, moderate and weak category.
2. Q Square. The analysis's findings are shown in Table 6 show that the value of R Square Digita, attendance with QR Code (0.690), Campus Development Dashboard (0.722), Online Payment System (0.687), and Campus Application (0.725) are included in the strong category, while R square E-learning (0.555) (SPMB Online (0.588), Job Fair and Career Center System (0.551), Student Activity E-certificate (0.636) and Campus Academic System (0.454) are in the moderate category. R square modeling falls within the moderate-strong category, hence, the PLS-SEM model is considered good in reflecting the digital-based smart campus at Telkom University, Indonesia.
3. Q Square. The Q Square model's value demonstrates the degree of predictive usefulness, and it is categorized into small, medium, and large. The value of Q square 0.02 – 0.15, 0.15 – 0.35 and > 0.35 is

declared small, moderate and large. The test results in Table 6 show that the Q Square of all constructs that are indicators of a digital-based smart campus at Telkom University Indonesia is quite high and exceeds 0.35. Therefore, it can be concluded that the PLS-SEM model has great predictive relevance in reflecting a digital-based smart campus.

4.6. Inner Model Test

In the CFA analysis with SmartPLS, testing of the PLS inner model assessed the significance of each dimension in reflecting a digital-based smart campus. Furthermore, the dimensions that have not been carried out are not good in reflecting the digital-based smart campus at Telkom University Indonesia.
The estimation results with the bootstrap technique in Figure 2 show that the analyzed dimensions indicate a digital-based smart campus. This has been proven by the p-value of the inner model test on each dimension, which is <0.05, and T Statistics > 1.96. This means 9 components that reflect a digital-based smart campus have been implemented at the university. However, judging from the path coefficient variance, not all components are running well. Therefore, they should be improved in supporting the university to become a smart campus in this digitalization era.

The results showed that the 3 dimensions for the digital-based smart campus at Telkom University Indonesia are [1] Campus Applications (0.852), [2] Digital Presence with QR Code (0.831), and [3] Campus Development Dashboard. This means that the digital-based smart campus has been running very well in these three dimensions. With the application of these three dimensions, it is becoming better and attracts prospective students. Every student wants to know the latest information from their campus. Therefore, universities should prepare campus applications to monitor student dashboards and also to update news from study programs, and academic departments. Students do not miss any news with this information update, hence, they will be interested in enrolling at UIN because the campus application is excellent. One of the simple innovations is the existence of a dashboard that can display students' status, graphs showing trends in achievement, and predictions of their respective graduation. This information dashboard is very useful in helping students to plan their lecturers for the following semester. This indicates that the dashboard is a consideration for prospective students who will enroll at UIN. The better the Campus development dashboard, the higher the interest of students because Telkom University is considered to have become a smart campus that will facilitate the learning process and future careers. Currently, the average students already have a smartphone, and digitizing attendance with QR-Code is very suitable to be applied. This means students only need to take out their cellphones and scan the QR-Code. Every attendance will be logged immediately into the SIAKAD system, allowing real-time monitoring in class. Therefore, the more use of Digital Presence with QR-Code, the more students who are interested in registering on this campus. This is because digitalization makes campus administration becomes easier.

The 3 dimensions with the lowest path coefficient are [1] Campus Academic System (0.674), [2] E-learning (0.745), and [3] Job Fair and Career Center System (0.742). They are not very good at reflecting the digital-based smart campus at Telkom University because the campus has not consistently implemented these components. However, when implemented properly it will certainly be an added value for Telkom University.

The digitization of the campus academic system or SIAKAD is not less important than others in facilitating the management of academic and non-academic data. Furthermore, it assists universities in reporting academic data to the government (PDDIKTI), and also as big data for decision-making on campus development. SIAKAD has been widely used, but each campus has its form, completeness of information, and ease of use. The minimum number of errors when SIAKAD is accessed is certainly part of digitizing the UIN Syarif Hidyataullah dictionary in terms of academic administration.

Students should be familiar with E-learning to facilitate a better experience. The material in E-learning should be complete and the tasks should be presented clearly. This method is promoted on campus, but at Telkom University, there are not many lecturers who want to upload materials and learn online because face-to-face is considered more effective. Therefore, this dimension does not reflect too much on the digital-based smart campus at Telkom University Indonesia.

Application of job fairs and career centers is one measure that should be taken to guarantee that graduates obtain employment. Certainly, the online job fair method will make it simpler to locate employment. Job fairs and career centers are very important for students who are in their final semester or just graduated. There are not many job fairs organized at Telkom University, and the career center has not been expanded sufficiently.

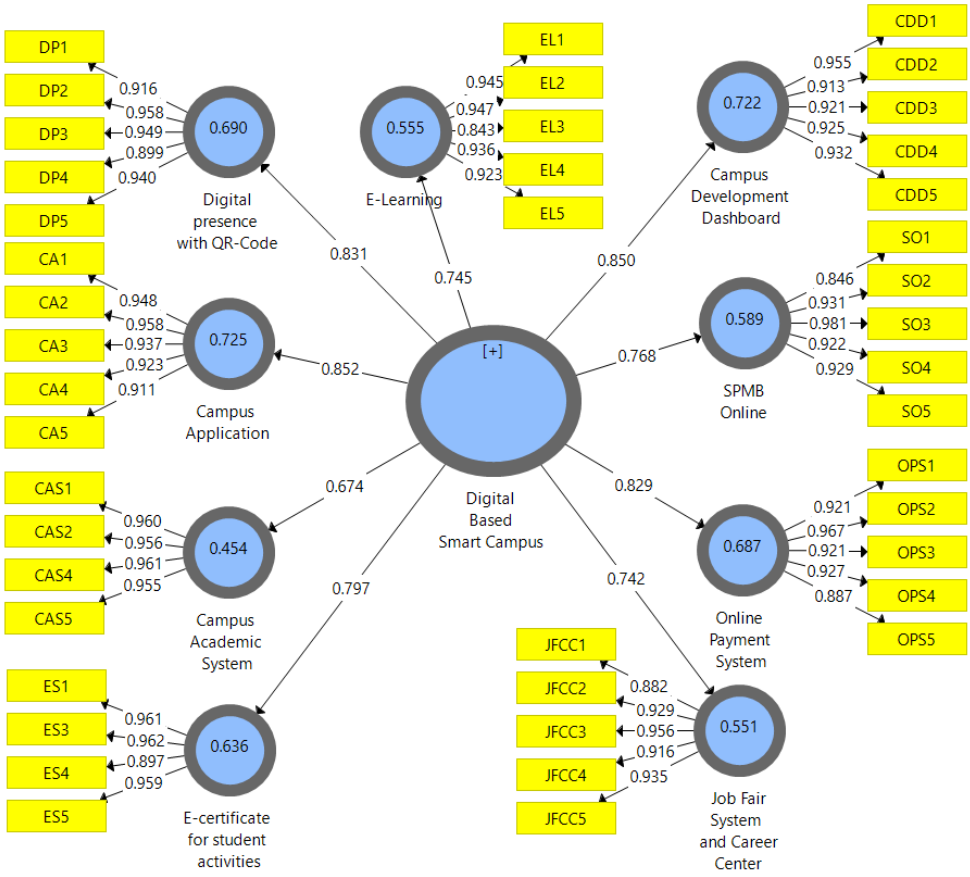


Figure 1: PLS Model Estimation Results – Algorithm

Table 1: Convergent Validity AVE and Reliability

Construct	Cronbach's Alpha	Composite Reliability	AVE
CA	0.964	0.972	0.876
CAS	0.970	0.978	0.917
CDD	0.960	0.969	0.863
DBSC	0.981	0.982	0.544
DP	0.962	0.971	0.870
EL	0.954	0.965	0.846
ES	0.960	0.971	0.894
JFCC	0.957	0.967	0.854
OPS	0.958	0.967	0.856
SO	0.956	0.966	0.851

Table 2: Discriminant Validity

Construct	CA	CAS	CDD	DBSC	DP	EL	ES	JFCC	OPS	SO
CA										
CAS	0.521									
CDD	0.697	0.487								
DBSC	0.863	0.699	0.869							
DP	0.723	0.465	0.659	0.836						

EL	0.565	0.563	0.564	0.754	0.570				
ES	0.649	0.502	0.701	0.823	0.616	0.522			
JFCC	0.685	0.479	0.665	0.825	0.634	0.500	0.637		
OPS	0.668	0.491	0.718	0.840	0.671	0.558	0.607	0.659	
SO	0.685	0.498	0.720	0.844	0.650	0.561	0.665	0.630	0.652

Table 3: The goodness of Fit Model PLS

Endogen Variable	*The goodness of the Fit Model Parameter*			
	R Square	*Adjusted R Square*	*Q Square*	*GOF Criteria*
CA	0.715	0.712	0.627	
CAS	0.446	0.439	0.398	
CDD	0.721	0.717	0.598	
DP	0.667	0.664	0.578	*Moderate – Strong Model*
EL	0.521	0.516	0.418	*Big Predictive relevance*
ES	0.647	0.643	0.545	
JFCC	0.647	0.642	0.422	
OPS	0.669	0.665	0.548	

R Square : 0.67 strong; 0.33 moderate; 0.19 weak.
Q Square : 0.02 small; 0.15 medium; 0,35 big.

Table 4: Direct Effects

Path	Path Coefficient	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
DBSC -> CA	0.852	0.854	0.050	17.033	0.000
DBSC -> CAS	0.674	0.669	0.093	7.263	0.000
DBSC -> CDD	0.850	0.850	0.060	14.191	0.000
DBSC -> DP	0.831	0.829	0.067	12.315	0.000
DBSC -> EL	0.745	0.741	0.092	8.088	0.000
DBSC -> ES	0.797	0.799	0.068	11.681	0.000
DBSC -> JFCC	0.742	0.753	0.086	8.659	0.000
DBSC -> OPS	0.829	0.828	0.067	12.370	0.000
DBSC -> SO	0.768	0.778	0.076	10.164	0.000

sig. level 5%, T value (two tail) = 1,96

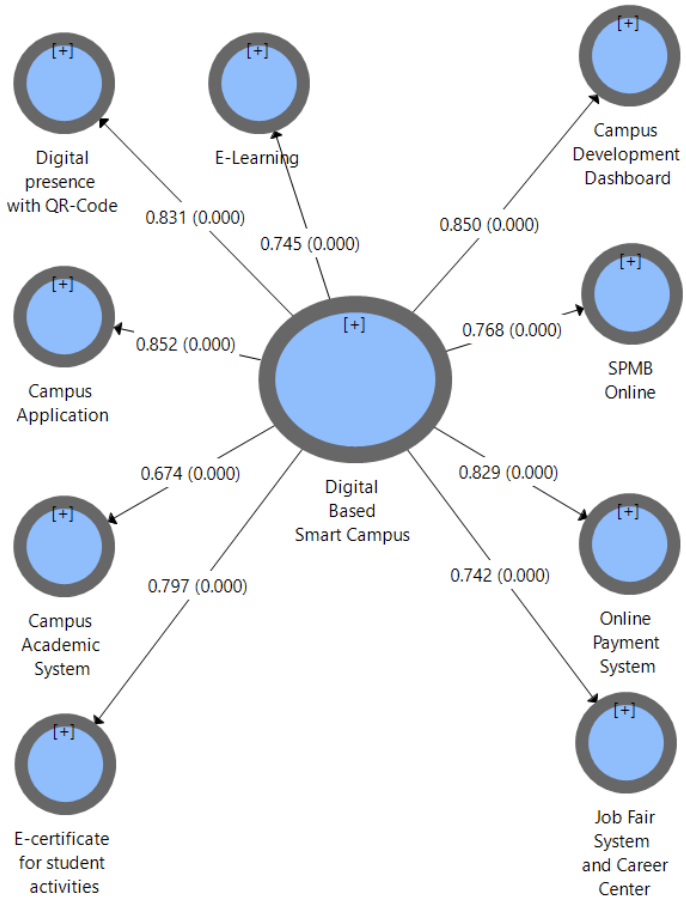


Figure 4: Bootstrapping model

5. Conclusion

The results of the analysis show that all the dimensions/components of a digital-based smart campus have been implemented at Telkom University. Judging from the path coefficient variance, some components are running well while others need improvement to support universities to become smart campuses in this digitalization era.

Based on the results, the 3 dimensions/components that best reflect the digital-based smart campus at Telkom University are the Campus Application, Digital Presence with QR Code, and Campus Development Dashboard. Therefore, the digital-based smart campus has been running very well in these three dimensions. With the application of these dimensions, the digital-based smart campus is becoming better and attracting prospective students.

The 3 dimensions/components that cannot reflect the digital-based smart campus are the Campus Academic System component, E-learning, and Job Fair and Career Center System. The three dimensions are not very good in reflecting the digital-based smart campus because they have not been consistently implemented. However, when correctly executed, it will undoubtedly offer value to Telkom University.

6. Suggestion

The dimensions/components that have not been able to reflect the digital-based smart campus at Telkom University are the Campus Academic System, E-learning, and Job Fair and Career Center System. This is because those three have not run well and are not consistently implemented by the campus, even though proper implementation will certainly be an added value for Telkom University. Therefore, it is suggested that Telkom University should optimize the Campus Academic System, E-learning, as well as the Job Fair and Career Center Systems that have been running to support the learning process and the careers of graduates. Further research should also be

conducted by taking smart campus components such as economic and education listed in the Smart Campus Frame Work by Pedro (2021).

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Development of the Physical Activity Plan for Physical Education Instruction in Public Senior High Schools: An Exploratory Sequential Mixed Method Inquiry

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Abstract
Physical education (PE) develops students' motor skills, knowledge, and behaviors for active living. As such, individuals need to participate in various physical activities (PA) which contribute to a healthy lifestyle. But many PE programs fail to bring the actual value of a lifetime PA and fitness. Therefore, there should be extended scientific research that promotes participation level as a health intervention that will promote health and wellness. Through this, an exploratory- sequential mixed method inquiry was utilized to gather insights of senior high school PE teachers towards the development of physical activity plan (PAP). Likewise, the remaining senior high school PE teachers in the province assessed the degree of alignment of the PAP in the most essential learning competencies in PE, and the degree of the practical application of the developed PAP in PE instruction. The qualitative results summarized the general ideas of PE teachers regarding the PAP. They have specific suggestions on what topics, PA, and classroom assessment tools should be included in the plan related to the competencies in PE 1, PE 2, PE 3, and PE 4. As such, a series of performance rubrics have been attached to the plan. Moreover, the quantitative results revealed that the developed PAP has a high degree of alignment with the current competencies in the senior high school PE curriculum. Likewise, the developed PAP has a high degree of practical application in PE instruction. Integrating the data in the two phases of the data collection, showed that the developed PAP can be implemented in the senior high school PE curriculum. As such, the PAP may be utilized as the baseline for PE teachers for implementation. Moreover, future researchers may address the limitations of the conducted study.

Keywords: Education, Physical Education, Physical Activity Plan, Senior High School, Philippines

1. Introduction

Physical education (PE) is an academic subject that provides students with a sequential, planned, standard-based curriculum and instruction to develop motor skills, knowledge, and behaviors for active living, fitness, sportsmanship, self-efficacy, and emotional intelligence. Moreover, it targets to development of individuals with knowledge and skills through a lifetime of healthy physical activity (PA) (Society of Health and Physical Educators [SHAPE] America, 2018). Thus, individuals must regularly participate in various PAs to contribute to

a healthy lifestyle (Xu et al., 2021). Nevertheless, many physical education (PE) programs fail to bring the true value of a lifetime PA and fitness that supposedly facilitates motor skills development, health-related fitness, overall PA levels, sports or game performance and social skills (Ferkel et al., 2017). Hence, a planned, progressive, and inclusive learning experience should be part of the primary and secondary education curriculum to attain quality that will lead to a physically active life (Ahmed, 2017).

The pandemic paved the way for learning institutions to be closed, and PE instruction was delivered remotely (Webster et al., 2021). Teachers used several trial-and-error methods to implement the instruction (Jeong & So, 2020). In the United States, they adapted an Online Physical Education Network (OPEN) for PE teachers to help students stay active while at home (Mercier et al., 2021). Also, online physical education (OLPE) has become a central focus as a virtual alternative program delivery (Kim et al., 2021), so as with distance education who gained popularity in recent times (Vilchez et al., 2021). Likewise, in China, online PE classes took place where students experienced many difficulties affecting their PA performance and health (weight gain, depression, and anxiety) (Laar et al., 2021).

The senior high school PE curriculum in the Philippines includes fitness concepts, games, sports, and other topics subdivided into four quarters in an academic year (Department of Education [DepEd], 2016). However, World Health Organization (2019) report states that Filipino students ranked second in the high prevalence of physical inactivity (PI). This happened in implementing online classes in PE because of the course's unique nature (Aguinaldo, 2021). PE teachers were forced to implement several approaches (Do, 2020) like synchronous and asynchronous teaching, distance education, and module-based learning using technology and other digital platforms (Daniel, 2020). But these modalities posed a bigger challenge to teachers in redesigning learning activities because of several factors (limited time, material and technical resources, and training) (Tanucan et al., 2021).

In Negros Occidental, the widest division implemented the Basic Education Learning Continuity Plan to respond to continuous basic education while battling the pandemic. It ensures the implementation of curriculum adjustments, learning materials alignment, multiple learning delivery modalities, and other safety precautions (DepEd, 2020). Through this, an application of Most Essential Learning Competencies (MELCs) in the curriculum was used, adapted from the competencies listed in the regular curriculum guide of the department (DepEd, 2021). From 17 competencies in PE 1 to PE 4, it was trimmed down to 9 competencies in PE 1, 7 in PE 2, 8 in PE 3, and PE 4, respectively (DepEd, 2020). Unfortunately, remote learning application decreases students' PA level (Pinotti, 2021), and teachers have trouble delivering the task (Tanucan et al., 2021).

It is reported that middle school students have a moderately positive attitude toward PE and continuously increase (Pereira et al., 2020). Comparatively, short-term studies indicate a decrease in PA levels during school closures, leading to an increase in obesity (Dunton et al., 2020; Xiang, Zhang et al., 2020). Equally, there should be extended scientific research to develop and enhance the curricula and policies in PE that will promote positive effects and induce the participation level of students in sports and other PAs (Cruz et al., 2021). It is time for academicians to design a challenging and engaging learning environment to shape the PE field (Ferkel et al., 2017). A call for health interventions (An, 2020) that will focus on PA during the pandemic (Mercier et al., 2021) is needed (Pinotti, 2021).

In turn, this study explored the insights of selected PE teachers in designing physical activity plan (PAP), including the activities needed in every PE subject to enhance PE instruction in Senior High School. Consequently, the PAP was assessed by the remaining PE teachers on its alignment with the mandated essential competencies by the Department of Education and practical application in PE instruction. Subsequently, the results were the basis for the development of PAP to be implemented in a school setting, specifically in the PE curriculum in senior high school.

2. Method

This study utilized the exploratory sequential mixed method research design. The first phase is characterized by an initial qualitative data collection (focus group discussion) and analysis (3 C's Thematic Analysis) (Creswell & Creswell, 2018). The qualitative data collection phase was used to explore teachers' ideas in the PAP. Likewise, the gathered qualitative data were used to build a new measure to be tested quantitatively in a large sample.
Consequently, an interim phase was conducted. It is where the development of the quantitative instrument in the form of a survey questionnaire was crafted. The participants' responses in the first phase were carefully noted and considered in the different parts of the questionnaire. As such, the newly crafted tool was subjected to validity by the different experts in PE and reliability testing by the PE teachers from other schools' divisions.
Moreover, the second phase followed through a quantitative inquiry. This is where PE teachers in the whole division assessed the degree of agreement with the insights of PE teachers in the PAP, the degree of alignment of PAP in the PE MELCs, and the extent of the practical application in the PE instruction. Hence, the results of the two phases were presented in the joint display, and a meta inference was formulated to show the connection between the two independent results.

2.1 Phase I: Qualitative

2.1.1 Participants. The public SHS PE teachers were utilized as participants in the qualitative phase. There was a total of sixteen (16) teachers selected from the north (6), central (5), and south (5) groups respectively. Hence, a purposive sampling technique was utilized to draw SHS- PE teachers involved in the qualitative phase of the data collection. One teacher in every city or municipality was taken from the south, north, and central area of the division. They have been chosen according to the inclusion criteria set by the researcher. Participants are bachelor's degree holders in physical education or any related area in MAPEH. Additionally, they are teachers in senior high school with experience teaching PE 1- PE 4 subjects. Lastly, they have earned substantial units or master's degrees in the same field of specialization.

2.1.2 Research instrument. This study utilized a focus group discussion with three different groups of teachers in the province (south, central, and north) and explored their ideas for making a physical activity plan. Guided by the interview protocol, each group has been asked about their ideas in PAP, topics, activities, duration, and assessments to be included in the development of the PAP.

2.1.3 Data collection procedure. A letter was sent to the office of the school's division superintendent to ask permission to conduct the study at the different public senior high schools in the province. In addition, a separate letter of approval addressed to the different principals in every district was sent, attaching the letter of approval from the division office to conduct the study in their respective schools. Similarly, a letter addressed to the first group of participants in the south, central, and north area have been handed down to them personally to obtain voluntary participation in the focus group discussion. Thus, a schedule of FGD for three groups was given to every group of participants. Moreover, the researcher huddled each group to conduct the FGD in three different schedules.

During the interview, each participant was given enough time to introduce themselves to set the mood and establish rapport for comfortability. Likewise, the interview began with posting the first question and letting each participant answer one at a time. Similarly, the researcher asked probing questions for answers that seemed vague and needed elaboration. Moreover, the interview ended with a recapitulation of the salient points answered by the participants. Lastly, the researcher instructed the participants to be individually communicated for the debriefing and confirmation of their responses during and after the qualitative data had been analyzed through the interview transcripts.

2.1.4 Data analysis procedure. Recursive textual data analysis was utilized for the qualitative phase to facilitate the method. It was used to determine the participants' ideas on the question. Utilizing the three C's of Lichtman (2013), the following steps were done to analyze the transcripts from the interview.

It started with coding where significant statements of each participant were highlighted while reading and re-reading participants' responses to qualifying each significant statement. Likewise, similar codes were grouped and put in one category. Each category was based on the collected ideas in the coding.

Moreover, similar categories were grouped and assigned a specific concept. Each specific concept was based on the meaning obtained in the previous stage. Lastly, similar concepts were grouped and assigned specific themes and sub-themes. The researcher condensed the statements describing the essence of the participants' responses. Thus, the participants validated the findings of the qualitative phase by comparing their original statements during the interview.

2.1.5 Data trustworthiness. Concerns about bias and subjectivity in a qualitative study were properly addressed by employing strategies that ensured trustworthiness and rigor throughout the research process. This also ensures the reliability and validity of the research study consisting of interactive dialogues between the researcher and participants. Therefore, credibility, transferability, dependability, and confirmability were utilized (Lincoln & Guba, 1985).

2.1.5a Credibility ensures the internal validity of the analyzed qualitative data. Member checking was utilized, which allowed participants to review their responses after the interview and data analysis through their transcripts.

2.1.5b On the other hand, *transferability* ensures the external validity or generalizability of the collected data. Therefore, a thick description was used, which gives a sufficient complex description of the participants' true understanding of the development of the physical activity plan.

2.1.5c Dependability maintains trustworthiness in all steps of the research process where responses should come from individuals with first-hand experience of the explored area. Thus, purposive sampling following an inclusion criterion was used in a focus group discussion that drew PE teacher's representatives in each area of the province to discuss suggestions to be included in the PAP. Thus, a video recording and minutes of every FGD ensured its dependability.

2.1.5d Confirmability ensures that the findings reflect what the teachers accurately described rather than what was known already from their experience. In this respect, an audit trail was utilized to certify that the data existed, and the interpretation was made in ways consistent with the teachers' responses during the interview. Hence, the two independent experts in qualitative data analysis have used the interview transcripts to trace where the themes and sub-themes came from. Therefore, a record of the FGD supported by relevant documentation proved that analyzed data were from the PE teachers alone.

2.2 Interim Phase: Instrument Development

From the findings in the qualitative phase of the study, a physical activity plan and a survey questionnaire was created. The items in the PAP and questions in the instruments were taken from the participants' statements. And so, the tools have undergone validity and reliability.

The results in the qualitative phase paved the way to create the PAP. The topics, activities, and different classroom assessment tools were taken from the PE teachers' suggestions during the FGD. As such, a series of performance rubrics were also designed for the plan.

Moreover, a survey questionnaire was created to further analyze the PAP's content. Each significant statement of the participants was considered in every part of the quantitative tool. The teachers' insights on the essence of PAP, its significance to teachers, its necessity to students, and the urge for a longer PA were incorporated into the first part of the tool. Likewise, the teachers' suggested topics, physical activities, and classroom assessments were included in the second part of the questionnaire. Moreover, the coverage of the developed PAP in PE1- PE4, its duration for implementation, availability of the facilities and equipment, and a factor of teachers' knowledge and skills in delivering the instruction were included in the third part to test the practical application of the plan.

2.2.1 Validity. The PAP was validated using the content validity ratio (CVR) pioneered by Lawshe (1975) by the five independent experts in PE. The experts considered all the items in the PAP essential to be part of the plan. Therefore, each item on the preliminary page, all the way to the attached rubrics in the PAP, was retained.

Likewise, the survey questionnaire was validated by the same experts who were MAPEH Education Program Supervisors (3) and college professors in a state university (2) using the Good and Scates (1954) validation criteria. The overall validity index was 4.84. Therefore, the instrument was valid. Furthermore, the PAP was finalized, and the survey questionnaire was prepared for the reliability test.

2.2.2 Reliability. A letter was sent to the five (5) divisions in the province to ask permission to conduct reliability testing for the teachers under their division. After the approval, the researcher prepared the survey questionnaire and administered it to thirty (30) senior high school teachers from the five different schools' divisions through the google form platform, attaching the PAP for their reference. The respondents were given enough time to accomplish the survey. After which, the collected responses were prepared for reliability analysis. A Cronbach's alpha value was 0.973 after the analysis. Therefore, the instrument was reliable. Moreover, the instruments were prepared for the actual testing in the quantitative phase.

2.3 Phase II: Quantitative

2.3.1 Participants. For the quantitative phase, the respondents were 87 senior high school teachers in a public senior high school. They were selected using the convenience sampling technique wherein PE teachers in all senior high schools teaching PE subjects in the division were qualified and were included to participate, but only those who answered the questionnaire in a given duration were used for data analysis. The sampling technique was appropriate in this phase since respondents were only taken based on their location and accessibility to the internet. The Raosoft Sample Size Calculator was utilized to obtain the desired sample size. The distribution of the respondents is reflected in table 2.

2.3.2 Research instrument. The quantitative phase of this study utilized a researcher-made questionnaire taken and considered from the results in the qualitative phase. It was used to gather the data which measures the degree of agreement of PE teachers in the insights and ideas about the PAP in the first part, the degree of alignment of the PAP in the PE MELCs in part two, and the extent of application of the different suggested topics, activities, and classroom assessment tools in the PE instruction in part three of the questionnaire respectively.

Consequently, the first part of the instrument includes items in the perspective of teachers in the PAP, the significance of the PAP to PE teachers, the necessity of the PAP to students, and the suggested additional duration for physical activity. As such, the respondents have answered this area according to the attached scale before the main questions.

Thus, the second part of the instrument includes a copy of the MELCs in every PE area. After which, the suggested topics, activities, and classroom assessment tools in PE1, PE2, PE3, and PE4 were listed. These were taken from the first phase of the data collection. As such, the respondents have answered the second part based on the scale provided in the questionnaire.

As such, the third part of the instrument includes questions in the areas of coverage, duration, facilities and equipment, and teachers' knowledge and skills in the different PE areas. Consequently, the respondents have answered the third part based on the scale provided in the questionnaire.

2.3.3 Data collection procedure. Before the actual administration of the survey, a letter addressed to the respondents in the south, central, and north area have been handed down to them personally and through email to obtain their voluntary participation. Likewise, they were oriented about the research process. During the survey, a soft copy of the PAP and the survey questionnaire in a google form were sent to them individually with the help of teacher participants in the first phase. The respondents were given enough time to respond to the survey questionnaire. After they have responded, their responses have been consolidated and prepared using an office productivity tool. Finally, it has undergone statistical analysis.

2.3.4 Data analysis procedure. The descriptive analysis was utilized as an appropriate statistical tool. The mean and standard deviation (SD) was used to determine the degree of agreement of the senior high school teachers in

the preliminary ideas in PAP, the degree of alignment of the PAP in the PE MELCs, and the extent of the practical application of the suggested topics, activities, and classroom assessment tools in the PE instruction in the areas of coverage, duration, resources, and teachers; knowledge and skills.

3. Results

3.1 Qualitative Results

3.1.1 Insights in Physical Activity Plan (PAP)

3.1.1a Perspectives in PAP. The participants generally defined physical activity plan according to how they perceived it. They have described it as a kind of initiative to plan out activities given to students aligned to the most essential learning competencies that will increase their physical activity. Likewise, it includes objectives, purpose, and steps to follow to develop the learners through a period. Consequently, it is a tool used by PE teachers composed of a guide that the students and their family members could use during this pandemic. It may be a short-term or long-term goal that we can provide the students with a step-by-step process that gage their progress. Some participant verbalizes that PAP is:

> "kind of program or initiative to plan out activities given to students which are aligned to MELC."
> "Program with objective and purpose and steps to follow that you intend to develop for learners."
> "A plan made by an individual that can be followed thru a period of time like a day a month"
> "plan or a program given to students for them to acquire."
> "Tool or a plan used by a PE teacher composed of initiatives wherein it can be used by the students or family members."

3.1.1b Significance of PAP to Teachers. Teachers also emphasize the importance of PAP in physical education instruction. They stressed that PAP helps teachers organize and finalize the activities for the quarter to avoid delays in conducting the lesson. Likewise, it helps teachers to assess students during performances. Teachers will not get lost since there are bases and patterns to give the students the simplified activity that will encourage them to do their physical activity. Therefore, teachers can deliver a better and quality approach to the learners to enhance their activity. Most of the participants mentioned that:

> "help us plan ahead for students, help us organize and finalize for the quarter."
> "organization of activity."
> "No delay in conducting the lesson"
> "help me assess students in conducting physical activities"
> "for teachers not to get lost"
> "have the basis and pattern to give to the students to meet the objective comprehensively. an innovation to simplify the activity for the students."
> "guide for students"

3.1.1c Necessity of PAP to Students. School teachers strongly emphasized the incorporation of PAP into PE instruction. They stressed that PAP enables the students to be more engaged and improve health and well-being. Since not all activities are applicable, considering the facility and students' needs and skills is necessary to attain long-term health benefits. Most of the participants shared these:

> "Not all activities are applicable. need to consider the facility and the student's needs and skills"
> "to help students to be more engage and improve health being."
> "Improves the whole being of the learners. guide in determining the exercise for the learners"
> "Long term health benefits."
> "To promote good health and staying active throughout all stages of life regardless of your body type or BMI."

3.1.1d Duration of Physical Activity. The participants mentioned that one hour per week is not enough to attain all the competencies in PE on time, and students have different physiological needs. Thus, they suggested additional time for the students to do PAs within and beyond class hours. Most of the participants suggested that:

> "2 -3 hours per week time for physical activity."
> "3 hours a week in SHS to follow up the skills taught to the students."
> "It depends on the type or intensity of the activity of activity."
> "We cannot limit to 1 hour only. It depends on the physiological needs of the learners."

3.1.2 Suggestions for the Development of Physical Activity Plan in Exercise for Fitness (PE 1), Individual/ Dual and Team Sports (PE2), Dance (PE 3), and Outdoor Recreational Activities (PE 4)

3.1.2a Topics for PE1, PE2, PE3, and PE4. The participants profoundly suggested topics to be used in PE 1- PE 4 in senior high school. Likewise, they simplified the areas to be attainable and flexible depending on the school's availability of resources and students' capacity to accomplish the tasks. Each group of participants suggested the following:

> "Barriers, Self- Assessment, Cardiovascular Endurance, Physical Activity and Exercise, Healthiest and Fittest Me. Subtopic: Component of Physical Fitness, Exercise for Fitness, Health-related Fitness Test, Aerobic activities and Anaerobic, Muscle and bone-strengthening activities (resistance training), Principles of Exercise, Types and Forms of Exercise, FITT principles and Goal Setting, Developing a Personal Fitness Program or Training Plan", Physical Activity, Identify the intensity of dance fitness, Application of Moderate to Vigorous Activities, Rate of Perceived Exertion and Physiological Indicators in Exercise, Dehydration, Overexertion, Hypothermia, and Hyperthermia (Definition of Terms, Factors, Things to do to avoid exercise-related injuries), Personal safety protocol during physical activity, Exercise Equipment and Proper Etiquette, Safety Protocols in the use of Facility and Equipment, Etiquette and safety in sports, Health Fitness Programs, Benefits of PE Lifestyle, How to Organize Health Events/ Programs, Physical Activity Event Planning, Value of Optimizing Oneself thru Physical Activity, Career Opportunities in Health and Fitness, Post Assessment in HRF"
> "Sports and Its Types, Stress management thru Physical activity, Safety Protocol to Avoid Sports-related Injuries during Sports Participation, Individual/ Dual and Team Sports: History, Nature and Background, Terminologies, Facilities and Equipment, Basic Skills, Basic Rules"
> "Introduction to Dance, Physiological Indicators and Managing Stress Through Dance, Dances (Home-Based Performances), Folk dance, Ballroom, Hip Hop, Cheer dance, Festival dance, Modern dance, Dances to be introduced will depend on the expertise of the instructor"
> **"**Nature and Purpose of Outdoor Recreation, Topics to be introduced will depend on the availability of the resources, Principles of Outdoor Activities, Safety Protocols in Outdoor Recreation, Recreational Activities (Home-Based), Hiking, Recreational Swimming, Survival in Swimming, Mountaineering, Camping with the family, Laro ng Lahi, Water Games, Biking"

3.1.2b Physical activities for PE1, PE2, PE3, and PE4. The participants also suggested physical activities that can be applied to the topics in PE 1- PE 4 in senior high school. They have focused more on active physical activities that students can easily perform. They suggested the following:

> "Aerobic and Zumba Fitness, Physical Fitness Test, Create a video of aerobic dance steps showing aerobic, muscle strength, & Bone strengthening activities, Cardio Exercises, Breathing Exercises, Light to moderate physical activity that assesses their aerobic activities, PA Log applying Principles of Exercise, PA Plan for a week (Chart depending on their physiological needs), PA Log using FITT, Personal Fitness Program with Family Members, Household chores, dances, sports, Active Recreation (Specific PA of Different Levels), My Fitness Plan (Moderate or Vigorous Activity), PA Using RPE Levels, Aerobic or Anaerobic PA in Different Levels of RPE, Advertisement (how to execute safety protocol), Any Physical Activity in which safety protocol is applied, Roleplaying highlighting the precautionary measures (Comparison of what is the right or wrong way), Aerobic Fitness outdoor, Fitness

> Program using gym and improvised equipment, Choose a physical activity that would use equipment showing the proper way of handling it through a video, Organize Fitness Event with family members, Group presentation of any fitness activity, Assist in organized sports events in school or within the community, PPFT Post- Test"
> "Basic Skills in specific sports" (Perform at home), Correct and proper execution of skills, Perform the striking techniques, rate the performance based on rubrics, and execute the basic skills"
> "Perform Basic Steps of the Dance, Perform the dance using simple choreography"
> "Conduct outdoor activity at home following Safety Protocols, Basic Skills in Performing the Recreational Activity"

3.1.2c Classroom assessments for PE1, PE2, PE3, and PE4. The participants emphasized that written assessment should always be present. Hence, performance rubrics should be available for every performance task introduced in PE 1-PE 4 in senior high school. As such, the points in the rubrics can be modified by teachers. The following performance assessments were suggested:

> "Aerobic or Zumba Fitness, PPFT with MOV's, Video Dance Performance, Cardio or Breathing Exercises, Light to Moderate PA that focuses on Aerobics, Modification of points is subject to the teacher's discretion, Activity Log with MOVs, FIIT Principle Activity Log with MOVs, Personal Fitness Program Plan, Activity Plan with MOVs, Active Recreation Plan, Fitness Plan (MVPA), PA with RPE Application, Aerobic and Anaerobic PA, Rubrics (Advertisement on how to execute safety protocol), Rubrics (Any Physical Activity in which safety protocol is applied), Roleplay with rubrics (Roleplaying highlighting the precautionary measures), Performance Rubrics (Safety Protocols for MVPAs), Rubrics (Fitness Program using gym and improvised equipment), Video Performance in Doing PA following the Etiquette in Exercise), Video Presentation (home base work out with Family members), Video Presentation (Compiled Fitness Act. of Group Members) Portfolio, PPFT with MOVs"
> "Video (Basic Skills), Picture (Basic Skills, Actual game, PPFT with MOVs"
> "Basic dance steps, Dance presentation, Modification of points is subject to the teacher's discretion, Video Format: assessment of dance genre with rubrics"
> **"**Video Presentation on safety protocols with Rubrics (Conduct outdoor activity Safety Guide), Video Presentation with Rubrics (Principles of Outdoor Activities – Lecture), Video Presentation (Safety Protocol), seven principles, Benefits, Discussion of Recreational activities"

3.2 Discussion of Qualitative Results

Physical Activity Plan (PAP) is an initiative aligned to the most essential learning competencies that increase physical activity (PA) participation. It should include a proper exercise plan for positive improvements (Pederson & Saltin, 2015). This will enable the teacher to observe, measure, and produce an impact on every individual (Musumeci, 2021). Likewise, PAP includes procedures that monitor the learners' progress since a school-based program is a powerful approach to improving student's physical fitness and cognitive health (Latino et al., 2021). Students who perform additional PA manifest an improvement in cognitive and psychomotor areas (Santana et al., 2017). PAP can be utilized by students and their family members during the pandemic because regular exercise improves physical fitness, which results in academic success (Phillips et al., 2015). Also, a higher PA results in more pleasant learning (Singh et al., 2019). Consequently, PAP is a self-paced guide that is more achievable for learners.

PAP generally helps teachers organize PA in PE to avoid delays and assess students during PA performance. Additionally, it is common for young people to engage in PA outside of school. Thus, the institution should stress the importance of PA since it relates to enhanced cognitive benefits, behaviors, and school performance (Martin et al., 2018; Álvarez-Bueno et al., 2017). Since PAP is a simplified guide for teachers not to get lost, they can deliver quality PE where knowledge and skills can be extended in students' homes to enhance PA participation. Because of the prevalence of weight gain, attention to improving PA should consider avoiding physical inactivity and improper eating behavior (Greco et al., 2019).

Likewise, limited PA has an adverse unfavorable effect, especially during the pandemic. Thus, making adequate PA will maintain a healthy lifestyle and should be prioritized, especially during a critical situation (Latino et al., 2019). This will make PA regular at home, which will enable the individual to stay active, vigorous, and safe, which are needed for mental and physical health, especially during the pandemic (Lippi et al., 2020). Therefore, it is important to create a practical and efficient intervention to enhance health (O'Brien et al., 2020).

An intervention in PE instruction is necessary since students are getting less active because of the pandemic restrictions (O'Brien et al., 2020) to improve health and well-being. Since not all activities are applicable, individual planning is an effective intervention to increase PA in individuals. The findings indicate that routines positively affect the plan (Keller et al., 2017) in which the need to consider the facility and student's needs and skills are a must to attain long-term health benefits.

Likewise, additional time to be spent in PA is needed to meet the recommended amount of daily activity to maintain health. Therefore, a physical activity guideline suggests that to attain various health outcomes, 60 minutes or more of moderate to vigorous physical activity (MVPA) daily (Piercy et al., 2018).

3.3 Quantitative Results and Discussion

3.3.1 Degree of Agreement on the Insights on the Physical Activity Plan

Table 1 results showed that the PE teachers in the quantitative phase generally agreed with the different perspectives about the PAP (M=3.84, SD=0.25, Int= SA). Specifically, teachers strongly agreed that the PAP is significant to them (M=3.80, SD=0.30, Int=SA). It is a necessity for the students (M=3.83, SD=0.29, Int=SA), and a strong emphasis on adding physical activity time for implementation (M=3.81, SD=0.26, Int=SA).
PA interventions are believed to improve competence, health (Halaidiuk et al., 2018), and fitness-related attitudes (Haible et al., 2019). By incorporating it into the curriculum, it will have a positive impact on students' PA and academic outcomes (Norris et al., 2020). Likewise, it improves proficiency, intensifies PA, and reduces other health risks (Engel et al., 2018). Moreover, introducing such an intervention gives a positive attitude to students to change their health behavior, solve academic barriers, and avoid chronic disease (Newsome et al., 2021). These benefits will be attained through engaging in moderate to vigorous PA (MVPA) (Jakicic et al., 2018) in higher intensities (Tarp et al., 2018) and longer duration to avoid depression (Currier et al., 2020), to be more active (Stewart et al., 2018) and mortality risk reduction (Saint-Maurice et al., 2018).

Table 1: Insights of Physical Education Teachers in the School's Division of Negros Occidental to Develop the Physical Activity Plan

Items	M	SD	Int
Perspective on Physical Activity Plan			
Average Weighted Mean	*3.84*	*0.25*	*SA*
Significance of PAP to Teachers			
Average Weighted Mean	*3.80*	*0.30*	*SA*
Necessity of PAP to Students			
Average Weighted Mean	*3.82*	*0.29*	*SA*
Duration of Physical Activity			
Average Weighted Mean	*3.71*	*0.32*	SA
Overall Mean	*3.81*	*0.26*	*SA*

Mean Range: 1.00-1.75=Strongly Disagree (SD), 1.76-2.50=Disagree (Di), 2.51-3.25=Agree (Ag), 3.26-4.00=Strongly Agree (SA)

3.3.2 Degree of Alignment of the Physical Activity Plan in the MELCs

Table 2 results revealed that the suggested topics, activities, and classroom assessments in Exercise for fitness are well-aligned (M=4.50, SD=0.57, Int=VHD). Likewise, for Individual/ Dual and Team Sports, it also showed well-alignment in the MELCS (M=4.52, SD=0.50, Int=VHD). Moreover, topics, activities, and classroom assessments

in Dance were well- aligned (M=4.45, SD= 0.53, Int=VHD), and the same degree for Outdoor Recreational Activities (M=4.54, SD=0.49, Int=VHD). This reflects that all the suggested topics, activities, and classroom assessments in PE1-PE4 are well-aligned (M=4.50, SD=0.46, Int=VHD).

Thus, the topics, activities, and assessment tools in each PE area coincide with the essential competencies of the curriculum. Thus, there is a very high degree of alignment of PAP in the PE MELCs. Therefore, the different suggestions could hit the target of each area that the students should acquire. It will help them be competent in the skill's pre-requisite to the next skills to be learned in the succeeding areas. Therefore, physical literacy is attained for healthy sustenance.

The crafted PAP may be a structural model to be used as an intervention for health promotion and active lifestyle (Carl et al., 2020) and improve health competencies (Haible et al., 2020). Adapting the PAP in the PE curriculum may be a major reform in educational philosophy. However, a clear description will ensure alignment in the education delivery system (Care et al., 2018).

Since the PAP was a collaborative effort of PE teachers, the implementation of the program will support the schools' PA program (Egan et al., 2019), help engages students in PA and sports, and help teachers understand motor perceptions of students as long as the competencies were clearly defined (Estevan & Barnett, 2018). Moreover, activities reflected in the PAP were modified and contextualized. This is important in reaching fitness (Miller et al., 2019) since the perceived motor competence of students was low (De Meester et al., 2020). School-based interventions like the PAP should be promoted to promote PA levels, behaviors, and student competencies (Haible et al., 2019).

In addition, the PAP is considered a self-paced tool for students in mastering the important competencies that will bring positive experiences, especially to those who have less motivation in doing PA (Holt et al., 2019), and enhance students learning (SHAPE America, 2018). Thus, the developed learning experience enables competency building while optimizing the available resources (Webster et al., 2021). Moreover, the PAP embarks on a skill-themes approach that will improve students' competencies (Richards et al., 2019; Kim & Cardinal, 2019), increasing PA levels and participation (Weaver et al., 2018).

3.3.3 Extent of Practical Application of the Suggested Topics, Activities, and Classroom Assessment Tools in PE instruction

In Table 3, the analysis revealed that the coverage in PE1-PE4 is sufficient. (M=3.70, SD=0.38, Int=Very Great Extent). Likewise, the duration for the suggestions in PE1-PE4 was adequate (M=3.67, SD=0.46, Int=Very Great Extent). Consequently, the schools have available and feasible facilities and equipment to be utilized from the suggestions in the PAP (M=3.72, SD=0.46, Int=Very Great Extent). Moreover, PE teachers demonstrate knowledge and skills in delivering the suggestions in the PAP (M=3.83, SD=0.31, Int=Very Great Extent).

Thus, the suggested topics, activities, and classroom assessment tools in all PE areas are applicable and feasible in PE instruction, considering the different areas in PE. This means that the coverage of the PAP targets the essential areas the students need to master to develop specific skills. Likewise, the PAP provides adequate time for the different PAs to be performed to attain mastery and physical improvement. Moreover, each school has the necessary facilities and equipment to implement the PAP. This implies that every school focuses on the basic activities that are popular, easy to be performed and master, and contextualized for the students to easily understand the concept and perform the necessary skills. Lastly, PE teachers possess the basic and necessary skills to implement the PAP in PE instruction. It implies that the teachers are credible and have the skills to deliver the instruction using different approaches in PE1 to PE4.

Table 2: Degree of Alignment of PAP in the MELCs

Items	M	SD	Int
Exercise for Fitness			
The suggested topics in PE 1	4.52	0.63	VHD
The suggested activities in PE 1	4.55	0.64	VHD
The suggested classroom assessments in PE 1	4.43	0.66	VHD
Average Weighted Mean	*4.50*	*0.57*	*VHD*
Individual/ Dual and Team Sports			
The suggested topics in PE 2	4.52	0.63	VHD
The suggested activities in PE 2	4.52	0.59	VHD
The suggested classroom assessments in PE 2	4.52	0.53	VHD
Average Weighted Mean	*4.52*	*0.50*	*VHD*
Dance			
The suggested topics in PE 3	4.46	0.63	VHD
The suggested activities in PE 3	4.46	0.57	VHD
The suggested classroom assessments in PE 3	4.44	0.60	VHD
Average Weighted Mean	*4.45*	*0.53*	*VHD*
Outdoor Recreational Activities			
The suggested topics in PE 4	4.54	0.57	VHD
The suggested activities in PE 4	4.59	0.56	VHD
The suggested classroom assessments in PE 4	4.51	0.57	VHD
Average Weighted Mean	*4.54*	*0.49*	*VHD*
Overall Mean	*4.50*	*0.46*	*VHD*

Mean Range: 1.00-1.80=Very Low Degree (VLD), 1.81-2.60=Low Degree (LD), 2.61-3.40=Moderate Degree (MD), 3.41-4.20=High Degree (HD), 4.21-5.00=Very High Degree (VHD)

The coverage in the PAP is sufficient for the delivery of the instruction. This creates stability and develops habits (Hagger, 2019), and regulates lifestyle (Hammami et al., 2022), which leads to positive effects (Coumans et al., 2021). This improvement will lead to a population-level impact (Ding et al., 2020). Thus, the structured plan should be a recommended alternative (Fong et al., 2018).

Likewise, the durations in the PAP were adequate for implementing the PE instruction. Having enough time to do PA plays an important role (Rogers et al., 2018), intensifies movement, and improves health (Borghese & Janssen,2019). Thus, it improves academic performance (Mineshita et al., 2021). Additionally, varied amounts of PA create varied health outcomes while following the guidelines (Piercy et al., 2018). However, some schools do not implement this policy; therefore, a strategy like enough PA time improves implementation and increases PA among students (Nathan et al., 2018), body composition, mental health, and well-being (Riso & Jürimäe, 2018) as long as it is age-appropriate (Liu et al., 2020).

Moreover, the schools have the basic facilities and equipment to be used in the implementation of the PAP that improves the implementation of the PE program (Asiimwe et al., 2021). This proves to be useful in developing health and well-being (Carroll et al., 2018). Considering the resources needed in PE activates students' PA and lifestyle formation (Zhamardiy et al., 2020; Aro et al., 2018) that reduces sedentary behaviors (Bull et al., 2020). On the other hand, poor access to PA resources results in lower participation (Borena et al., 2019; Black et al., 2019) and a negative effect on PA levels (Theis et al., 2021). Therefore, accessibility to the resources improves PA participation (Wang et al., 2019).

Lastly, PE teachers have sufficient knowledge and skills to implement the suggested topics, activities, and classroom assessment tools in PE1 to PE 4 to their PE instruction. This improves students' well-being, knowledge, and performance in PE programs (Behzadnia et al., 2018) and PE curriculum in general (D'elia, 2019). Applying the designed PAP is professional development for PE teachers (Kim et al., 2018) that will make PE teaching effective and influence students' literacy and participation (Sum et al., 2018). Moreover, this scientific innovation will develop schools' structure and organization that enables teachers to value new approaches in PE to acquire key competencies (D'Elia et al., 2018) and improve teachers' implementation for potential benefits (Auerbach et al., 2018). Likewise, this new pedagogical approach creates positive outcomes for students in PE (Harvey et al., 2020) with high health and fitness competencies (Griban et al., 2020).

Table 3: The extent of Practical Application of the Suggested Topics, Activities, and Classroom Assessment Tools in PE1, PE2, PE3, and PE4 instructions

Items	M	SD	Interpretation
The coverage of the suggested topics, activities, and classroom assessment tools are sufficient in			
Average Weighted Mean	*3.70*	*0.38*	*Very Great Extent*
The duration is adequate for the suggested topics, activities, and classroom assessment tools in			
Average Weighted Mean	*3.67*	*0.46*	*Very Great Extent*
The resources are available and feasible for suggested topics, activities, and classroom assessment tools in			
Average Weighted Mean	*3.72*	*0.46*	*Very Great Extent*
Teachers can demonstrate knowledge and skills for the suggested topics, activities, and classroom assessment tools in			
Average Weighted Mean	*3.83*	*0.31*	*Very Great Extent*
Overall Mean	*3.73*	*0.36*	*Very Great Extent*

Mean Range: 1.00-1.75=Poor Extent, 1.76-2.50=Moderate Extent, 2.51-3.25=Great Extent, 3.26-4.00=Very Great Extent

3.4 Discussion and Integration of Data

The interconnection of the themes obtained from the focus group discussion, and a majority of high scores in the degree of agreement of PE teachers on the insights in PAP, degree of alignment in the PE MELCs, and extent of practical application in the PE instruction denote five major concepts why PAP is essential.

The integrated qualitative data on the insights of PE teachers regarding the PAP and how the PE teachers agreed and accepted those ideas clearly states that teachers have a common understanding of what PAP is all about. It described the synchronicity of the PE teachers on the general purpose of the plan for effective implementation of the instruction and health optimization (Haible et al., 2019). As such, the PAP is an enhanced curriculum guide for PE teachers to better implement the curriculum (Halaidiuk et al., 2018).

Likewise, the emphasis that the PAP is an aid to PE teachers supports the idea that the teachers have a systematic guide in designing the subject curriculum for quality delivery of instruction (Egan et al., 2019). More so, it is an innovative strategy that allows every topic, activity, and classroom assessment tool aligned in the PE MELCs, which can be practically and feasibly applied in the PE instructions (Care et al., 2018).

Consequently, the general recommendation of the World Health Organization for a minimum amount of PA in a week for health sustenance can be obtained (Saint-Maurice et al., 2018) since teachers agreed that the PAP helps students to be more engaged. In this light, specific and varied activities which are easy and not complicated address higher motivation to complete PA recommendations (Newsome et al., 2019). Therefore, the PAP develops the most essential competencies the students need to effectively perform the skills in every PE area (Haible et al., 2020).

Moreover, a 30-60-minute PA is recommended for a school-aged adolescent (Jakicic et al., 2019). Unfortunately, PE class time cannot suffice the need and recommendation for effective PA (Nathan et al., 2018). Aside from the regular PE class, an acceptable amount of additional time for PA will help attain PA recommendations (Bull et al., 2020). This is all for improving motor skills, health, and well-being (Tarp et al., 2018).

The PE curriculum in senior high is broad in nature, and the application of the MELCs from the start of the pandemic narrows the scope to be implemented (Sum et al., 2018). Thus, the suggestions in the different PE areas clearly show what should be covered and focused on for skill themes to be mastered and improve PA levels (Coumans et al., 2021). Therefore, a strong recommendation for the PAP to be implemented in PE instruction (Fong et al., 2018) is a call of the PE teachers in the field since it is applicable and feasible.

4. Conclusion

The participant's insights on the development of the PAP paved the way for creating an innovative strategy for improving PE instruction. Their suggestions on the different topics, activities, and classroom assessment tools make the delivery of the instruction more specific. And so, it will help students acquire the skills for performance. Moreover, the high degree of alignment of the PAP in the PE MELCs and its practical application to PE instruction denotes a strong recommendation that the developed PAP may be implemented in the SHS PE curriculum. It adds up to delivering the PE instruction with quality in which students acquire the necessary competencies required in every PE area. As such, teachers have a defined tool in their learning plan to ensure quality in implementing instruction.

This study understands and recognizes some limitations that might affect the generalizability of the results. The results from the two phases of the study and analysis in the integration are solely applicable to a public senior high school in Negros Occidental. A private senior high school situation may have different results and analyses. Also, the developed PAP is only for PE teachers in public senior high schools. Through this, other institutions may introduce other types of plans for their instruction. Moreover, the size of the respondents in the quantitative phase is limited. Hence, more samples may have a different presentation of the results. Likewise, the data collection instrument (survey questionnaire) may focus on obvious areas in PE where other important areas may be left out. Lastly, the duration of the data gathering is a limitation. Thus, a longitudinal approach may be a consideration for further exploration of this study.

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Investigation of Primary Teacher Candidates' Curiosity in Mathematics in Terms of Various Variables

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Abstract
Curiosity is essential to scientific discovery and innovation, and more universally, it is a natural and unavoidable characteristic of children. It is shown as a process in which efforts are made to fill the knowledge gap. It is an important element of learning and it increases math achievement. This research reveals the level of curiosity in candidate primary mathematics teachers and discusses the precautions to be taken through various variables. A descriptive survey model was used in this study. This research was carried out during the 2021-2022 academic year. The study group of the research consists of 262 candidate primary school teachers studying at state universities located in the south of Turkey. In the research, "Mathematical Curiosity Scale for Classroom Teachers and Teacher Candidates" and "Personal Information Form" were used as data collection tools. In the study, primary school teacher candidates' gender, type of the high school they graduated from, positive and negative experiences about mathematics throughout their education life, and their level of mathematics curiosity and liking mathematics teachers were examined. According to the research results, primary school teacher candidates have a high level of curiosity about mathematics. Besides, sex generally does not affect curiosity in mathematics. Candidate primary school teachers who have negative experience with mathematics are less curious about mathematics. Primary school teacher candidates who like mathematics teachers are more curious about mathematics.

Keywords: Curiosity, Mathematics, Academic Success, Pre-Service Classroom Teachers

1. Introduction

Pediatricians, early childhood educators and policymakers ask 'what are the early social-emotional skills for children to succeed?' They grappled with the question. Curiosity, which is a cornerstone of future life success, is a component of the process that often ends when the knowledge gap that characterizes and leads to knowledge seeking is eliminated with a desire fueled by uncertainty to fill a knowledge gap (Hidi & Renninger, 2020; Peterson & Cohen, 2019). For example, when reading a detective novel, one wonders who the culprit is. Withdrawal likely ensues when the knowledge gap regarding the identity of the offender is closed. Curiosity is satisfied. In other words, when the information search process, which starts with closing the information gap, is resolved, uncertainty and curiosity decrease. As can be observed, curiosity is usually short-lived when the knowledge gap that characterizes it is filled (Hidi & Renninger, 2020). Unless students have a current interest in the content, it is unlikely that a student will return to work with this content (Reio, 2019; Renninger, 2000). In this respect, if there

is no interest, curiosity should step in. There is some theoretical support (Shah, Weeks, Richards, & Kaciroti, 2018) focusing on the fact that curiosity is related to the structure of intrinsic motivation, and that encouraging autonomy, feelings of competence, and connectedness can foster intrinsic motivation and increase curiosity (Shah, Weeks, Richards, & Kaciroti, 2018), but curiosity should also be supported externally. Curiosity, which is the key to learning, is a skill that allows an individual to reveal their potential (Yıldız, 2018). Learning develops in the pursuit of knowledge. If there is a lack of knowledge, the academic success of the student decreases. Therefore, academic success should not be left to chance.

If we look at it from the viewpoint of the different and the subject of the study, expecting only students to be interested in the content to achieve academic success may result in disappointment. In this respect, a student who is not interested in the course should be ensured to keep the curiosity process alive to fill the knowledge gap. For example, lack of knowledge reduces academic success in mathematics (Bayazıt, 2011). The lack of mathematical knowledge of the students since the primary school years causes some misconceptions and difficulties because they build the new knowledge they encounter on the existing knowledge (Kutluca, 2012). At this point, it should be considered important to keep students' curiosity alive.

Considering that curiosity can typically occur in a field-specific manner (for example, in mathematics) (Peterson & Cohen, 2019), pre-service mathematics teachers have problems such as lacking mathematical knowledge and the negative reflection of this lack of knowledge on mathematics teaching results in pre-service teachers' difficulties in how to teach what they have learned in these courses. Curiosity can be seen as a good tool for solving these problems (Yılmaz & Haser, 2018). However, curiosity-focused pedagogy should not only aim to develop children's ability to raise epistemic questions and ideas at school but also develop a positive classroom climate in which children value the importance of education (Lindholm, 2018). In this respect, the importance of pedagogical education increases.

Additionally, depending on the increase in academic success, curiosity is a driving force and a fundamental factor for social and scientific growth (Lindholm, 2018). An important part of this factor is the classroom teachers. It is the teacher who encourages curiosity in the classroom. A child's active participation in the lesson can be ensured in this way. It may even last for a semester. Because unless the child has a previous curiosity in the subject, the probability of stable participation is very low (Hidi & Renninger, 2020). However, students build the new knowledge they encounter in mathematics on their existing knowledge during their primary school years. Classroom teachers are the first mathematics teachers. Examining the changes in their curiosity levels can guide mathematics courses in undergraduate programs. It cannot be expected that the mathematics courses taken by the candidate primary school teachers during their undergraduate education will not be affected by their level of curiosity. Pre-service teachers who learn mathematics do not lack knowledge, and have a lively curiosity can raise students who are interested in mathematics and therefore have a high level of curiosity. Thus, high academic achievement levels in future generations will be inevitable.

This research reveals the level of curiosity in candidate primary mathematics teachers and discusses the precautions to be taken through various variables. The research problems are as follows:
1. What is the level of curiosity of candidate primary mathematics teachers?
2. Does the level of curiosity of candidate primary mathematics teachers differ according to gender?
3. Does the level of curiosity of candidate primary mathematics teachers differ according to the type of high school they graduated from?
4. Does the level of curiosity of candidate primary mathematics teachers differ according to their feelings towards mathematics teachers?
5. Does the level of curiosity of candidate primary mathematics teachers differ according to their negative experiences with mathematics?

2. Method

2.1 Research Design

In the research, the descriptive survey model, one of the quantitative research designs, was used to determine the level of interest in mathematics by candidate primary school teachers. Screening studies constitute for a research model that helps measure attitudes, thoughts and beliefs, determine the relationships between variables, make predictions and determine how subgroups change by using effective measurement tools (Christensen, Johnson, & Turner, 2015). In this direction, the descriptive survey model was used in the research since it was aimed to determine the level of interest in mathematics and the relationships between the variables of the prospective classroom teachers.

2.2 Participants

This research was carried out during the 2021-2022 academic year. The study group of the research consists of 262 primary school teacher candidates studying at state universities located in the south of Turkey. The study group of the research was determined by the criterion sampling method. The basic understanding of this sampling method is to study all cases that meet a predetermined set of criteria. In this context, the criterion taken as the basis is that the study group consists of prospective classroom teachers. Because the "Mathematical Curiosity Scale" used is for classroom teachers and teacher candidates (Usluoğlu & Toptaş, 2021). The demographic information of the primary school teacher candidates participating in the research is presented in Table 1.

Table 1: Demographic information of primary school teacher candidates

Variables	Categories	f
Gender	Female	183
	Male	79
Graduation	Science High School	22
	Anatolian High School	164
	Vocational and Technical Anatolian High School	21
	Imam Hatip High School	16
	Others	39
Negative math experiences	Yes	184
	No	78
Math teacher sympathy	Yes	175
	No	87
Total		262

2.3 Data Collecting and Procedures

In the research, "Mathematical Curiosity Scale for Classroom Teachers and Teacher Candidates" and "Personal Information Form" were used as data collection tools. The scale used was developed by Usluoğlu and Toptaş (2021). It is in a five-point Likert type and consists of 22 items. There were no adverse items on the scale. The ranges for the items in the scale were formed on the basis of five ranges: "I strongly disagree, I disagree, I am undecided, I agree, and I strongly agree." The scale consists of 3 sub-dimensions called "Desire to Know the Unknown," "Seeking for Innovation" and "Desire for Success." There are 11 items in the first dimension, 7 items in the second dimension and 4 in the third dimension. The Cronbach's alpha reliability coefficient for the total scale was calculated as 0.85. Cronbach's alpha reliability coefficient was calculated as 0.81 for the sub-dimensions "Desire to Know the Unknown," 0.79 for "Seeking Innovation" and 0.71 for "Desire for Success." The Cronbach alpha reliability coefficients reached for this study were calculated as 0.93 for the total scale, 0.92 for the “Desire to Know the Unknown,” 0.86 for the “Novelty Seeking” and 0.76 for the “Desire for Success.” Additionally, a Personal Information Form was created by the researchers to determine the personal information of the primary school teacher candidates about gender, high school type they graduated from, positive and negative experiences related to mathematics throughout their education life, and their feelings towards mathematics teachers.

SPSS 25.0 Statistical Package Program was used for statistical operations in the analysis of the data obtained with the Mathematical Curiosity Scale. Frequency, arithmetic mean, standard deviation techniques and difference tests

were used to analyze the data. In this direction, arithmetic mean and standard deviation values were used to determine the mathematical curiosity levels of candidate classroom teachers; difference tests were used to look at the difference between independent mathematical curiosity levels. The Kolmogorov-Smirnov test was applied to determine whether the scores obtained from the whole scale and the scores obtained from the sub-dimensions showed normal distribution. According to the results obtained, it was determined that the scores showed a normal distribution. For this reason, parametric tests were applied.

3. Results

In this section, the findings obtained in line with the sub-problems of the research are presented, respectively. In this context, firstly, the findings related to the level of interest in mathematics according to the demographic characteristics of the primary school teacher candidates are included. Then, the differences in the level of interest in mathematics of the primary school teacher candidates according to the variables of gender, the type of school they graduated from, their experiences related to mathematics and their feelings towards mathematics teachers were explained.

Table 2: Mathematics curiosity levels according to demographic characteristics of primary school teacher candidates

Variables	Categories	f	X	Ss
Gender	Female	183	3.33	0.74
	Male	79	3.50	0.47
Graduation	Science High School	22	2.75	0.63
	Anatolian High School	164	3.48	0.61
	Vocational and Technical Anatolian High School	21	3.10	0.94
	Imam Hatip High School	16	3.11	0.41
	Others	39	3.60	0.62
Negative math experiences	Yes	184	3.16	0.65
	No	78	3.91	0.38
Math teacher sympathy	Yes	175	3.60	0.54
	No	87	2.94	0.71
Total		262	3.38	0.68

When Table 2 is examined, the arithmetic mean of the scores of the candidate classroom teachers' mathematical curiosity levels was found to be X=3.38 and the standard deviation was found to be sd=0.68 in the scale. In the lower dimensions, a level above the average in general is observed. In this context, the opinions of candidate classroom teachers about their mathematical curiosity levels generally correspond to the range of "I agree." In other words, they have a high mathematical curiosity.

Table 3: Independent Samples t-test results of pre-service classroom teachers' mathematical curiosity levels regarding gender

Properties	Gender	n	X	Ss	t	P*
Desire to know the unknown sub-dimension	Female	183	3,28	.06	-1,653	.100
	Male	79	3,47	.06		
Novelty seeking sub-dimension	Female	183	3,27	.06	-2,042	.042
	Male	79	3,49	.07		
Desire for success sub-dimension	Female	183	3,57	.02	-,520	.603
	Male	79	3,60	.04		
Scale total	Female	183	3,33	.05	-1,843	.067
	Male	79	3,50	.05		

**The mean difference was significant at the 0.05 level.*

In Table 3, the results showing whether the scores of the primary school teacher candidates from the mathematical curiosity scale differ according to the gender variable are given. According to the results obtained, it is seen that the gender variable does not create a statistically significant difference between the scores of the students in the total scale, the desire to know the unknown sub-dimension and the desire for success sub-dimension ($p > .05$). A significant difference between the scores of the novelty seeking sub-dimension according to gender ($p < .05$) is observed. In this period, it is seen that female classroom teacher candidates have a more mathematical curiosity than male classroom teacher candidates.

Table 4: Independent Samples t-test results of prospective classroom teachers' mathematical curiosity levels regarding negative experiences related to mathematics

Properties	Negative experiences	n	X	Ss	t	P*
Desire to know the unknown sub-dimension	Lived	184	3.05	.06	-10.015	.000
	Never lived	78	4.03	.04		
Novelty seeking sub-dimension	Lived	184	3.12	.05	-7.405	.000
	Never lived	78	3.84	.06		
Desire for success sub-dimension	Lived	184	3.51	.03	-4.207	.000
	Never lived	78	3.74	.03		
Scale total	Lived	184	3.16	.04	-9.591	.000
	Never lived	78	3.91	.04		

**The mean difference was significant at the 0.05 level.*

When Table 4 is examined, the results showing whether the scores obtained from the mathematical curiosity scale of the primary school teacher candidates differ according to the variable of negative experiences related to mathematics are given. According to the results obtained, there is a statistically significant difference between the mathematical curiosity scores of the primary school teacher candidates in the total scale and all sub-dimensions ($p < .05$). In the whole scale and the sub-dimensions, those without negative experiences with mathematics had higher scores than those who did.

Table 5: Independent Samples t-test results regarding the level of mathematical curiosity of primary school teacher candidates and their liking for mathematics teachers

Properties	Math teachers	n	X	Ss	t	P*
Desire to know the unknown sub-dimension	Likes	175	3.66	.04	10.069	.000
	Doesn't like	87	2.70	.09		
Novelty seeking sub-dimension	Likes	175	3.51	.05	5.297	.000
	Doesn't like	87	2.99	.09		
Desire for success sub-dimension	Likes	175	3.60	.03	1.455	.147
	Doesn't like	87	3.52	.04		
Scale total	Likes	175	3.60	.04	8.258	.000
	Doesn't like	87	2.94	.07		

**The mean difference was significant at the 0.05 level.*

In Table 5, the results show whether the scores of the pre-service teachers from the mathematical curiosity scale differ according to the variable of feelings towards their mathematics teachers. According to the results obtained, a statistically significant difference between the mathematical curiosity scores of the primary school teacher candidates, the total scale, the desire to know the unknown and the sub-dimensions of seeking novelty ($p < .05$) is observed. On the whole scale and in these sub-dimensions, those who liked the mathematics teacher had higher scores than those who did not. Further, no statistically significant difference between the scores they get from the sub-dimension of desire for success ($p > .05$) is detected.

Table 5: One-Way ANOVA results of primary school teacher candidates' mathematical curiosity levels regarding school type

Properties	School type	n	X	Ss	sd	f	p	A significant difference*
Desire to know the unknown sub-dimension	Science High School	22	2.51	.17	.81	8.892	.000	A-B, A-E
	Anatolian High School	164	3.44	.06	.77			
	Vocational and Technical Anatolian High School	21	2.98	.26	1.20			
	Imam Hatip High School	16	3.22	.13	.55			
	Others	39	3.63	.11	.74			
Novelty seeking sub-dimension	Science High School	262	3.34	.05	.84	7.116	.000	A-B, A-E
	Anatolian High School	22	2.70	.15	.74			
	Vocational and Technical Anatolian High School	164	3.44	.05	.72			
	Imam Hatip High School	21	3.04	.22	1.00			
	Others	16	3.01	.09	.37			
Desire for success sub-dimension	Science High School	39	3.54	.12	.80	10.481	.000	A-D, B-D, C-D, D-E
	Anatolian High School	262	3.34	.04	.78			
	Vocational and Technical Anatolian High School	22	3.51	.06	.32			
	Imam Hatip High School	164	3.63	.03	.40			
	Others	21	3.54	.05	.26			
Scale total	Science High School	16	3.00	.10	.40	9.075	.000	A-B, A-E
	Anatolian High School	39	3.65	.05	.36			
	Vocational and Technical Anatolian High School	262	3.58	.02	.41			
	Imam Hatip High School	22	2.75	.13	.63			
	Others	164	3.48	.04	.61			

**The mean difference was significant at the 0.05 level.*

(A: Science High School, B: Anatolian High School, C: Vocational and Technical Anatolian High School, D: Imam Hatip High School, M: Others)

When Table 6 is examined, the results of the analysis show that there is a significant difference between the scores obtained in the Mathematical Curiosity Scale in total and in the subgroups and type of high school from which the candidate primary school teachers graduated ($p<.05$). In other words, the mathematical curiosity scores of candidate primary school teachers vary according to the type of high school they graduated from. The results of the Scheffé Test, which was conducted to determine between which groups the difference occurs, are displayed as follows:

Science High Schools have a statistically significant difference in favor of Anatolian High Schools (A/B) and other types of high schools (A/E) in sub-dimensions of willingness to know the unknown and seek novelty. In the sub-dimension of desire for success, Imam Hatip High Schools have a statistically significant difference in favor of Science High Schools (A/D), Anatolian High Schools (B/D), Vocational and Technical Anatolian High Schools (C/D) and other types of high schools (D/E). A statistically significant difference in the total scores of the scale in favor of Science High Schools, Anatolian High Schools (A/B) and other types of high schools (A/E) is observed.

4. Discussion

It is claimed that curiosity has a positive effect on learning (Gruber, Gelman, & Ranganath, 2014; Lindholm, 2018; McGillivray, Murayama, & Castel, 2015; Peterson, 2020; Reio, 2019; van Schijndel, Jansen, & Raijmakers, 2018). Many studies have reported that students who are claimed to be curious are more often have better academic success (Post & Walma van der Molen, 2018; Reio Jr & Wiswell, 2000; Wavo, 2004) than students who are reported to have less curiosity. Again, in a study on curiosity and academic achievement, it was concluded that mathematics achievement is significantly related to curiosity (Shah et al., 2018).

Research to understand curiosity, education, psychology, human-computer interactions, robotics, neuroscience, and medicine is becoming more interdisciplinary with new information from researchers in the related fields. Using this accumulated information presents an incredible opportunity and improves education by encouraging curiosity. Ways to encourage curiosity in the classrooms are initiatives in educational field (Jirout, Vitiello, & Zumbrunn, 2018). From this perspective, the results of this study, which reveal the level of interest in the candidate primary mathematics teacher, discuss the measures to be taken over various variables and contribute to the field of mathematics learning, show that the level of mathematics curiosity is at the level of *I agree*. In other words, it's a positive dimension. Besides, this is promising for the field of learning mathematics.

Among the results of the study (except for the novelty seeking sub-dimension), the level of interest in the candidate primary mathematics teachers did not differ significantly according to the gender variable. In other words, sex generally does not affect the interest in mathematics.

Another result of the study is that the mathematical curiosity levels of the candidate primary mathematics teachers make a difference according to whether they have negative experiences related to mathematics or not. Candidate primary school teachers who have negative experience with mathematics are less curious about mathematics.

Another result is that the mathematical curiosity levels of the candidate primary school teachers make a difference according to whether they like their mathematics teachers or not. Having a look at the results of the study (except for the sub-dimension of desire for success), it is observed that pre-service teachers who like mathematics teachers are more curious about mathematics.

In the study, it was concluded that primary school teacher candidates have a high level of mathematics. These results will be shared with the lecturers from whom the participants take mathematics courses. Maybe faculty members can reflect on their mathematics achievements at the end of the semester according to their level of mathematics curiosity. This may encourage them to conduct new research.

Classes are complex systems in which many factors can stimulate children's curiosity. It's important, then, to incorporate this complexity into the encouragement of curiosity. As a way of encouraging the implementation of research, the researcher will encourage the participants from whom he collected the research data.

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Examination of Fractional Number Sense in Eight Graders with High Academic Performance

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Abstract
This study revealed the fractional number sense form associated with daily life and the number sense of 8th-grade students with high academic success. This study aimed to determine fractional number sense which in eighth graders with high academic performance. This study has a qualitative patterned. The sample consisted of 20 students from the middle schools in Pazar, the province of Rize. Participation was voluntary. İnterviews were conducted with participants to address their fractional number sense and strategies. The data were collected using an interview form developed by the researcher. The form consisted of 15 items on number sense components (computational estimation, operation effect, number magnitude, using a benchmark, and equivalent representation) related to daily life. The data were analyzed using descriptive content analysis. As result of this study; Very few participants used number sense. Most participants turned to rule-based solutions to answer the questions. None of the participants was successful in executing number sense. The fact that the items were related to daily life helped us reveal fractional number sense.

Keywords: Number Sense, Mathematics, Secondary Math, Fractions, Daily Life Math

1. Introduction

1.1 Introduce the Problem

Today, what matters is not how much one knows and remembers but how one uses one's knowledge. The World Economic Forum (WEF) (2020) asserts that we must promote creativity to help education keep up with the times. We need people with versatile thinking skills to develop creativity (Aslan, 2001). According to Skemp (1987), the purpose of learning is not to remember but to use and shape knowledge. In order to make sense of information, one must feel it, that is, one must "sense" it. One acquires knowledge by oneself. However, if we want to guide one for a purpose, we must provide one with environments where one can acquire information. We reason, predict, and process information in every step of life. Therefore, we can say that math is everywhere. For example, we use it to calculate a loan interest, credit card statement, inflation rates, tax percentage of a new phone, etc. In some cases, math is precise. However, in some others, we need to sense it, just like an experienced cook sensing how

much milk to add to half a kilogram of flour to get a dough as thick as an earlobe. Math is abstract. However, a group of researchers in the USA suggested that math can be sensed (Howden, 1989). Based on students establishing relationships between numbers, interpreting the magnitude of numbers, and discovering shortcuts and methods instead of routine operations, they stated that we could sense numbers and feel them and use them flexibly. Neurologists and educational scientists have defined it differently and sought answers to questions like how to measure it and what its components are. Howden (1989) defines number sense as having a good intuition about numbers and numerical relationships but does not mention its components. Greeno (1991) approaches number sense from a psychological point of view and classifies it as flexible mental computation, computational estimation, quantitative judgment, and inference. McIntosh et al. (1992) emphasize that number sense should be examined in sub-headings and classify them in the most detailed way. Their classification consists of three main headings: (1) knowledge of and facility with numbers, (2) knowledge of and facility with operations, and (3) applying knowledge of and facility with numbers and operations to computational settings. The main headings included 11 subheadings. Sowder and Schappelle (1994) and Markovits and Sowder (1994) collect number sense components in two groups: understanding numbers and rethinking as operations.

1.2 Explore Importance of the Problem

According to them, number sense is based on practicality and flexibility, and it is sufficient to specify it as such. Reys et al. (1992) proceed by grouping the classification made by McIntosh et al. into six components: understanding the meaning of size and numbers, understanding and use of equivalent forms and representation of numbers, understanding the meaning and effect of operations, understanding the use of equivalent expressions and computing and counting strategies, and benchmarks. The National Council of Teachers of Mathematics (NCTM) published a report titled “Curriculum and Assessment Standards for School Mathematics” and explained that students with high number sense were good at understanding the meaning of numbers, developing multiple relationships between numbers, noticing the magnitude of numbers, seeing the effect of operations on numbers, and developing benchmarks (reference) for the measurement of surrounding situations. Based on these definitions, students with high number sense:

1. Know numbers and the relationships between them and use them.
2. Know the operations and the relationships between them and use them.
3. Consider circumstances and use strategies to make calculations.
4. Develop and use strategies.
5. Check data and results and interpret their accuracy.
6. Make operations, measurements, and state expressions using some numbers as benchmarks, and know the equivalent representations of numbers and use them when necessary.
7. Compare numbers based on relative magnitudes, make logic-based predictions instead of intuitive guessing, and use mental or written computation or flexible computation when necessary and perform coherent reasoning.

In light of these features, number sense components were grouped under five headings: equivalent representation, computational estimation, operation effect, number magnitude, and using benchmarks.

Fraction is one of the subjects that form the basis of math in number sense. However, it has not been addressed in detail. Fractions form the basis of math concepts (percentage, ratio, measurement, etc.) that we encounter in daily life. It is one of the most challenging subjects for students to learn (Yazgan, 2007). Therefore, the more concrete expressive experiences that students have in fractions, the higher their conceptual learning (Olkun & Toluk, 2003). In this sense, teachers who provide learning settings should have enough academic knowledge about the concept of fractions and should also be competent in revealing and interpreting students' math knowledge. It is essential to have a solid conceptual knowledge of fractions in preparing, presenting, and measuring this environment. The fact that teachers can express fractions with appropriate representations for real and concrete situations makes the concept of fractions meaningful and deepens them (Van De Walle et al., 2012). From this perspective, fractions are a component of number sense and are a field that requires detailed examination. Sowder and Schappelle (1989) argue that fractions should be treated separately because they are more complex than other sets of numbers. As a matter of fact, separate definitions have also been made. For example, it is defined as "fraction sense" (Suh, Moyer

& Hae-Ja Heo, 2005; McNamara & Shaughnessy, 2015) or "number sense for fractions" (Carpenter, Fennema & Romberg 1993; Cramer, Behr, Post & Lesh, 1997; Phipps, 2008). However, there is no clear definition. In addition, Carpenter, Fennema, and Romberg (1993) did not classify components for fractions. They define fractional number sense as one's ability to perceive the value of the numerator, denominator, and fraction as a whole, to show them separately, and to express them together rather than revealing their meanings. They exemplified the use of flexible numbers between fractions. McNamara and Shaughnessy (2015) define fractional number sense as knowing fractions' deep and flexible meaning without being tied to a context or question type. Fractions, which occupy a small place in the concept of large numbers compared to the others, contain so much complexity that a fifth-grader asks: Why is the result less than 292 when we multiply 29 and 2/9? (Taber, 2002 p. 67; cited in Van de Walle et al., 2012). If this question were about natural numbers, it would not cause any confusion, but generalizations about natural numbers make it difficult for students to understand fractions. When it is associated with a concrete or real-life situation, students have more conceptual confusion and do not question the information and use it again (Acar, 2010; Kayhan, 2010; Kocaoğlu & Yenilmez, 2010; Şiap & Duru, 2004; Yetkin Özdemir & Kayhan Altay, 2016). In this sense, it is important to determine fractional number sense. The secondary education math (Ministry of National Education, 2018) program pays attention to meaning and estimation skills but does not refer to number sense, which is accepted as a basic practice in learning mathematics by NCTM (1989). Insufficient use of the concept of 'number sense' in the curriculum may cause a slowdown in its improvement. According to some researchers, the level and development of number sense are low because curricula do not address it adequately (Harç, 2010; İymen, 2012; Yang, Li & Lin, 2007). We must first provide students with the right environments and measurement tools to help them sense numbers, which may facilitate the introduction of number sense. Revealing the 'number sense' ability in a subject associated with daily life and examining their transferability to life situations will contribute to the literature, educators, teachers, and preservice teachers. Therefore, this study focused on the fractional sense, which forms a basis of many subjects (decimal numbers, percentage, measurement, ratio, etc.) in math curricula (Streefland, 1991).

1.4 State Hypotheses and Their Correspondence to Research Design

Researchers analyzed the initial knowledge of students in terms of mathematical self-esteem. Based on the description above, the problem formulation in this study is as follows:

1. The main research question is as follows:
2. What is the level of eighth graders' fractional number sense?
3. The sub questions are as follows:
    1. What is the eighth graders' fractional number sense level in terms of components?
4. 2. What number sense components do eighth graders have?

2. Method

This case study adopted a qualitative research design to determine eighth graders' who has high academic performance fractional number sense. Data were collected using a fractional number sense semi-structured interview form developed by the researchers. The data were analyzed using qualitative descriptive analysis. The results are based on the assumption that all participants answered the interview questions candidly and honestly.

2.1 Participant (Subject) Characteristics

The sample consisted of 20 students (11 girls and 9 boys) from the middle schools in Pazar, Rize. All participants had a math grade of 4 or 5 and a TEOG (transition from primary to secondary education) score of 380 to 500 in the spring semester of the 2014-2015 academic year.

2.2 Measures and Covariates

First, a literature review was conducted. Studies on number sense, fractional number sense, and number sense components were evaluated. The definitions and questions about the components in earlier studies were examined in terms of common and different aspects. Tests on number sense, interview questions, and interview questions

including routine and non-routine problems were evaluated (Jordan, Glutting & Ramineni, 2009; Markovits & Pang, 2007; McIntosh et al., 1992; Reys & Yang, 1998; Singh, 2009; Yang, Li & Lin, 2007; Zanzali & Ghazali,1999). Studies focus on rational numbers, integers, fractions, and the relationships between these numbers, but there is no measurement tool for only fractional number sense. Since fractional number sense includes flexible use of fractions and practical solutions, the dimension of associating with daily life was also taken into consideration. A pool of 30 questions about fractional number sense associated with daily life was developed by modeling the number sense test questions. Textbooks, TIMSS (Trends in International Mathematics and Science Study) math questions, and PISA (Programme for International Student Assessment) math questions were reviewed. However, the questions were about different math topics, and the situations in those questions were not related to the daily life of the sample either. The interview form included the problem situation, real-life pictures suitable for the content of the questions (n=22), three options to help participants express their ideas, and an "other" option to allow them to express their thoughts freely. Experts were consulted to check the validity of the interview questions. Three academics with Ph.D. degrees, one expert in measurement, and eight primary school math teachers, one of whom had a master's degree, checked the interview questions. The experts were asked to rate the questions on a scale of 1 to 5 to indicate whether they represented the number sense components. They were asked to explain their rating and specify which components the questions were associated with. They were also provided with explanation parts to express their views of the wording of the questions. The questions were revised based on expert feedback. Afterward, a pilot study was conducted. Seven questions were removed from the form because the pilot study participants found them too long and tiring and irrelevant to the daily-life situations. Another pilot study was conducted after the necessary revisions were made to the questions.

Table 1: The Characteristics of the Interview Questions

Question	Number Sense	Achievements
1	Equivalent Representation	Making sense of a fraction
2	Equivalent Representation	Displaying on the numerical axis
3	Computational Estimation	Sorting fractions
4	Operation effect	Division
5	Equivalent Representation	Simplification and expansion
6	Number magnitude	Sorting fractions
7	Computational estimation	Displaying on the numerical axis
8	Operation effect	Multiplication
9	Number magnitude	Sorting fractions
10	Using a benchmark	Addition and subtraction
11	Using a benchmark	Making sense of a fraction
12	Computational estimation	Addition and subtraction
13	Number magnitude	Sorting fractions
14	Using a benchmark	Addition and subtraction
15	Operation effect	Making sense of a fraction

2.3 Data Analysis

The data were collected through interviews. Participants' responses to the interview questions were videotaped. One participant did not want to be videotaped. This request was complied with for ethical considerations. The data were analyzed using qualitative methods. All interviews were transcribed. Descriptive analysis, a qualitative analysis approach, was used to group the methods used by the participants in their statements (Yıldırım & Şimşek, 2008). The answers of the participants who used and did not use number sense were analyzed in detail. Participants' statements were collected under two groups: "related to number sense" and "rule-based solution." The statements not related to these two groups were collected under "other" and then grouped as "true" and "false." The data were analyzed using descriptive analysis. Two people (one is an author of this paper, and the other is an experienced researcher who has a Ph.D. in classroom teaching and took courses on qualitative research in data analysis and conducted research based on this method) examined the data and coded them separately. They analyzed the codes together and discussed them until they reached a consensus. The codes were grouped under themes, which were then presented together with quotes.

3. Results

The research data described include the mean, standard deviation, minimum and maximum values. The division of data categories uses the normative reference approach. This section addressed the results regarding the five number sense components:
Participant 9 answered the question regarding the "computational estimation" correctly and used the statement "in infinitely different ways:"
P9: Well, it can be done in a couple of different ways. We can make an addition as much as the amount between those two numbers. There are infinite numbers between two rational numbers. We can add many more numbers.
R: Infinite numbers?
P9: Actually, yes, if you move it little by little, the machine displays different values.
R: What machine?
P9: Considering that a machine adjusts the part to be added there, small amounts can be changed differently.
R: You're calling it a machine?
P3: I just imagined it being a machine.

The comment "if you move it little by little, the machine displays different values" showed that the P9 was able to interpret the question without the need for an operation. She may not have felt the need to show the numbers on the number line. She explained this situation with a pointer next to the expression infinity, which showed that she used number sense through her daily life situation.

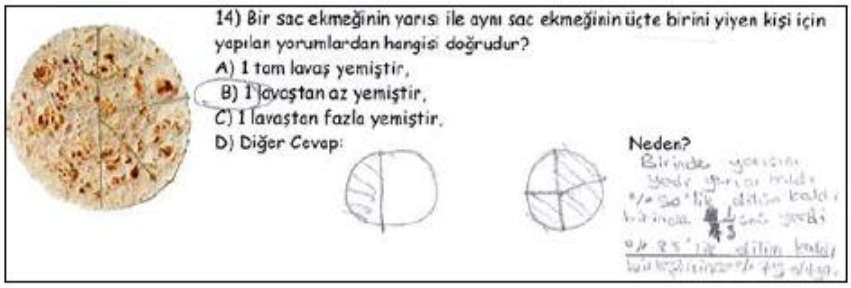
The remarks of Participant 12 about the "operation effect" indicated her number sense:
P12: For example, if it were full, I mean, if it were 1 ml, we would need 20 of it.
R: So?
P12: Yes, well, then it's more than 20 because it's less than one whole, I mean the ml of the syringe.
R: What if it's less than that?
P12: Because it's less, I mean, the syringe can hold more than 1 ml, so 20 of them don't make 20 ml.

This response showed that the participant summarized the situation by comparing 3/5 ml to 1 ml. In other words, he realized that the fractional number was bigger than the whole number.

There was no true statement regarding the component of "number magnitude." One of the participants gave a wrong answer to this question:
P6: Well, half a kilo, right? ½?
R: Yes, that's what we call it.
P6: Half of nine is 4.5. So, it's half a kilo. Here, it's a half more, and here it's a half less…It's one and a half more.
R: Which one is close to half?
P6: 4/9, in fact, both are the same, half-half.
R: Why?
P6: Isn't it half from half?
R: Is that so?
P6: I think it is, I think I got this question.
R: Now, you're telling me that 4/9 and 7/15 are equally far from half.
P6: Exactly, I just couldn't express it as you did.

Participant 6 took the half as the benchmark and made comparisons, which was an important step for the number magnitude. However, he made a mistake by stating that different unit fractions were equally far from the same number. Nevertheless, he could have developed the right strategy if he had not had confusion. The fact that he did not learn the unit fraction caused this mistake.

Participant 11 gave a response about "using benchmark:"
P11: I thought what I drew, and I said it, I imagined it. They are both small, and one is smaller than the other. I don't think I needed to draw it.



14) Which of the following interpretations is correct for a person who has eaten half a sheet of lavash and then a third of the same sheet of lavash? Why?
A) She ate a whole lavash.
B) She ate less than a whole lavash.
C) She ate more than a whole lavash
D) Other

Figure 1: The Drawing of Participant 11 For the Question

If a student refrains from commenting when he/she has not obtained numerical data, he/she may have difficulty interpreting a mathematical question other than numerical data. Consequently, this was the easiest question for all participants. It was also the question the answer of which they based on operations. The participants who regarded making operations as "making explanations" did not make any statement regarding how they related the situation to daily life.

The question regarding "equivalent representation" asked the participants to draw the seven-eighth of a loaf of cornbread and explain it verbally. They were also asked to shade all parts but one. Although all participants gave answers about the number sense, one-third of them gave wrong answers. Almost all participants made representations without making any operations or generalizations. However, the participants who made representations by drawing figures did not pay attention to dividing their figures into equal parts. Below are some examples of the right representations.

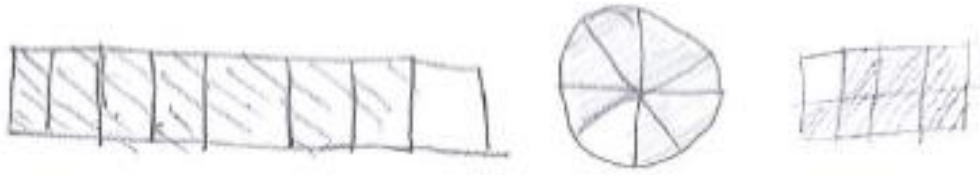


Figure 2. The Drawings Regarding the First Question

As can be seen, some participants made sure that they divided their figures into equal parts and stated that they would shade all parts but one. Those who made wrong drawings did not pay attention to dividing their figures into equal parts.

Display 7/8 of the cornbread.

Figure 2: Misrepresentation of the First Question

Each participant was able to turn a fraction into a figure. However, they did not pay attention to dividing their figures into equal parts. Their responses were about number sense, probably because the question was about the

representation of a basic fraction. The question asked participants to come up with equivalent drawings, and they all drew figures. However, they did not pay attention to equal representation. The general state of the dataset can be summarized in a table as follows:

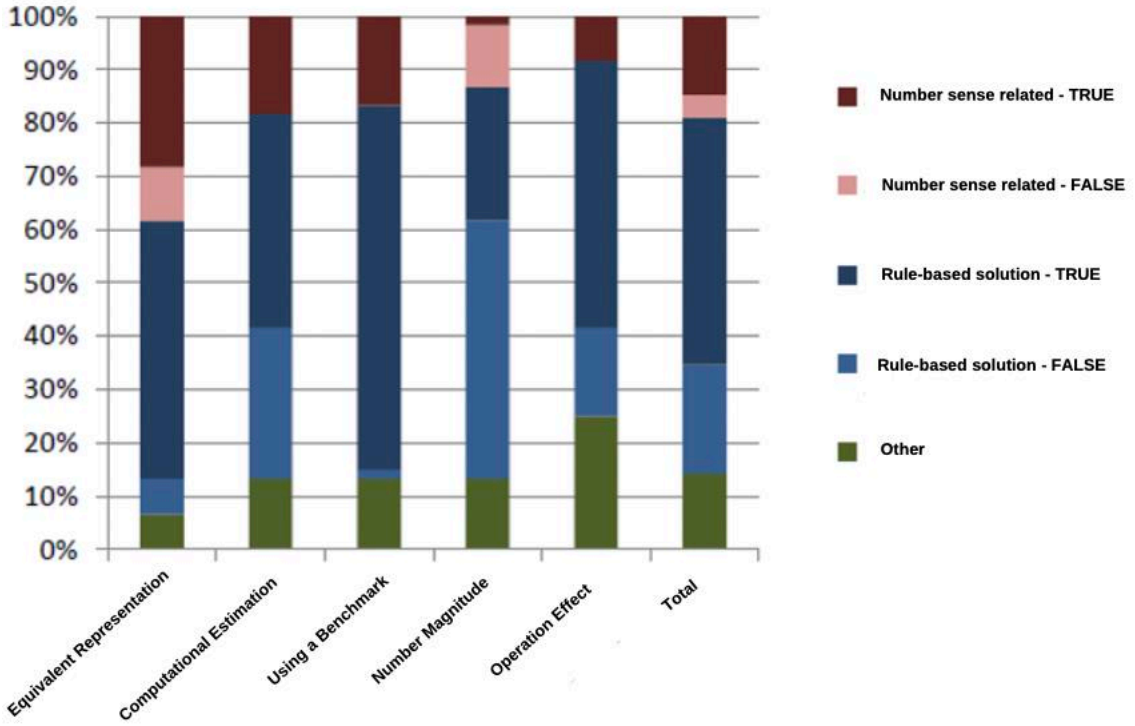


Figure 3: Fractional Number Sense Components and Data State for the Components

The rule-based answers were more than number sense answers. More than half the number sense answers did not end up wrong. However, all rule-based answers ended up wrong. Equivalent representation was the most prominent component. In addition, the rule-based answers were more than the number sense answers. The accuracy of the answers to number sense was higher in rule-based solutions. The computational estimation was the second most prominent number sense component. There were more rule-based answers than number sense answers. All number sense answers were correct, whereas there were more mistakes in rule-based answers. All number sense answers regarding the "using benchmark" component were correct. However, there were some mistakes in rule-based solutions. As for the "number magnitude" component, there were more rule-based answers than number sense answers. In both categories, there were more wrong answers than right ones. As for the “operation effect” component, all number sense answers were correct. However, there were more rule-based answers than number sense answers. These results showed that all number sense answers were correct regarding the "operation effect" component, whereas the rule-based answers led participants to mistakes. Participants answered the “using benchmark” component most correctly, whereas they answered the “number magnitude” the least correctly. They used the most number sense for the “equivalent representation” component, whereas they used the least number sense for the “number magnitude” component. They used the most result-based solution for the “number magnitude” component. In general, there were more rule-based answers than number sense answers. However, the number sense answers were more correct than the rule-based answers. Lastly, almost three in seven participants did not make any explanation.

The graph below shows which number sense components the participants had.

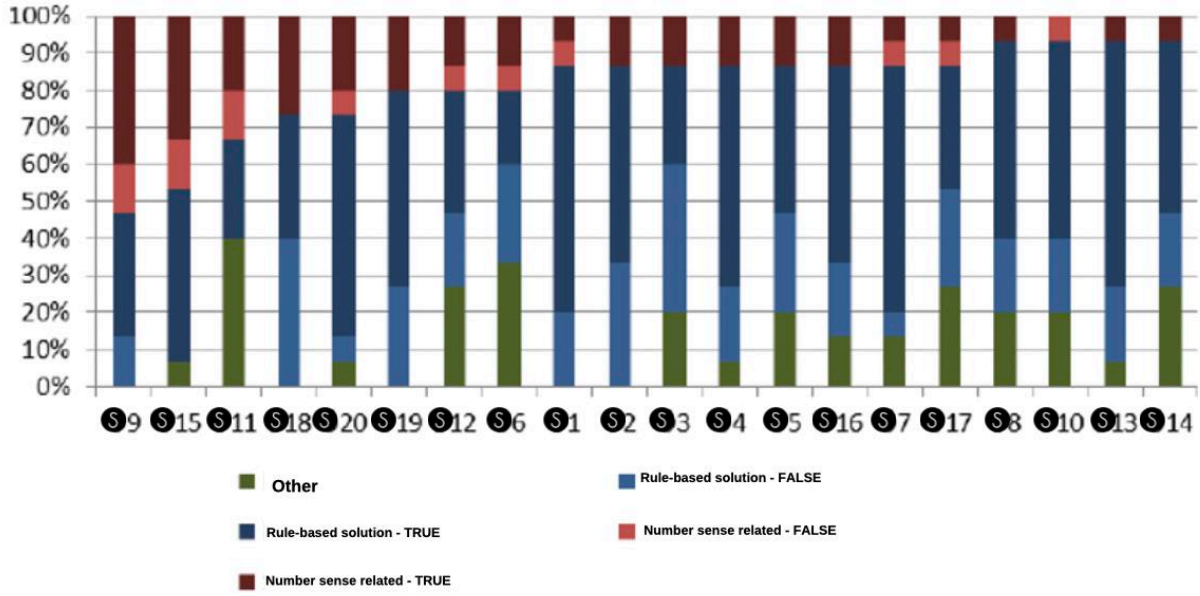


Figure 4: Student Number Sense Component Status

All participants had number sense components. Half the participants used number sense and reached the right solutions. The other students used number sense and reached both right and wrong answers. All participants but two (P15 and P11) used rule-based solutions and gave wrong answers. None of the participants had more wrong number sense answers than right answers. However, two participants had more wrong rule-based answers than right ones. All participants had number sense, albeit little. However, some participants did not have some of the components. The number sense components participants had been summarized in the table below:

Table 2: Distribution of Students by Components

Number of Components	Components	Participant
Five components	Computational estimation, number magnitude, using a benchmark, equivalent representation, and operation effect	P9, P15
Four components	Computational estimation, number magnitude, using a benchmark, and equivalent representation	P20
Three components	Computational estimation, number magnitude, and equivalent representation	P6, P11
	Computational estimation, using a benchmark, and equivalent representation	P18, P19
Two components	Number magnitude and equivalent representation	P7
	Computational estimation and equivalent representation	P3, P5
	Operation effect and equivalent representation	P12, P17
One component	equivalent representation	P1, P2, P4, P8, P10, P13, P14, P16

Two participants had all five components. P20 had four components but did not have the "operation effect" component. P6, P11, P18, and P19 had three components but not the "operation effect" component. However, P12 and P17 had two components, one of which was the "operation effect." Another interesting finding was that participants who had one component only had the "equivalent representation" component.

4. Discussion

This study investigated the fractional number sense components in eighth graders. Participants had low computational estimation. However, their computational estimation level was enough to give the right answers. They preferred rule-based solutions to mental operations when answering the questions. This is consistent with the results of the studies that show that students do not prefer practical solution methods when solving problems (Harç, 2010; Sinnakaudan et al., 2015; Şahin, 2018; Tsau, 2005; Yang et al., 2007). As for the computational estimation, participants had inadequate number sense probably because students' study for exams and focus on reaching the right solutions instead of coming up with practical solutions. In other words, students prepare for exams, and therefore, they consider the solutions that lead to the right results sufficient instead of developing different strategies. These results are consistent with the literature (Bayram, 2013; Harç, 2010; İymen, 2010; Yang, 2002). Research also shows that students have inadequate number sense in terms of computational estimation (Akkaya, 2016; Bayram, 2013; Harç, 2010; İymen, 2010; Yang, 2002).

Participants had a low operation effect. Participants who used number sense got the right answers, whereas those who used rule-based methods did not get the right answers. Participants who used number sense realized the meaning of operations and found solutions considering the situations. The daily life situations had a positive effect on the interpretations. Participants using rule-based methods had both correct and incorrect results. Before commenting on the situation in which operations can occur in numbers, participants thought that the operations should be made in written form. They could not interpret the results of the operations. Participants with sufficient operation effect first tried to understand the situations and then tried to make sense of the operations. However, they could not reveal exact numerical data. Participants with insufficient operation effect tended to obtain numerical data, and they found it sufficient to reach correct results. Participants could not comment on the changes made by the operations on the numbers without numerical data. This can be because learning environments are lacking in inquiry. Soyuk and Yenilmez (2021) state that representation differences form a basis for interpretation in the teaching process. Teachers do not come up with different activities because they find them time-consuming. They prefer different activities to explain topics, but not while solving questions (Çelik, 2015; Işık et al., 2011). Our results are consistent with the literature. Participants used number sense little in terms of the operation effect component. This result is in line with the studies of Lustgarten and Matney (2019) and Harç (2010), who identified the operation effect, which is the lowest number sense component.

Participants had inadequate answers in terms of the number magnitude component. However, the data collection tool had visuals that supported the daily life situation, contributing to the participants' understanding of multiplicities. However, it did not help with strategy development. This result is consistent with the literature. For example, Iymen (2012) found that students lacked an understanding of the number magnitude of exponents. Pesen (2008), on the other hand, determined that students had difficulty understanding the magnitude of fraction numbers. In this study, the lowest component participants had was the number magnitude. This is probably because students have never been to learning environments that promote the number magnitude component. However, Yang, Li, and Lin (2007) reported that students had higher number sense in terms of number magnitude than the other components, which was in contrast to our result.

As for the "using benchmark" component, participants reached solutions through operations but rarely commented on the concept of "half." There were more rule-based solutions than number sense answers. Participants were inadequate in interpreting fraction numbers. This may be because learning environments do not encourage questioning. The difficulties arise from the teaching of the concept (Arslan, 2016; Hoof et al., 2017; İvrendi, 2016; Soylu & Soylu, 2005; Yazgan, 2007; Yılmaz & Yaşa, 2008). Participants regarded the operations to obtain rule-based solutions as explanations and did not interpret the expression. Teachers must have number sense to ensure that students are critical individuals with number sense for interpretation (Yang, 2002). Participants reached the most correct results in this component. However, rule-based solutions were more than expected. As for rule-based correct answers, Yang and Huang (2004) state that reliable and desired answers are not always numerical. They suggest that different measurement tools should be used to assess mathematical abilities.

As for the equivalent representation component, almost all participants could make representations without any operation. However, Pesen (2010) showed that third graders were still drawing mistakes and that those mistakes persisted until eighth grade. Participants preferred talking to drawing to reveal what they knew. This result coincides with Çelik (2015), who argues that some students and teachers are too lazy to draw models. Although participants encountered a situation related to daily life, they first turned to operations and explained the results of their operations. However, the answer with the highest number sense, which is still not sufficient for interpretation, was obtained in the "equivalent representation" component. In this component, most participants turned to rule-based solutions. This tendency has also attracted the attention of Ekenstam (1977). This component is where the answers related to number sense are observed the most. İymen (2012) also found students more successful in the equivalent representation component related to exponential numbers. However, the use of number sense is still low. The rule-based answers were more than the number sense answers. The presentation of environments associated with daily life contributed to the number sense answers. This result coincides with Yazgan (2007), who maintains that real-life situations contribute to students' questioning. Yazgan (2007) adds that equivalent representation means revealing the relationships between the skills when they are needed and that people who cannot perceive these cannot find practical solutions to daily-life problems. The fact that equivalent expressions were not put forward more may have led students to operations.

Participants had low fractional number sense. High academic performance did not reveal a situation related to the existence of fractional number sense. While some participants were able to show the fractional number sense in each component, some could not. In this sense, incomplete concept knowledge might have caused those participants to show the number sense representation incompletely. The main reason for the challenges of conceptual learning in fraction teaching is that teachers move on to numerical notation and operations without making students grasp the important conceptual elements of fractions (Van De Walle, 2012). The amount represented by the fraction is related to the reference whole, the division into equal parts in fractions, fraction comparisons, inability to determine the unit in compound fractions, incorrect sums of fractions, and the fact that they are not related to the effect of multiplication and division by fractions on numbers cause the knowledge of fractions to be superficial. Therefore, since it is difficult to understand and deepen the concept of fractions, it becomes challenging to use them flexibly and practically (Van De Walle, 2012). This can explain why students cannot reveal their fractional number sense because they have not yet mastered and deepened that knowledge. Students do not have difficulty understanding and applying fractional information, but they cannot use number sense because they are not encouraged to rearrange and interpret it. Yang (2005) also states that organizing in-class activities to do and deepen math contributes to the development of number sense.

In conclusion, each student has number sense in terms of at least one component (equivalent representation). However, this is insufficient. Classroom activities help students deepen conceptual learning and use number sense. Each material and method used by teachers affects number sense. It is helpful to use components to define number sense, but each contains superficial and intense questions. Components also have levels. While the equivalent representation is adequate to express superficial number sense, the operation effect requires intensive number sense.

Students with high academic performance have low number sense. Therefore, researchers should look into the effectiveness of education programs in the development of fractional number sense. Insufficient number sense is associated with learning environments. Therefore, teachers should be provided with in-service training to help them develop and evaluate fractional number sense to achieve more effective results. Further studies should be conducted to examine the relationships between number sense components for the leveling result obtained for the definition of number sense or fractional number sense to help students understand the concept better and what they need to pay attention to in classroom activities.

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Complaint Responses in Business Emails: An Interlanguage Pragmatic Study of Thai EFL Learners

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Abstract
The study's primary objective is to investigate how Thai EFL (English as a Foreign Language) learners use politeness and complaint response strategies similarly or differently in email communication. Email data are collected from 30 male and 30 female Thai EFL learners. The learners' complaint response strategies for handling complaints include gratitude, apology, explanation, offer, appeal, and guarantee. The study shows that complaint response strategies differ among Thai male and female EFL learners. Compared to the female group, the male group uses the offer and appeal complaint response strategies more frequently. More often than the male group, the female group opts for the complaint response strategy of guarantee. Additionally, the chi-square analysis reveals that the use of the politeness strategy of the hedge is significantly different between the male and female Thai EFL learners with varying levels of English proficiency. The employment of the indirect politeness strategy is another crucial difference between male and female students in the high group. However, there is no significant difference in how male and female English language learners with high and low competence levels utilize the direct politeness strategy.

Keywords: Complaint Response Strategies, Interlanguage Pragmatics, Politeness Strategies

1. Introduction

Many recent graduates work in service industries, such as hotels, airlines, and travel companies. In business sectors, service providers must always deliver outstanding services to their consumers. In service interactions, the client is always right. Service providers are subordinates with less authority than clients or service recipients (Leelaharattanarak, 2016, p.131). Socioprofessionally, business representatives are supposed to service the customers' needs and ensure their satisfaction (King, 1995).

Not every customer is pleased with the services. When client expectations are not satisfied, there are numerous complaints. A business representative or service provider is responsible for assisting consumers with problem resolution. Customers can lodge complaints with service providers via face-to-face interaction, telephone calls, letters, or emails. Therefore, service providers must have effective communication and interpersonal skills to respond to complaints with graciousness and an enticing resolution. Responding to client concerns requires good

manners, appropriate gestures, and courteous language. Inappropriately responding to complaints can result in conflict, a breakdown in communication, and ruin social relationships and a company's reputation.

Emails are often used for business communication because they are free and instantaneous; recipients receive an email as soon as they log on to the Internet and retrieve the message. Attaching photos, documents, and other things to an email makes it possible to provide additional information. Besides, emails can be sent to more than one recipient. Customers frequently use email to lodge complaints. Then, service providers are required to respond to complaints by email.

Pragmatic strategies such as complaint response strategies and politeness strategies can be employed to reply to complaints. Previous studies in interlanguage pragmatics investigating how language learners do speech actions have revealed discrepancies in the complaint-response strategies used by male and female language learners. Sulastri (2014) analysed the complaint replies of Indonesian EFL students and found that female students were less likely than their male counterparts to accept responsibility when responding to complaints. Pin-ngern (2015) investigated how Thai EFL students reacted to unsatisfactory situations in university contexts. She found that both male and female students demonstrated responsibility by accepting the facts and valued an explicit demonstration of apology.

Studies on complaint responses are under-researched in interlanguage pragmatics (Li and Suleiman 2017). Not many studies investigate strategies used in complaint responses in business contexts by Thai learners EFL learners. There is currently only one study on replies to complaints by Thai EFL learners in the hotel industry, conducted by Prachanant (2006), which revealed the complaint response strategies employed by Thai and English native speakers as well as Thai EFL learners. However, there is a shortage of information regarding the politeness and complaint response strategies utilized by male and female learners of different levels of English proficiency when responding to complaints by email.

This study intends to fill in research gaps and investigate if Thai EFL learners of different genders and English proficiency levels respond to complaints similarly or differently in terms of the selection of complaint response strategies and politeness strategies. Both theoretical and practical implications result from this study. Theoretically, it reveals how male and female Thai EFL students of levels of English ability employ complaint response strategies and politeness strategies. In addition, the results of this study expand the interlanguage pragmatics field by examining the email communication strategies adopted by Thai EFL learners. Different complaint response strategies and politeness strategies can be taught to students in both English language classes, particularly in business settings.

2. Literature Review

The literature review focuses on complaint responses, strategies used in email communication, gender differences, and politeness.

2.1 Complaint Responses

A statement does not merely describe a situation or mention some facts; it also carries out a specific activity. Austin (1975, p.2) notes that the statement is more than a description and an idea; it carries out actions independently. "The food tastes terrible." can be used to show dissatisfaction, show irony, or give information, depending on the situation. Suppose the utterance "The food tastes terrible." is considered a complaint. In that case, the complaint response may be uttered straightforwardly, as in "I apologize, it was my responsibility," or indirectly, as in "Would you kindly forgive me?" In the first utterance, the explicit performative verb "apologize" is used as an action verb, but in the second utterance, an indirect request is made.

Previous research on cross-cultural pragmatics, such as complaint responses, has uncovered the linguistic strategies used in complaint responses. Complaint responses on a Jordanian radio call-in show attempted to negotiate unity with other callers by urging them to speak freely and using empathetic words (Migdadi et al. 2012).

The likelihood of face-threatening actions can be reduced by utilizing respectful strategies. For instance, devices with strong influence primarily aim to promote unity. In addition, several rapport-building strategies, such as praising remarks, invitations for friendship, informal address forms, and hilarious statements, can be utilized to encourage complaint replies to work towards a successful problem resolution when responding to complaints. When adopting politeness strategies, diverse cultures are often characterized by either directness or indirectness. Different forms and functions may be influenced by language and culture when researching the speech acts employed by people from various civilizations. Gumperz (1982, p. 12) says that the way speech acts are performed shows how important what he calls "cultural assumptions" or "contextual presuppositions" is in understanding and interpreting speech acts in communication.

Prachanant (2006) researched complaint responses in the hotel industry in Thai contexts and identified the three most often utilized strategies among Thai EFL learners with low and high levels of English proficiency. The three strategies were, in order, "Offering repair," "Expression of apology," and "Acceptance of responsibility." In addition, there were both similarities and variations between the pragmatic strategies utilized in each circumstance. The study results indicate that responses to complaints used by Thai EFL learners with low and high proficiency levels contained elements that could result in pragmatic failure when interacting with native English speakers due to cultural differences in how responses to complaints are performed.

Sulastri (2014) researched complaint response strategies used by male and female Indonesian EFL learners when investigating gender differences in responding to complaints. Sulastri claimed that the male and female students behaved differently to the allegations when they refused to take responsibility. Female students refused to accept responsibility more frequently than male students.

According to Sulastri (2014), Migdadi (2012) and Prachanant (2006), respectful strategies, rapport-building strategies, giving repair, expression of apology, and admission of responsibility can be used to respond to complaints. Language learners should take precautions when communicating, and inappropriate complaint responses may lead to a pragmatic failure to communicate cross-culturally.

2.2 Strategies Used in Email Communication

Interlanguage pragmatics research reveals the employment of strategies used in email communication. Biesenbach-Lucas (2007) examined Turkish EFL learners' emails to faculty. They identified the following: a) direct strategies rather than indirect strategies, b) overuse of direct questions and 'want' statements, c) underuse of query preparatory questions, d) insufficient mitigation causing directness and impoliteness, and e) inappropriate greetings and closing statements affecting the degree of direction. Biesenbach-Lucas concluded that most emails sent to authorities in the case "from students to academics" were sent directly. In other words, learners appeared incompatible with their status and impolite.

Burgucu-Tazegül & Engin (2016) analyzed the English request emails of Turkish EFL university students to their non-native professors and concluded that direct email languages were unpleasant and had a high degree of directness that led to pragmatic failure. Learners tended to disregard the degree of direction and employ minimal mitigation, resulting in unpleasant and direct email writing.

According to Economidou-Kogetsidis (2011), Greek Cypriot university students (non-native English speakers) exhibited a high degree of directness in their email inquiries to faculty members (particularly concerning requests for information). There was no evidence of lexical or phrasal downgrades. Other than that, there were no welcomes and farewells. Typically, students used improper or undesirable forms of address. In addition, the politeness marker "please" was revealed to be the most often utilized mitigator. Economidou-Kogetsidis asserted that the students used a variety of intensifiers and upgrades to emphasize the urgency and coerciveness of their requests. However, Faerch and Kasper (1989) claimed that learners' ultimate preference for the marker 'please' could be explained by its dual function as an illocutionary force indicator and mitigator; thus, students used it both to appear nice and to persuade professors to respond.

2.3 Gender Difference

According to various empirical investigations, the concept of gender and languages has been applied. When it comes to women's speech, the dominance theory offers a conventionally negative assessment. Social inequities between men and women can be linked to men's conversational control over women, which appears to mirror a more significant political and cultural domination of men over women in society (Freeman & McElhinny, 1996, p.232). According to Lakoff (1975, 2004), a woman's unique way of speaking reflects her standing as a "subordinate" in society. Since women's language is loaded with qualifiers and mitigators, it effectively disqualifies them from positions of authority due to their inherent feeling of powerlessness and uncertainty.

The difference theory responds to Lakoff's (1975) dominance theory. In this idea, biological variations and psychological differences play a role in the varied speeds of language acquisition (e.g., Buffery & Gray, 1972; McGlone, 1980). Connecting with others is a priority for women, while men tend to focus more on the interdependencies between individuals (e.g., Chodorow, 1974; Gilligan, 1982). Conversely, men place higher importance on independence, detachment, self-reliance, and a greater emphasis on power structures.

In Thai society, Thai women play a significant role and have a high prestige since Thai women are often highly educated and hold prominent positions in the public sector (Jitpaisarnwattana, 2018, p.57). Males in Thailand hold top-paying jobs and leadership positions with their country's high status. Women and men have the same legal work, but the inequalities in social status are rather noticeable in practice. Femininity is a societal construct in which women are viewed as caretakers (Panyametheekul & Herring, 2007). Males, on the other hand, are considered the family's head. They are also supposed to provide for the needs of women, both materially and emotionally.

2.4 Politeness

In pragmatic studies, the concept of politeness has taken centre stage. There are two basic approaches to politeness: norm-based and strategy-based. According to Fraser (1990), the social norm approach to politeness is based on the premise that every civilization has a unique set of social norms consisting of more or less explicit rules that prescribe a specific behaviour, a state of affairs, or a way of thinking in a context. In the social norm approach, Nwoye (1992, p. 12) says that being polite comes from being aware of one's social obligations to the other members of the group. Politeness is also defined by two characteristics, according to the social norm view of politeness: exhibiting deference and respect for the social rank of others. By protecting others from unpleasant intrusions, recognizing taboos and unfavourable issues, and preserving others' personal space, moral components and decency are concerned with reducing or avoiding territorial encroachment

Leech's maxims and Brown and Levinson's politeness strategies are among the strategy-based approaches. Leech (1983) provides a finer differentiation within his politeness principles. According to Leech's definition of politeness, what is courteous for one person may not be polite for another, and vice versa. Each of these maxims has its own set of rules that must be followed by the listener in order to determine what level of maxim is appropriate for a certain speech scenario, according to him. The six maxims are (1) Tact Maxim, (2) Generosity Maxim, (3) Approbation Maxim, (4) Modesty Maxim, (5) Agreement Maxim, and (6) Sympathy Maxim.

Among approaches to the study of linguistic politeness (Leech 1983; Brown and Levinson, 1987), Brown & Levinson's has been the most influential. Brown & Levinson (1978, 1987) suggest five politeness strategies. They are (1) "Do the face threatening act (FTA) baldly with no redressive action," (2) "Do the FTA with redressive action with positive politeness strategies," (3) "Do the FTA with redressive action with negative politeness strategy," (4) "Go off-record," and (5) "Don't do the FTA."

3. Research Methodology

This section discusses the research methodology that was used in this study. First, I'll go over the populations and samples. Then, data gathering, and analysis are discussed.

3.1 Populations and Samples

For this study, the populations and samples were all Thai EFL learners. The research ethics committee at Chiang Mai University has approved the project to collect data from participants. The undergraduate students at Chiang Mai University who are learning English as a foreign language are from different majors and faculties. All of them have already received their TOEIC test scores. The TOEIC (Test of English for International Communication) results separated the Thai EFL students into two groups. They were categorized into a high group (scores of 945 or higher) and a low group (scores of 225 or lower) based on Wylie and Tannenbaum's (2006) study of the TOEIC scores to the Common European Framework of Reference (CEFR). Male and female undergraduate students comprised the majority of the 30 participants in each group, between the ages of 19 and 21. The populations and samples can be summarized as follows:

Table 1: Populations and Samples

Populations	**The Target Populations**			**Numbers of Participants**	
				Male	**Female**
Thai EFL learners	1.1 Thai EFL learners with high proficiency in English (H)	Undergraduate students from different majors at Chiang Mai University	TOEIC scores of 945 or higher	15 M-H	15 F-H
	1.2 Thai EFL learners with low proficiency in English (L)		TOEIC scores of 225 or lower	15 M-L	15 F-L

3.2 The Research Instrument

In this study, information was gathered through the use of email. Emails submitted by Thai EFL students were used to elicit complaint responses and politeness strategies. Emails have replaced face-to-face communication as the preferred method of communication for many people around the world (Biesenbach-Lucas, 2007). According to Ko (2013, p. 25-28), emails are complicated since they include patterns, organizations, and various components, such as the introduction (small talk), the body (the main content), and the conclusion (the end).

In designing the scenarios to elicit complaint responses, I surveyed the situations the questionnaire respondents considered severe, moderate, and mild conditions. The survey showed the most severe were unpleasant staff, the moderate situation was a delay in the delivery of the product, and the mild situation was after-wash discoloured clothes. These three scenarios were used for data collection.

3.3 Data Collection Procedures

Before the procedure of writing emails, the research project was approved by the Chiang Mai University Research Ethic Committee to collect data from human subjects. In the process of data collection, the information sheets giving general information about the study and consent forms were first given to undergraduate students to assist them in the decision-making process of participating in this study. Those who signed the consent form were regarded as the participants of this study.

To start data collection, the participants had to sit in a computer room. Then, I distributed the task of writing complaint response emails to the participants to read carefully and introduced the three situations via PowerPoint presentation. The participants were not informed about the severity of the situation to avoid awareness of levels of imposition. The participants were allowed to ask the researcher questions when they did not understand the three situations.

When it was time to write emails, the participants received three complaint emails from the researcher. Next, they had to respond to complaints via email without time constraints. The researcher did not give hints or clues and helped the participants write complaint response emails. The participants were allowed to use pseudonyms to preserve anonymity and confidentiality and ensure that the data they provided could not be traced back to them in reports, presentations, and other forms of dissemination. After they had finished writing complaint response emails, they submitted their emails to the researcher. Their complaint response emails were used for the analysis.

3.4 Data Analysis

This section discusses how the data was analysed. The first sub-section focuses on data analysis for complaint response strategies and politeness strategies. In the second section, I look at the data to see how male and female Thai EFL learners with different levels of English use similar and different strategies.

3.4.1 Complaint Response Strategies and Politeness Strategies

I analysed complaint response strategies and politeness strategies used by EFL learners both quantitatively and qualitatively. Regarding the quantitative dimension, frequency and percentage analysis were adopted in the investigation of the occurrences of complaint response and politeness strategies used by the participants. The frequency of each strategy found in each category was counted and then converted into a percentage. The qualitative analysis examined how male and female EFL learners with different levels of English used the same or different strategies to respond to complaints in severe, moderate, and mild situations through email.

The complaint response strategies were coded based on the complaint speech act coding scheme adapted from the studies of Prachanant (2006) and Sulastri (2014). The politeness strategies were adapted from Brown and Levinson's strategies (1987). Prachanant's (2006) strategies showed that in responding to complaints, strategies such as offering repair, expression of apology, acknowledgment of responsibility, explanation, and empathy could be used. Sulastri (2014) claimed that the usage of accepting and refusing responsibilities were complaint response strategies. The politeness strategies proposed by Brown and Levinson (1987) indicated strategies such as being conventionally indirect and using hedges and hints to soften or strengthen the imposition of speech acts. Considering the methods used in other studies, I have come up with the following coding scheme for my own:

Complaint response strategies

1. An apology is a regretful acknowledgment of complaints.
2. An explanation justifies why service providers should accept or refuse responsibilities.
3. An appeal refers to appealing for information or help.
4. An offer includes expressing sympathy, resolving problems, and establishing goodwill.
5. A guarantee is a promise that something will be done or will happen to solve the problem.

Politeness strategies

1. Direct means saying utterances without vagueness.
2. Hedge refers to conveying uncertainty or doubt.
3. Indirect means leaving phrases, half-statements, or inferences open to interpretation. It also means being traditionally indirect or using precise meanings different from their literal meanings.

Table 2: Complaint Response Strategies and Politeness Strategies

Complaint Response Strategies and Politeness Strategies

Complaint Response Strategies	Politeness Strategies	Examples of Linguistic Realizations
Apology	direct	I'm sorry.
	hedge	We would be very grateful if you could possibly accept our apology.
	indirect	May I apologize for this inconvenience?
Explanation	direct	It is not the company's policy to give you a full refund.
	hedge	It seems that the mistake was caused by you.
	indirect	This damage cost our company an arm and a leg.
Appeal	direct	I want you to send the damaged goods back as soon as possible.
	hedge	Is it possible that you could wait for the new consignment for approximately two weeks?
	indirect	Can you be responsible for your own expenses?
Offer	direct	We will give you full compensation.
	hedge	We were wondering if we could offer you a special promotion.
	indirect	Would you like to get a 5% discount for your future purchase?
Guarantee	direct	I guarantee that you will have a pleasant moment when you visit us.
	hedge	I feel that I can guarantee you the finest service.
	indirect	Can I assure you that you won't regret it in the future?

For my descriptive statistical analysis to yield consistency and reliability, I recounted the complaint response strategies and politeness strategies used by every participant in each situation. I rechecked the frequencies and percentages at two different times, and the frequencies and percentages were compared. If there were some differences, the frequencies and percentages would be rechecked. To verify the validity of the complaint response strategy and politeness strategy coding, two lecturers who teach pragmatics will validate my coding of the strategies.

3.4.2 Similarities and Differences in Male and Female Strategies

The frequency of the participants' strategy choices was used with the chi-square analysis to investigate how male and female Thai EFL learners with high and low proficiency levels respond to complaints similarly or differently regarding complaint response and politeness strategy choices. It is a non-parametric test that is conducted to determine whether there are any statistically significant differences between male and female learners with different levels of English proficiency in strategies used in responding to the complaints. For concluding Chi-square results with 95% confidence, the value labelled two-sided asymptotic significance should be less than .05,

the alpha level associated with a 95% confidence level (Salkind 2016, p.303). Suppose the two-sided asymptotic significance is more remarkable than .05. In that case, it can be referred that there is genuinely no relationship among the variables because there are some similarities in terms of the strategies realized by the participants.

4. Results

The study findings include the similarities and variations in complaint response strategies and politeness strategies employed by male and female Thai EFL learners with varying levels of English proficiency.

4.1 Strategy Use

The Thai EFL learners used six complaint response strategies—gratitude, apologies, explanation, offer, appeal, and guarantee—when responding to complaints. Compared to the female group, which used 138 complaint response strategies, the male group chose 170 complaint response strategies. The data in Table 3 below represents the frequency of complaint response strategies and their corresponding percentages.

Table 3: Frequency and Percentages of Complaint Response Strategies

Complaint response strategies	**Gratitude**	**Apology**	**Explanation**	**Offer**	**Appeal**	**Guarantee**	**Total**
Male	17 (10%)	47 (27.65%)	44 (25.88%)	42 (24.70%)	15 (10%)	3 (1.77%)	170 (100%)
Female	14 (10.15%)	41 (29.72%)	36 (26.09%)	25 (18.11%)	7 (5.07%)	15 (10.86%)	138 (100%)

Male and female complaint response strategies have certain similarities and differences. The following sub-sections first discuss the similarities before moving on to the differences.

4.1.1 Similarities

One empirical observation was the utilization of the complaint response strategies of gratitude, apology, and explanation. The male and female numbers for those three strategies were not quite different, as seen in Table 3. Regarding the complaint response strategy of gratitude, men utilized it at 10 percent, while women employed it at a frequency of 10.15 percent. Additionally, both the male and female groups used the apology-based complaint response strategy, with 27.65 percent of the male group and 29.72 percent of the female group using it, respectively. One key component might be the complaint response strategy of explanation. The male and female groups' percentages—25.88 for the male group and 26.09 for the female group—were remarkably close. The following examples illustrate the application of complaint response strategies. M and F respectively represent male and female. The numbers represent the number of participants. The italicized wording highlights the complaint response strategies that can be found in the emails. The complaint responses of Thai EFL students presented in the given examples were actual data that had not been grammatically corrected.

Example (1) Situation: delayed product delivery
Thank you for your email of March 25, 2021. We have received and investigated the issue on the delayed product. We discovered that there is something wrong with the delivery system. We have to apologize you sincerely regarding the matter. (M10)

Example (2) Situation: staff lacking a service mindset
Thank you for your email of 30 March 2021 regarding the improper and unsatisfying customer service. We did the investigation. We, World Seafood, feel very sorry and would like to apologize about the bad experience with our restaurant. It's our mistake that our staff were not trained properly enough. (F6)

In examples (1) and (2), the M10 responded to the complaints regarding the delayed product delivery, and the F6 responded to the complaints when the service at the restaurant was unsatisfying by selecting the complaint response strategies of gratitude, apology, and explanation. M10 and F6 started their email with a statement of thanks showing the receipt of the complaint in "Thank you for your email." When the complaints arose, both M10 and F6 opted for the complaint response strategy of apology. The M10 used the phrase 'have to' with his apology: "We have to apologize to you sincerely regarding the matter.". At the same time, the F6 expressed how she felt and selected the phrase 'would like to with her apology in "We, World Seafood, feel very sorry and would like to apologize about the bad experience with our restaurant." The complaint response strategy of explanation emerged from both M10 and F6, giving justification what was happening and why the problem occurred. For example, M10 proposed something wrong with the delivery system, and F6 mentioned that the staff was not trained properly.

4.1.2 Differences

The male and female students' realizations of their complaint-response strategies were different. The use of the guarantee, offer, and appeal complaint response procedures showed notable differences, as shown in Table 3. The male group used fewer guaranteed strategies than the female group did. In 1.77 percent of cases, the guarantee complaint response strategy was used, whereas females used it 10.86 percent more often than the male group. Consider the following instances:

Example (3) Situation: staff lacking a service mindset
We are guarantee that our new waiters and waitresses are well-trained and willing to give the best services. Please come to our restaurant again and you will not regret. We hope to hear from you again. Let us take care of you again next time, you will not be disappointed anymore. (F3)

Example (4) Situation: delayed product delivery
I have already received all of customers' complaints and would like to say officially sorry to all customers. I'll take full responsibility for all mistakes. Most importantly, I ensure that the same event won't happen again. (F6)

Example (5) Situation: staff lacking a service mindset
We offer great promotion right now. Every menu is 50% off. I promise we will smile more. Please come back and be happy! (F13)

In cases (3) to (5), women appeared to care about clients' feelings when responding to complaints. Women seemed to place a strong emphasis on cooperation, relationships, and peace, also known as a "care ethic" (Serva, 2017). In (3), the F3 employed the performative verb "guarantee" to express assurance that waiters and waitresses will deliver exceptional service to customers in the restaurant. In (4), when the product delivery was delayed, the F6 was intended to guarantee or ensure that the same issue would not reoccur. In (5), the F13 promised that the restaurant's staff would smile and be willing to welcome customers when there was a problem with the team lacking a service mindset. In examples (3) to (5), the women showed how important it is for customers to get along with each other and said they wanted to give good service to customers in the future.

When the complaint response strategy of the offer was chosen, there was yet another apparent distinction between the male and female groups in utilizing this strategy. The male group used the offer complaint response strategy 24.70 percent of the time, compared to the female group's 18.11 percent. Below are some instances of strategy choices:

Example (6) Situation: after-wash discoloured clothes
If you feel that this situation is bothering you, I will be grateful to send you the scientific proof and information about this shirt and its reaction towards chemical detergent. Please feel free to contact us for more information. We will do anything we can satisfy your experience. (M3)

Example (7) Situation: staff lacking a service mindset

As an apology, we will give you a voucher which has 2,000 US dollars for use in our restaurant. If you wouldn't mind, please accept this gift as our apology. (M10)

In Examples (6) and (7), M3 and M10 used the complaint response strategies of an offer to reply to complaints. The M3 reacted to the customer's complaint that the shirt's color had faded by stating, "We will do anything we can to satisfy your experience." In (4), when the restaurant staff lacked a service attitude, the M10 issued a $2,000 restaurant voucher with the expression "We will give you a voucher which has 2,000 US dollars for use in our restaurant." As the modal verb 'will' is used in both (6) and (7), both are future offers. According to the notion of separate gender roles, men are primarily responsible for providing support (Van de Vijver, 2007, p.814). Men tended to be more inclined to make offers than women.

The employment of the complaint response strategy of appeal was the other distinction. The male group appeared to encourage clients to take action by sending emails in response to complaints. The male group chose the appeal strategy with a percentage of 10% and the female group with a percentage of 5.07%. Examples (8) and (9) provide the application of the complaint response strategy of appeal.

Example (8) Situation: delayed product delivery
We have two options for you. First, your products will be sent at two different times. Five laptops will be sent to you this week and the rest of them will be sent to you in the next seven days. Second, you will get 30% discount if you agree to wait for 10 laptops for more seven days. Write an email back to let us know your decision. (M14)

Example (9) Situation: delayed product delivery
We collaborated with the shipping company. It is recommended you wait for a few more days. I have to apologize to you again, but we are capable of only 50% of the cost to customers. (M11)

In cases (8) and (9), the product delivery was delayed. When reacting to the complaints, M14 and M11 urged customers to take action. In (8), the M14 used the imperative form "Write an email to let us know your decision." to request a response from the customer. In (9), the M11 asked the customer to wait a few additional days for the merchandise to arrive in "It is recommended you wait for a few more days.". It can be observed that men tend to convince others to do something. According to Serva (2017) and Jitpaisarnwattana (2018), men occupy the leadership position and are viewed as the head of the household. In responding to complaints, men appeared to appeal to clients to do something.

4.1.3 Politeness Strategies and Investigated Variables

The use of Thai EFL learners' strategies for responding to complaints via email seems to be significantly influenced by levels of English ability. The chi-square analysis findings are shown in the table below. There are similarities and contrasts in the politeness strategies employed by Thai male and female language learners at various levels of English competence.

Table 4: Chi-Square Analysis Results

Politeness strategies	**Male and Female (high group)**		**Male and Female (low group)**	
	Value	Asymptotic Significance (2-sided)	Value	Asymptotic Significance (2-sided)
Direct	2.584	0.108	2.069	0.150
hedge	12.374	**0.002**	17.104	**0.000**
indirect	6.667	**0.010**	2.009	0.156

The chi-square analysis revealed that male and female learners with high and low levels of English proficiency did not differ significantly in their usage of the direct politeness strategy. Two-sided asymptotic significance for the high group was 0.108, whereas, for the low group, it was 0.150. That means that any number greater than 0.05

indicated a difference that was not statistically significant. The low group is represented by the letter L, while the high group is represented by the alphabet H. Take a look at the following instances:

Example (10) Situation: after-wash discoloured clothes
We apologize for the happened problem, and we confirm that our beloved customer will be happy with our service in the future. (ML11)

Example (11) Situation: staff lacking a service mindset
We do apologize for all unimpressive behaviour, and we will take the blame for our workers. We will improve our service and look after the disgraceful behaviours. (MH1)

Example (12) Situation: discoloration of clothing after wash
Since you had confirmed to buy our clothes, you had already accepted the condition informed in the document. We cannot take the responsibility on your problem. (FH7)

Example (13) Situation: delayed product delivery
The choices are yours, take your time. Do not hesitate to contact me. I will wait here. (FL10)

In examples (10) to (13), there was no significant difference between males and females from the high and low groups in their use of direct politeness strategy. In (10), the ML11 responded to the complaint about the stained garment with the performative verbs "apologize" and "confirm." Similarly, MH 1 responded precisely, 'We do apologize.' The strategy was used without ambiguity when workers lacked a service attitude (11). The FH7 in (12) responded to the complaint regarding her shirt's colour fading. She did not redress her complaint responses to mitigate the face-threatening nature of her affirmative and negative forms in "We cannot take the responsibility on your problem." In (13), when there was a delay in product delivery, the FL10 was straightforward by using the imperative forms in "Take your time." and "Do not hesitate to call me." in response to the complaint.

The findings of the chi-square tests in Table 4 indicated that male and female learners with high and low levels of English proficiency differed significantly in their usage of indirect and hedge politeness strategies. The correlations among gender, English proficiency levels, and the usage of hedge politeness strategy were observed with a p-value of 0.002 for the high group and a p-value of 0.000 for the low group. The following examples illustrate how male and female Thai EFL learners use indirect and hedge politeness strategies differently.

Example (14) Situation: staff lacking a service mindset
I was wondering that it might be our best pleasure if you could give us another opportunity to give you our better service. (FH7)

Example (15) Situation: delayed product delivery
I really apologize that cannot fulfil your 100% refund request. Perhaps, we can give you 50% of that by our rules and deals. (FL12)

Example (16) Situation: staff lacking a service mindset
For our apology, we give you a 50 percent discount on the next bill. I thank for your comments. (ML8)

Example (17) Situation: delayed product delivery
We apologize for this matter. To show our good will, we give you 5% discount for your next order. Please do not hesitate to contact our manager for details. (MH14)

When males and females from the high and low groups replied to complaints, females employed the politeness strategy of hedging differently from the male groups. In (14), the FH7 asked the customer for a chance to provide better service in the future, as the client was unhappy with the restaurant staff's lack of a service mindset. For her hedging, the FH7 wrote "I was wondering..." and used the modal verb "it might..." and if-construction "if you could...". In (15), the FL12 employed the politeness strategy of hedging with the adverb 'really' to respond to the

complaint, as shown in: 'I really apologize that I cannot fulfil your 100% refund request.' The FL12 also used the politeness strategy of hedging with the adverb 'perhaps' and the modal verb 'can' in "Perhaps, we can give you 50% of that by our rules and deals" as a response to the complaint about the delayed delivery of the product. In contrast, male counterparts in the high and low groups tended not to choose the politeness strategy of hedging. Their complaint responses appeared straightforward without mitigating action to minimize face-threatening acts. The ML8 reacted to the complaint in (16) as shown: 'For our apology, we will give you a 50 percent discount on the next bill. Thank you for your comments when restaurant workers lacked a service-oriented mindset. The ML8 only used affirmative phrases devoid of adverbs and modal verbs. In the responses to complaints about late product delivery, the MH14 in (17) chose positive words and the imperative form with the polite word "please." In responding to the complaints, the politeness strategy of hedge employed by the female groups appeared to be softeners (Crystal & Davy, 1975), weakeners (Brown and Levinson, 1978, 1987), and downgrades (House & Kasper, 1981).

According to statistical analysis in Table 4, indirect politeness was used differently by men and women from the high group when responding to complaints. With a p-value of 0.010 for the high group, the relationships between gender, English proficiency levels, and the use of the hedge politeness strategy were revealed. Consider the following examples:

Example (18) Situation: staff lacking a service mindset
After I received a lot of complaints, I would like to beg for a chance. Can you please delete the blog showing bad comments about our restaurant? I will give you a full free course at our restaurant. Thanks in advance. (FH13)

Example (19) Situation: delayed product delivery
For the request regarding the full refund, we must inform you that our company can only refund back 50% due to the sales policy. Could you please inform us which solution suits your company the most? (FH4)

Example (20) Situation: delayed product delivery
I will coordinate with the related departments to quicker the shipment. However, let me know if you insist to make a refund. I will do everything to help you. (MH6)

The indirect politeness strategy applied by male and female learners of the high group differed significantly. When employees lacked service awareness, the FH 13 in (18) responded to the complaint by selecting a question form to appeal to the customer to delete the blog containing negative comments about the restaurant in "Can you please delete the blog showing bad comments about our restaurant?" The modal verb 'can' and the politeness marker 'please' were selected. In response to the complaint, the question form was utilized to make a request rather than to ask the question. The FH4 in (19) used a question form in her response to the complaint, although she did not intend to ask a question. She utilized the question form to politely request that the customer inform the company about the desired solution: "Could you please inform us which solution suits your company the most?" The use of a question to appeal to the consumer is a polite way to avoid forcing the customer to perform a specific action or imposing it on the customer's face. In contrast, the male students in the high-ability group did not use indirect politeness. Men tended to respond directly to complaints, as in (20). Usually, imperative, and affirmative forms are used by the male group.

4.1.4 Complaint responses and different levels of imposition

The choice of politeness strategy among Thai EFL learners appeared to be influenced by various degrees of imposition. Table 5 shows that the number of strategies used in severe, moderate, and mild scenarios was different.

Table 5: Politeness Strategy Frequency at Various Levels of Imposition

Different levels of imposition	Direct	Hedge	Indirect	Total
Severe	132	40	20	192
Moderate	120	24	21	165
Mild	125	10	8	143

In the severe situation, direct and hedging politeness strategies were used more frequently than in moderate and mild situations. It was evident that fewer indirect and hedging politeness strategies were used in the mild condition than in the moderate and severe ones. One possible conclusion is that when the severity of the situation is high, politeness strategies can be used to lessen the seriousness of threatening acts, whereas, in mild situations, fewer politeness strategies are utilized. The results of this study back up the idea (Leech, 1983; Brown and Levinson, 1987; Chiravate, 2019) that the level of imposition affects the choice of politeness strategies. In business settings, it is essential to communicate in a way that upholds a positive face while sustaining a negative face to maintain goodwill between service providers and customers. Using politeness strategies in email correspondence is beneficial for reasons of solidarity and to avoid getting intrusive with clients.

5. Discussion

In business settings, business representatives or service providers are inferiors with less authority than clients or recipients of services. Business representatives are expected to meet the needs and satisfy customers' desires in a socially responsible manner. As a result, there will likely be an unequal connection between care providers and service recipients. Business representatives must be concerned about how they interact with their clients; they must carefully address their issues and avoid directly confronting them. Company representatives or service providers should employ complaint response strategies like gratitude, apology, and explanation when problems emerge. The service providers seem to care about maintaining a good image and want to be liked and desired by their clients. By employing respectful and courteous strategies in the complaint response strategy, the likelihood of face-threatening acts can be decreased. The results of this study were in line with Prachanant's (2006) and Pin-ngern's (2015) studies, which found that Thai EFL learners with high and low English proficiency levels used apology-based complaint response strategies. In corporate settings, apologizing is likely to be seen as an essential strategy for demonstrating respect and politeness in response to complaints.

In table 3, male and female Thai EFL learners used the promise, offer, and appeal complaint response strategies differently in some situations. Possible explanations could be connected to the idea of gender differences. Compared to the male group, women tend to promise or guarantee more. According to Kleinknecht (2019, p.251), promises are made to build confidence, encourage collaboration, and enhance the recipients' expectations. This effect is particularly prominent for women since they place more trust in promises. Cooperation is frequently achieved in strategic encounters between people by placing trust in promises. For instance, Kleinknecht adds, it might be a promising strategy for all sides to send women to negotiate in corporate settings where establishing an informal agreement is of concern. Women tend to make commitments, so agreements between women seem to be the most binding. After making a promise to themselves, women can work to keep their end of the agreement.

Men are more likely than women to choose the complaint response strategies of offer and appeal. According to the study, men in Thailand hold leadership positions due to their high societal status. Males are thought of as the family's head, and they are also expected to provide for the emotional and material needs of women (Panyametheekul & Herring, 2007). Regarding the role of men in Thai society, it is likely that men tend to use the offer strategy to meet customers' needs when talking business. Another difference was the complaint response strategy of appeal used by the male group in contrast to the female group. The complaint response strategy of appeal was in line with Wood's (2005) claim that men use appeals because their main goal is to use language for practical purposes. The complaint response strategy of appeal may consider a necessary strategy employed to appeal for re-checking of the information verification; as a result, negotiating for a possible solution.

The politeness strategies used by male and female groups with diverse levels of English ability varied, as seen in Table 4. It was discovered that male and female Thai EFL students in the high and low groups used the politeness strategy of hedging differently. Females tended to use more hedges than the male group. Email writers may be able to use hedging tools to lessen the impact of threatening actions. What Lakoff (1973) asserts appears to be supported by the deployment of female hedges. Lakoff believed that the use of hedging in female speech denoted reluctance. The usage of hedges was in line with Holmes (2001) and Thongtong (2019), suggesting that the use of hedges is a trait specific to women. Because of their more significant social duty in the community, women appeared to be more respectful than men (Fitriani, 2016). Apart from that, the low group utilized fewer hedges in comparison to the high group.

There are possible explanations concerning the differences in the most frequently used politeness strategy choices between the high and low groups. First, due to their sufficient linguistic resources, the male and female learners from the high group possibly know how to make communication euphemistic, moderate, polite, and flexible, for example, with the use of hedge. The use of hedges was frequently found among learners with high English proficiency, supporting the Neary-Sundquist study (2013, p.149). The high group seemed to opt for more politeness strategies than the low group. The findings of this study of Thai EFL learners' strategy choices were precisely in line with the previous studies, as learners with a high level of English proficiency had more linguistic resources than learners with a low level of English proficiency (Byon, 2004). The low group employed fewer politeness strategies in performing speech acts because they did not have the necessary resources to do so (Takahashi and Beebe, 1987, 1993). Possibly, the low group opted for linguistic items and politeness strategies that they were familiar with to play it safe in communication.

The employment of the indirect politeness method is another notable variation among male and female EFL learners with a high degree of English proficiency. The indirect politeness strategy can be used to soften the imposition of complaint responses and being indirect lessens the likelihood of face-threatening conduct. This conventional indirectness can be seen as a mitigating tool by giving clients options rather than intruding on them directly through email correspondence. More often than the male group, the female group employed the indirect politeness strategy. According to Macaulay (2001, p. 293), since indirectness can be both courteous and provocative, women often choose different politeness strategies than men. Provocative forms are employed as an enabling strategy. In general, men are more authoritative, whereas women are more expressive, hesitant, and respectful in conversation (Basow & Rubenfield, 2003; Merchant, 2012). Men tend to be more assertive and direct in communication, seeing it as a tool to achieve goals like leadership or authority (Maltz & Borker, 1982).

6. Conclusion

This study attempts to investigate complaint response and politeness strategies utilized by Thai EFL learners concerning their different gender and different levels of English proficiency. Gender differences and English proficiency levels of language learners appeared to play a role in the selection of complaint response and politeness strategies. The findings of this study have implications for language instructors. First, students can gain from a continued focus on pragmatic comprehension. Authentic language samples can be used to practice pragmatic as well as linguistic expressions used by native English speakers. A dual emphasis on pragmatic and linguistic meaning will give students, especially low-level students, a more comprehensive understanding of English language use. Second, when teaching pragmatic ability, EFL teachers can focus on different areas of language use by using speech acts, pragmatic strategies, and politeness strategies.

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Education Services for Students during the Covid-19 Pandemic

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Abstract
The Corona Virus Disease 19 currently has disrupted all aspects of life, including education. The teachers and students have to adapt to the studying and learning process and how to serve students. This phenomenon is important and interesting to study. The research uses a qualitative case study method with data collection through observation, dialogical interviews, Focus Group Discussion, Participatory Decision Making, and documentation analysis. Informants are teachers represented from the fifth-grade elementary schools, both urban and rural areas, besides the principals, educational leaders, and practitioners in the District of Banyumas, the Province of Middle Java, Indonesia. The research analysis uses interactive analysis starting from data collection, data reduction, verification, and triangulation till the conclusion drawing. The results showed that teachers and students in research areas alike experienced technological disruption both in the educational process or services to students during the pandemic as an effect of the changing of studying learning methods from face-to-face to online. Another result found the use of digital media in the process of implementing and evaluating the studying learning process hurts boredom, lack of concentration on the lesson, and humanistic interaction with other students. In contrast, the result also found a positive impact such as interesting and innovative digital applications that can support the educational process during that pandemic. It is necessary to socialize, adapt, adopt innovation and increase competence for teachers and students, especially in the use of digital-based learning media and applications (online) including quality assurance of the education implementation and evaluation process.

Keywords: Education Services, School Students, Educational Media, Innovation Adoption, Covid-19 Pandemic

1. Introduction

The educational process during the Covid 19 pandemic in Indonesia, which began in early 2020, underwent a significant change, from face-to-face or offline (outside the internet network) between teachers or teachers and teaching participants or students to an online or online learning process (in a network). This is due to the increasing number of Covid-19 sufferers, not only in Indonesia but throughout the world. As data shown by the Indonesian Covid-19 Team (covid19.go.id) from March to July 2020 of 80 thousand cases. It jumped to 4.2 million in December 2021. All public activities and community mobilization are limited. Economic, social, religious activities (worship), tourism, and transportation including education were also affected. To support that effort the

government issued the policy of Large-Scale Social Restrictions with government policies that imposed several government regulations such as Government Regulation Number 21 of 2020 concerning Large-Scale Social Restrictions in the Context of Accelerating Handling of Covid-19 and Regulation of the Minister of Health Number 9 of 2020 concerning Guidelines for Scaled Social Restrictions. Big in the context of accelerating the acceleration of handling Covid 19. The two regulations are a form of elaboration and implementation of Law Number 6 of 2018 concerning Health Quarantine which also has legal consequences for violations.

Based on the researcher's preliminary study from the end of 2020 to the middle of 2021, particularly in the education process, the policy regarding the regulation of Large-Scale Social Restrictions and the Enforcement of Restrictions on Community Activities resulted in several major changes. Adaptation to conditions and situations during the educational process and students' services such as face-to-face to online digital media through google meetings, zoom meetings, or other e-learning media was necessary.

The learning atmosphere in the digital era must be balanced among access skills, quotas, and the quality of the network. The development of online digital media for learning must be increased not only during a pandemic, but it has to become a necessity and a challenge in the digital era as a form of E-Learning (Electronic Learning) process. An electronic learning system with computer and internet technology can support a learning process remotely without having to meet face-to-face between teachers and students (Amichai, 2009; Aviram & Dotan, 2009; Babbar & Gupta, 2022; Clark & Gibb, 2006; Greitzer, 2002; Michael, 2003; Schweizer, 2004; Suswanto et al. 2021).

The learning process with digital online media is a form of mass communication where the communication process uses electronic or print media that is uploaded and can be downloaded by all parties as long as has access and device. That has become a challenge and need for a lifestyle where contemporary culture in the media reflects the culture of the community. Media is a window of reality that expands perception and mirrors distorted events so that meaning changes because it is constructed by other people through that media itself. Then it developed to become a new media that used networks, access, and the internet that disrupted the pattern of life in all fields. It also cannot be separated from the internet world to become an internet society.

The new media era and the era of disruption have emphasized that electronic media expands perceptions (thoughts) in the context of the global village. Internet media is called cyberspace and it is intentionally created as Netizen-Computerization-Internet-Digital. The disruption era and innovator dilemma (interference from technology), gives a fundamental change from the old to a new system in various aspects of life. According to the technological or industrial revolution, the characteristics of the 4.0 industrial revolution emphasize the digital economy, artificial intelligence, big data, and robotics (disruptive innovation). The era of digital learning media with the existence of an electronic learning system (e-learning) and a Learning Management System on the website of educational institutions (Aquilar & Buonanno, 2019; Edwards & Magill, 2022; Jiang, 2022; Menke & Schwarzenegger, 2019; Picone, 2017).

The research on education and services to students during the Covid-19 pandemic towards the new normal era is strategic and important to evaluate material as well as a significant contribution, especially in the learning process as a challenge and need in the digital era. It is expected to contribute to effective and quality learning outcomes.

2. Research Method

This research uses qualitative research with case studies that deeply investigate the phenomena of reality where the interaction with the environment of a social unit such as individuals, institutions, communities, or society as the background (Bitektine, 2008; Hennings et al., 1996). The data on qualitative research methods were collected through observation, dialogue or interviews, brainstorming, Focus Group Discussion, Participatory Decision Making, and documentation analysis.

The informants are selected by purposive sampling technique, which is based on some consideration of the representation of a community and the research subject or informant can provide the information needed for

research. The research location considers the representation of public and private schools in urban and rural areas (two public elementary schools and two private elementary schools in urban and rural areas) in the District of Banyumas Regency, Central Java Province, Indonesia. Research informants were administrators of school foundations, principals, teachers as representatives of fifth-grade of elementary schools, educational leaders, and practitioners.

Research data analysis using interactive analysis: (1) Data reduction, which is the process of selecting, centralizing, simplifying, and classifying raw data that emerges from written notes in the field, which takes place continuously during the research. (2) Data presentation is a structured collection of information that gives the possibility of drawing conclusions and taking action. (3) Drawing conclusions or verification (Miles & Huberman 2019).

The process of research stages is designed to produce: (1) discovery and theory development; (2) Applied research & advanced research. This is an informative model from Havelock modified by Mardikanto and Soebiato (2013).

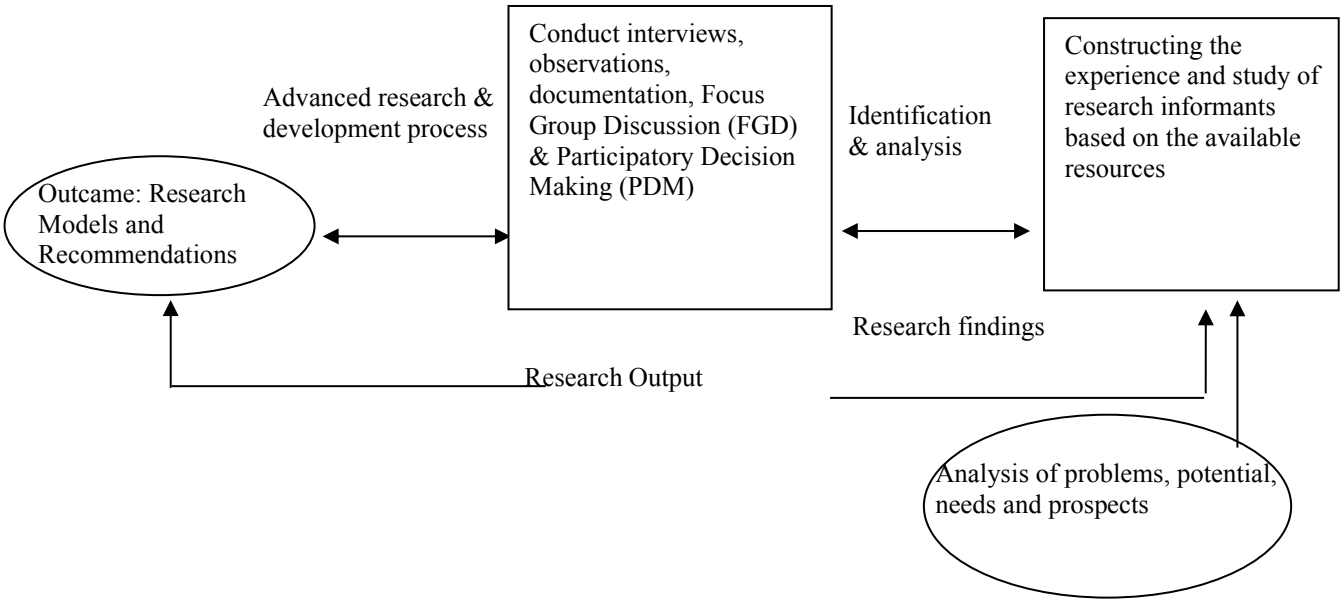

Figure 1: The Process of Implementing Research Activities

3. Results and Discussion

3.1. Educational Challenges in the Covid-19 Era

Based on the results of previous studies found a very important and strategic potential in the process of education and student services in the Covid-19 pandemic era, namely (1) the learning process from face to face between teachers and teaching participants by attending school (Offline) changed to indirectly learning process through online media. (2) The more flexible learning process schedule, is conducted directly online or synchronously (real-time through digital media such as google meetings, zoom meetings, chats, and video calls). While asynchronous or indirect online as a communication pattern that is delayed or can be delayed at a very flexible time through digital online media such as Websites or the World Wide Web, e-mail, forums, and read/write online documents through LMS or Learning Management System as a software application for online activities, electronic learning programs. (3) Learning media has become more diverse, especially through online digital media such as google meetings, zoom meetings, chats, and video calls, as well as the Learning Management System. (4) Learning media and services based on digital innovation media keep being used continuously as a complement to learning processes and media in the new normal era which are very innovative, creative, productive, and effective.

The barriers in distance learning programs such as feeling bored because there is no direct/face-to-face interaction, a lack of understanding of teaching materials, and delayed feedback of the questions and assignments given

without complete guidance about it. The distance education system requires an academic program in the form of face-to-face tutorial services to optimally help students in the process of learning (Chaney, 2009; Diwan & Dumblekar, 2000; Huebner & Wiener, 2001; Teenant et al., 2005). Based on the Regulation of the Minister of Education and Culture number 24 of 2012 concerning the Implementation of Distance Education in Higher Education, Article 1 (4) states that tutorials are a form of academic learning assistance that can be carried out face-to-face or through the use of information and communication technology device.

The development of the education system in the era of globalization and digitalization cannot be separated from web and internet-based technology media. However, face-to-face learning still has to be carried out with appropriate learning methods to achieve the objectives and expected outcomes besides motoric skills and behavioral attitudes changes. The tutorial method facilitates and motivates students to think, learn, observe, behave and carry out the goals of each course. Besides the student, the ability of the tutor to become a facilitator or teacher will determine the success of the tutorial method (Basak et al., 2018; Blonna & Shapiro, 2001; Chaney et al., 2009; Costarides, 2014; Mathew, 2014; Sulaiman). & Ahmadi, 2020).

Some important finding of the research is (1) Limited ownership of the device and online digital access due to economically disadvantaged and networks barrier, (2) Lack of ability to adopt online digital media innovations for e-learning of particular teachers and students, and (3) Support and assistance to the adaptation of digital technology in the learning process such as training and workshop is still necessary, (4) Undirect interaction between teachers and students in the learning process with the school environment create a saturation. Those problems need serious attention.

The process of socialization and adaptation to the use of digital technology media in the education process and services to students is still needed because the ability to use digital technology media during the pandemic can be useful for the New Normal era.

3.2. The standardization of innovative education in the Covid-19 era

The research linked to implementation and commitment of educational institutions in developing rural resources and local wisdom to the topic of gender, children, and community services, especially in rural education as a form of social engineering and community empowerment.

The digital innovation-based of education and service model for students in the Covid-19 pandemic era towards the New Norm Era is very important for supporting creative, innovative, and productive education in developing the capacity and quality of human resources. The target of this research is very strategic and important for the development of science, both in terms of concept and practical aspects. This research is determined through a series of studies from the research findings.

The preliminary research was conducted from the end of 2021 to mid-2022 on the process of education and services for students based on digital innovation during the pandemic era towards the new normal era. A series of discussions and studies were conducted with the research team, colleagues, practitioners, and experts. Based on the similarities and differences in research and preliminary studies, a formulation of the problem, objectives, methodology, and research locations is determined to the state of the art and research novelty.

Based on Law No. 18 of 2002 concerning the National System for the Development and Application of Science and Technology, Diffusion is an activity of adoption (acceptance and application), and the application of innovation results to increase its potential utilization. While, innovation is research, development, and/or engineering activities to develop the practical application and value of science and technology into products or production processes. According to Rogers (2003), the innovation adoption process consists of (1) Awareness: the existence of an innovation policy action (Knowledge), (2) Interest: gathering interest about information (push), and (3) Evaluation: reflection of advantages and disadvantages (Decision accept /reject), (4) Experiment: Testing innovation change (Implementation and practice), (5) Adoption.

The process of adopting technological innovation is a process of accepting new things, which can be seen in the behavior of individuals or groups, while technological innovation is a process of creativity to produce new products or modify products to provide more usability and meet market demands. Those factors that determine the adoption of technological innovations are the type of entrepreneurship, business scale, availability of credit and labor, entrepreneur characteristics factors (such as age, education, and attitude towards the risk or entrepreneurial ability), situational factors (such as market conditions), psychological factors of the innovation recipient, attitudes and values adopted by the community, and communication networks, as well as the type of innovation itself (Jeannot & Jolibert, 2013; Link & Reece, 2021; Peltier et al., 2012; Prastyanti et al., 2020; Sok et al., 2013; Sulaiman et al., 2022; Voola et al., 2012).

Management has some elements that cannot be separated or complemented from each other. since planning, organizing, implementing to evaluating. The success and effectiveness of management with accurate decisions, proper evaluation activities, and accurate information data are needed to measure. Evaluation is needed to identify problems and opportunities to meet and assess needs and explain the relevant context. Evaluation can be conducted in all stages. The results of the evaluation provide important recommendations for the next decision-making or strategies to maintain, modify or improve what is no longer relevant (Attfield, 1999; Campbell-Patton, 2016; Chouinard & Cousins, 2009; Delgado et al., 2021; Lumino & Gambardella, 2020; Sulaiman et al., 2020; Stufflebeam 2007).

Management and education quality standards during the Covid-19 Pandemic through the media of technological innovation require collaborative support among some relevant stakeholders as shown in Table 1:

Table 1: The Important Role of Partnership

Engaged Partners	Partnership Benefits
1. The educational institutions involved as research subjects were 2 favorite public elementary schools in Purwokerto: Sokanegara State Elementary School and Kranji State Elementary School and 2 favorite private elementary schools: Al-Irsyad Elementary School and Al-Azhar Elementary School, as well as 4 elementary schools. 2. Involving a community of educational activists, experts, and practitioners as well as academics for empowering education in the villages who are involved in the process and use of research findings for social engineering that is more useful for improving the competence of elementary schools in rural areas. 3. The village government, the mass media community, and the private sector participate and support the implementation of the benefits of research activities.	1. Partners are participative and involved in the research process to identify and analyze problems, potentials, and prospects as a more advanced rural education social engineering effort. 2. Partners being resource persons, instructors, facilitators, and assistants in research and implementation of student education and service models in the Covid-19 Pandemic era towards the New Normal Era are very important in supporting creative, innovative, and productive education 3. The location and research results can be used for further research, community service, lecture assignments, practicums, internships, and student real-work lectures

Characteristics in face-to-face education programs can be identified and analyzed with these three important components: planning, implementation, and program outcomes. For developing a face-to-face tutorial program evaluation strategy, those three components can be implemented in the evaluation strategy of planning, implementation, and tutorial results. (1) Evaluation of the planning component is focused on perceptions of program management, independence in learning, and the perceptions of tutorial places and facilities. (2) Evaluation of program implementation is focused on the quality of the tutorial process. (3) Evaluation of program results is focused on satisfaction with the learning outcomes (Farmer & Koehler, 2022; Ferdianto & Rusman, 2018; Hardman, 2005; Jones, 2012; Schröter & Alyami, 2012; Sabiq et al., 2021).

Evaluation is an activity of collecting, analyzing, and presenting important data and information which is being considered for better decisions with relevant indicators such as readiness of the teachers and organizing team, and completeness of infrastructure or facilities. Evaluation of tutorial programs to assess quality assurance in the

implementation of the Distance Learning Program Unit provides open opportunities for students to be involved in evaluating the tutorial process itself on a regular and continuous basis at each tutorial stage using the "Tutor Evaluation Questionnaire" instrument (Azar et al., 2021; Sahling & De Carvalho, 2021; Poole, 2020; Veletsianos et al., 2022).

Quality educational institutions require effective and efficient institutional management from the aspect of human resources, funds, and infrastructure as well as open and adaptive leaders and teachers to achieve goals. Quality standard education is not only judged by the quality of its graduates but also by other indicators: (1) customer satisfaction, (2) increased customer interest and expectations, and (3) customer delight (Lewis 2002; Sallis, 2006).

Based to the National Education Standards Agency that the National Education Standards (2019) consist of (1) Graduate Competency Standards, (2) Content Standards, (3) Process Standards, (4) Education and Education Personnel Standards, (5) Facilities and Infrastructure Standards, (6) Management Standards, (7) Education Financing Standards, (8) Educational Assessment Standards (Source: Minister of Education Regulation number 44 of 2015 concerning National Higher Education Standards Article 1 paragraph 4).

Based on a study of the importance of the educational process and services to students in the Covid-19 pandemic era through the use of innovative new media such as information technology media contribute to carrying out quality management standardization of educational evaluation. Then the model can be designed in Figure 2 as follows.

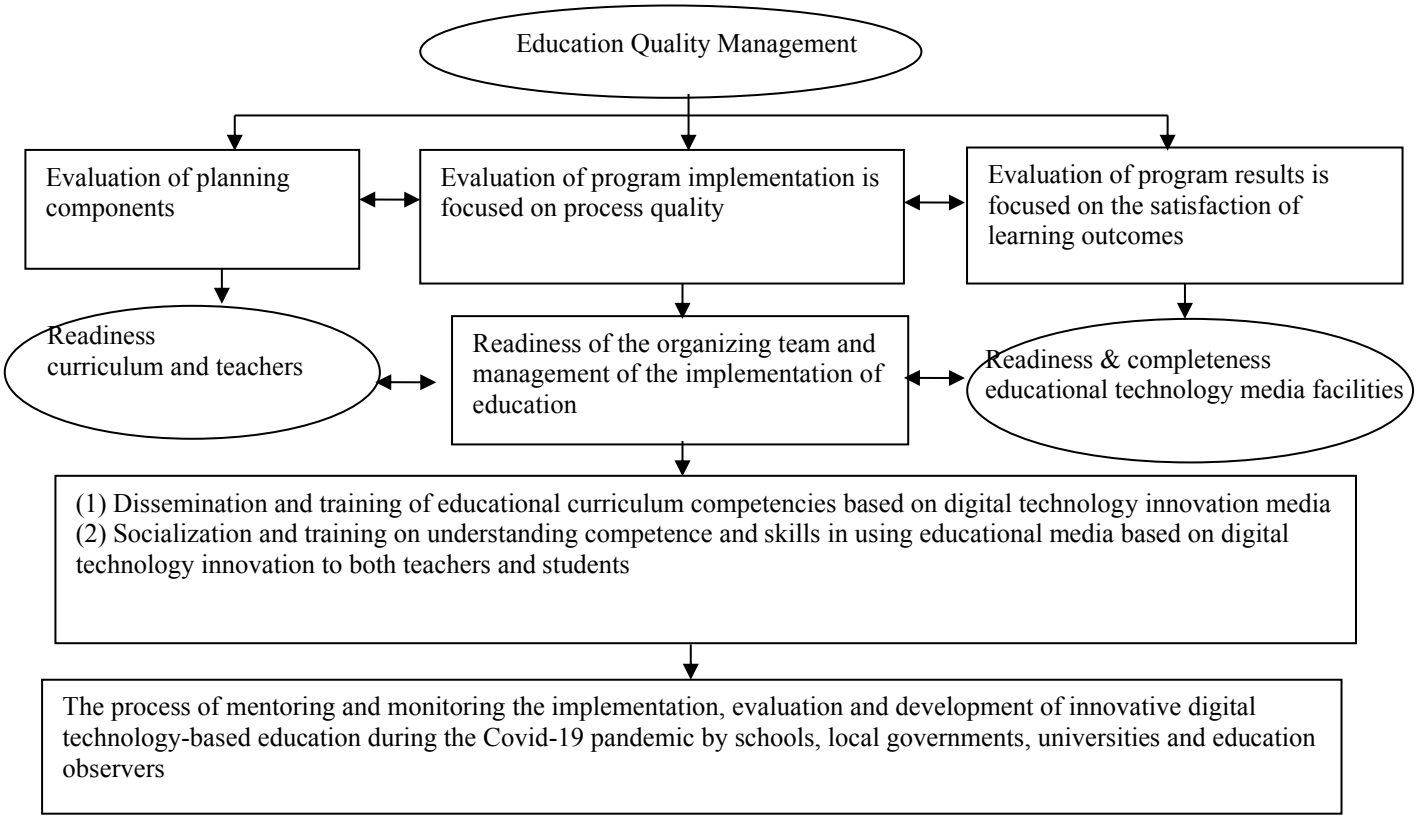

Figure 2: Education Quality Management in the Covid-19 Period

3. Conclusion

The process of education and services to students in urban and rural schools during the Covid-19 Pandemic, especially in 2020-2021, experienced technological disruption, which was initiated from direct face-to-face then drastically changed to indirectly using internet technology media with lack of the device and network quality.

The education actors both teachers and students in urban and rural schools faced difficulty in adapting to online

media and educational applications because they did not access them before the Covid-19 pandemic.

Schools and teachers including students need socialization, adaptation, and adoption of media innovations and applications of digital technology such as in E-Learning (Electronic Learning) which is an electronic learning system with computer and internet technology that can support a distance digital learning process without having to direct interaction.

Media and educational applications used in the educational process and services to students during the Covid-19 pandemic are Google meetings, Zoom meetings, Microsoft Teams, and Chat and video calls via social media. However, building a Learning Management System in elementary schools has not yet been realized.

The negative impact of using digital media in the process of implementing education during the Covid-19 pandemic is saturation and lack of concentration and humanistic interaction with students because they cannot meet the face. However, the positive impact of using digital educational media is creating a more varied, effective, attractive, and innovative educational process, and possible to continue it in the New Era.

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The Influence of Horoscopes on Turkish EFL Students' Willingness to Communicate

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Abstract
It is a fact that personal features and qualities play a crucial role in determining learners' success or failure in their attempt to learn foreign languages. It was these factors that lit a bulb in the mind and opened a path to set off to find out how these features affected the learners' communication eagerness in L2. The main aim of the current study is to explore the relevance between the learners' horoscopes and their willingness to communicate utilizing a mixed-method research design. Willingness to communicate (WTC) and Self-perceived communicative competence (SPCC) surveys have been conducted for the quantitative section and a semi-structured interview with an in-depth content analysis for the qualitative part. Interestingly, no significant affect of horoscopes on students' willingness to communicate was found out, however, the interviews elaborated to some extent that among the 5 other stated horoscopes, Leos were more willing to communicate with their friends, with their classmates and with strangers.

Keywords: Willingness to Communicate, Self-Perceived Communicative Competence, Horoscopes, English Language Learning

1. Introduction

It is a fact that numerous affective factors impinge on the use of a target language in the classroom environment. Some of these factors stem from the effects of sociability, risk-taking, discomfort and the powerful influence of motivation in L2 classes, besides perspectives about the international community, tendency for L2 learning, concern for grade, etc. Studies carried out so far have indicated that EFL learners' feelings and attitudes towards L2 learning as two affective factors have an essential effect on the process of second language learning (Horwitz, 1986; Horwitz, 2001; Horwitz, & Cope, 1986; Horwitz & Young, 1991; MacIntyre & Gardner, 1989; MacIntyre & Gardner, 1991). Arising from the field of speech communication, "willingness to communicate" (WTC) is quite a recent inclusion to these affective variables. The term was used by McCroskey and associates to identify the individual's personality-based inclination to approaching or abstaining the starting of communication whenever felt free to do so (McCroskey, 1992, p. 17).

WTC, being initially put forward with reference to communication in L1, was thought to be a stable personality feature hypothesized to be stationary across various situations. However, when expanded to L2 communication situations, not limiting WTC to only a trait-like variable was suggested. Particularly because L2 usage gives a potential for important situational differences taking into account many unpredicted diversities in learners' competence and relations among groups (MacIntyre, Clément, Dörnyei, & Noels, 1998). Originating by such well-grounded theoretical knowledge, MacIntyre et al. (1998) set off to characterize WTC in a L2, a theoretical model in which individual and social context, cognitive and affective context, tendencies of motivation, settled ancestry, and behavioral disposition are interrelated in affecting WTC in a L2. Recently, numerous studies have focused on determining factors affecting L2 WTC. Herein, several elements have been identified as either indirectly or directly presumptive of WTC, including factors like perceived communicative competence, motivation, attitudes, communication anxiety, emotional intelligence, and etc.

Being that research on willingness to communicate is comparatively new, not many studies have been put forward in the Turkish EFL context. Bektaş (2005), Öz et al. (2015), and Altıner (2017) for instance, investigated whether college students in the Turkish context learning English as a foreign language were willing to communicate when they had an opportunity to do so. However, considering the relevant literature, not many studies except for Ahmed (2006) and Ragini (2019) have been carried out who set off to discover the relation between students' date of birth and their interest in English as a foreign language. Yet, the affect of the recently ascending topic horoscopes on the WTC level of students is an area uninvestigated. In this respect, the study introduces novelty.

The attempt of horoscopes to spread to almost all areas of social daily life and the fact that people at least know what their sign makes it a social issue. The fact that it can be addressed in almost all societies makes it a universal subject. As ELT practitioners, possible interventions that could be incorporated into instructional pedagogy should always be contemplated. This thought gave a prompt to conduct a study to ascertain the relevance between the horoscopes and the willingness to communicate level of students. Therefore, the present study is a research based on both qualitative and quantitative data to explore the relevance that exists between the learners' willingness to communicate and their horoscopes.

2. Literature

2.1. Willingness to Communicate and Its Theoretical Foundations

As Barlas (2016) puts it, Willingness to Communicate was defined by Maclntyre, Dornyei, Clement, and Noels (1998) as "a readiness to enter into discourse at a particular time with a specific person or persons, using a L2". It is a vital indicator of having an inner desire to speak. According to Kang's (2005) definition "Willingness to Communicate (WTC) is resolute predisposition of an individual in a specific situation, towards efficiently inoccupying in communication which might change in accordance with the conversational context, topic and interlocutor(s) among other potential situational variables." Willingness to communicate (WTC) was defined by MacIntyre et al. (1998) as "an intention or preference to attend or start communication when given a choice to do so" (p. 5). With respect to contemporary language education, WTC in second or foreign languages has grown into one of the most specialized research areas of recent times. One of the earliest attempts to examine the nature of communication goes long way back to the years 1958 and 1959, when the psycho-sociologist Theodore Clevenger began to question the relationship between public speaking and stage fright. In this regard, an article published by Clevenger in 1959 gave inspiration to further research into attitude and avoidance in communication, and herewith was marked as groundbreaking in this area of research (McCroskey, 1982). Subsequently, Phillips (1965) studied communication apprehension and reticence in communication where he suggested that 'reticence' was regarded as a personality-based anxiety disorder. At the beginning, the researcher hypothesized that anxiety could be the primary reason for reticence in speech communication. However, in his following studies (1984, 1986, and 1997) he started to disapprove his previous opinion about reticence by expressing that the major reason for reticence is indeed a lack of communication skills. Phillips (1984) further claimed that although people considered as reticent in communication may not hold insufficient social skills, they actually have a tendency to think so. Latterly, it was due to Clevenger and Phillip's studies and efforts within this field that the subsequent researchers eager to carry out in-depth research into communication moved on to practice the later conceptualization of willingness to

communicate besides two well studied communication factors: Communication Apprehension (CA) and Self-Perceived Communication Competence (SPCC) (McCroskey, 1997). In respect to this, numerous distinguished scholars and linguists began to inquire into various areas of research concerning communication, for instance, McCroskey (1970) focused on communication anxiety and its major factors, Burgoon (1976) investigated unwillingness to communicate, and McCroskey and Richmond (1982) carried out studies examining shyness as an affective factor that might influence individuals' language learning process.

2.2. Horoscopes as individual difference variables

Learning a foreign language is a complex process that involves a seemingly infinite number of variables. Of the latter, a learner's personal characteristics, represented by questions like the following: "Who is the learner? How old is he? What is his intellectual capacity?, What sort of personality does he have?, etc...." form decisive factors that can bring about a great deal of variation in the interest to learn in general, and duly determine one's approach to or avoidance of learning an FL in particular. This is so because interest is of much practical value in the domain of education and has been proved to be a factor of central role in motivating people to join language courses, formal or informal, and to be enthusiastically engaged in its relevant varied activities. Accordingly, teachers of FLs are perceived to have won half of the battle if they succeed in instilling in their learners the interest to learn since a basic aspect of effective teaching involves identifying learners' interest and using it to achieve a high degree of involvement in the FL activities (Callahan, 1971: 252). Wilson (1974: 43) adds that "to feel interested in anything is to feel attracted to it, to fee inclined to give attention to it." In other words, interest involves feeling disinclined to attend to other things, and feeling vexed and uncomfortable, when prevented from giving attention to the thing being interested in. Hence, learners of limited intellectual ability, uninterested and unprepared to be engaged in the task of learning the FL have constantly demonstrated frustration and less interest to learn.

In reference to Wikipedia, the graphic illustration or representation which shows the celestial objects' (Sun, Moon and other planets) positions at the time of a person's birth is called horoscope. The words hõra and scopos in Greek mean "time" and "observer." The horoscopes are designed by astrologers when a person is born based on the alignment of planets and stars which is believed to have an impact on his or her mood, personality, behavioral traits and other factors. According to the astrological scheme, our date of birth a relationship with certain aspects of our persona to some extent.

So, recently, there has been a boost in the studies to comprehend and clarify individual personality as part of society and social interaction. Due to these studies, it is no more possible to hold apart the personality of the individual from society and social interaction. In an attempt to find out relationship between the "Date of Birth" and interest in English, Ahmed (2006) unfortunately found nothing of significance except that individuals born in the cold months were more inclined and interested to join departments of English than their counterparts who were born in the hot months.

Turkish educational institutes at all levels witness noticeable numbers of failures and dropouts due to learners' unsuccessful achievement in English. Such a phenomenon is usually attributed to loss of confidence coped with reciprocal accusations among the parties involved in the process of teaching and learning English. Although different factors of negative repercussions have often been pinpointed as responsible for such a deteriorated situation, "in recent years there has been an increasing awareness of the necessity in second language research and teaching to examine human personality in order to find out solutions to perplexing problems"(Brown, 1980: 100), at a time when the influence of learners' date of birth on their educational progress has recently been studied more closely (Johns, 1962; Jackson, 1964; Williams 1964), especially if we know that 'careful, systematic study of the role of personality in second language acquisition has already led to a greater understanding of the language learning process and to improving language teaching methods (ibid.: 101). Since, within the Turkish context, the remedial procedures have always fallen short of bringing about the required solutions, the current study endeavors to touch upon a virgin field of study within the Turkish context, that is horoscopes, which, if proved influential, may pave the way to put forward some suggestions that can minimize students' dislike of FLs, maximize their willingness to communicate and duly make the process of FL teaching and learning more appealing and fruitful.

According to Ahmed (2006), personal characteristics and qualities play a pivotal role in determining learners' success or failure in foreign languages. Likewise, since the related literature on this point is very lacking especially in terms of the educational characteristics and qualities outlined by individuals' horoscopes, and since the available material tackles the topic under discussion via the statement of time units or expressions, namely months and seasons, which do not refer precisely to the horoscopes, reference will be made to the seasons and months, and not necessarily to the horoscopes; a procedure that goes with what other researchers in the field have done. At the outset, educational progress and intellectual performance, measured by tests of ability or achievement, which vary according to the season of birth had been heeded and their influence on educational progress had been attended to very closely. For instance, Pinter (1931) and Pinter and Forlano (1933) got abundant evidence with large samples of children. They concluded that learners born in the warmer months obtained slightly higher scores than those born in the colder months. Williams (1959) showed that summer birthdays were significantly more often with a group of educationally backward children. Jenkins (1962) arrived at the conclusion that while the date of birth had not the same marked effect upon future academic performance, it nevertheless had significance. Jackson (1964) stated that the number of streams increased (i.e. in larger schools), so the difference between summer and winter born children increased. Jinks (1964) stated that the summer born children were also at a disadvantage in streamed schools. Finally, Freyman (1965) concluded that summer-born children obtained low or average marks than high marks in the yearly examinations.

A close look at what has been so far stated shows that the focal point of departure in the above-mentioned researches has been the "effect of the date of birth on learners' achievement in the domain of education at large"; a point that is beyond the scope of the present study which focuses on individuals' willingness to communicate, and in our case, in the light of an important variable, namely, the qualities and characteristics of students' horoscopes.

3. Method

The present study aims to investigate the influence of horoscopes on EFL students' willingness to communicate. Its study was carried out with 204 English Preparatory Class students studying at Necmettin Erbakan University. The student's departments varied from Aircraft Engineering to English Language Teaching. It was a study implemented in the second semester of the 2021/2022 academic year. All the students who participated in the study were currently attending English Preparatory Classes. To collect data, the study utilized a mixed method including Willingness to Communicate Questionnaire (see Appendix A) and Self-perceived Communication Competence English Questionnaire (see Appendix B) on the Quantitative side and a semi-structured interview on the Qualitative.

4. Procedure

A two-fold procedure was adopted to carry out the present study. Initially, at the beginning of the second academic term of 2021-2022 education year, the necessary ethical approval (see Appendix C) was obtained from the institution aforementioned and consent forms (see Appendix D) were distributed to the students relevant. The study was totally on a voluntary basis. Later, a survey consisting of 204 respondents was carried out on the premises of the University of the Necmettin Erbakan, Konya-Turkey. Students at Necmettin Erbakan University School of Foreign Languages from different majors were given an on-line questionnaire regarding their horoscopes and their willingness to communicate plus their self-perceived communication competence in English. Both the Willingness to Communicate Scale (WTC) and the Self-perceived Communication Competence Scale (SPCC) had 12 items to evaluate the answers given by the students. It took a week to gather 204 answers from 10 different preparatory classes. The findings were put down by making use of *One-way analysis of variance (ANOVA).* Following the questionnaire, in order to reinforce the findings, a semi-structured interview was conducted to 11 students of English language teaching preparatory class. The interview was transcribed and examined in depth via content analysis.

As for the qualitative part of the analysis, the following interview questions were directed to the students fore mentioned.

4.1. Semi-structured Interview Questions

1. What kind of a person do you think you are? What is your definition of yourself? What are your personal characteristics?
2. At times when you need to use English to communicate, how do you feel (Remember the times when you communicated in English, how did you feel?) Are you usually at ease or do you feel nervous? If so, why? Do you enjoy using English?
3. Are you an introvert or an extrovert? Would you consider this personality trait as affecting your willingness to communicate and how you communicate in English?
4. What is your horoscope? What are the general traits of it? Do you believe you reflect these traits, in what way?
5. In general, in which situation do you feel most willing to communicate in English? (In pairs, in small groups, in a whole class; with close friends, with teachers, with classmates (not close friends), etc.)

4.2. Population and Sampling

On the quantitative grounds, the present study was put through with 204 preparatory class students attending different departments of different faculties of Necmettin Erbakan University in Konya-Turkey. For the qualitative part, namely, the semi-structured interview, 11 students were conversed. In terms of sampling, convenience sampling, in which the participants are chosen based on their relative ease of access, was used (Wiederman, 1999). The 204 students were told about the research being carried out via the on-line questionnaire. Thereafter, they were informed about the research process in detail.

4.3. Data Collection

In this study, a questionnaire and a semi structured interview were utilized to collect data. The survey was formed online and sent to students via Google forms. Altogether, 204 students from 10 different preparatory classes participated in the survey. The second part of the study was the semi-structured interview. 11 students from the Education Faculty who also participated in the survey were given appointments according to their convenience. The students were told about the research being applied and were given the questions in advance. Within this process, five pre-prepared guiding questions were directed to the students whose answers were recorded later to be transcribed.

4.4. Data Analysis

In order to validate it, a mixed method design was determined for the current study. Brown, (2011) puts quantitative analysis in its simplest form as any study that counts things. He defines it as any research that focuses on counting things and on understanding the patterns that emerge from those counts. In view of the above stated definition, a descriptive study following a survey including 204 students was practiced as the first part of the data analysis. *One-way analysis of variance (ANOVA)* was used to demonstrate the findings of the survey. Stake (1995) illustrates analysis as a matter of giving meaning to first impressions as well as to final compositions, and interpreting our first impressions. As the study's Qualitative base, Content Analysis was used to analyze the data gathered from the semi-structured interview results. The gathered data was separated and conceptually categorized into meaningful chunks. (Yıldırım and Simsek, 2013). Through a very long process and with an in-depth attention, these categories were analyzed and the results found were interpreted.

5. Findings and Discussion

5.1. Findings pertaining to the first research question

In this part, the findings related to the first research question "*Does B2 level preparatory students' level of WTC differ according to; a) horoscopes, b) age, c) gender, d) faculty?*" are presented.

Table 1: *One-way analysis of variance (ANOVA) results by horoscope*

Horoscope	Statistic	Group Discussion	Interpersonal	Public Speaking	Acquaintance	Friend	WTC
Aquarius (n:20)	$\bar{X}$	61,00	56,67	53,00	57,00	57,13	54,54
Aries (n:13)	$\bar{X}$	70,51	68,97	55,38	64,62	65,77	62,95
Cancer (n:19)	$\bar{X}$	68,07	62,63	50,70	62,11	60,26	57,81
Capricorn (n:18)	$\bar{X}$	69,07	59,44	55,19	59,86	60,83	58,33
Gemini (n:15)	$\bar{X}$	61,78	62,22	53,33	62,00	58,33	56,72
Leo (n:23)	$\bar{X}$	70,87	65,22	52,46	63,80	65,43	60,11
Libra (n:18)	$\bar{X}$	64,26	67,78	47,59	58,61	59,72	57,96
Pisces (n:9)	$\bar{X}$	72,59	74,07	56,30	66,67	68,33	65,28
Sagittarius (n:15)	$\bar{X}$	60,44	62,44	51,33	57,33	59,67	55,50
Scorpio (n:23)	$\bar{X}$	70,72	61,45	55,51	63,91	64,13	59,02
Taurus (n:13)	$\bar{X}$	63,59	62,56	54,10	59,81	60,58	58,59
Virgo (n:17)	$\bar{X}$	69,02	68,63	58,04	65,88	67,94	63,24
	F	530	654	232	333	456	309
	P	,881	,780	,995	,978	,928	,983

Table 2: *Kruskal Wallis test results by horoscope*

Horoscope	Statistic	Meetings	Stranger
Aquarius (n:20)	$\bar{X}$	87,20	90,90
Aries (n:13)	$\bar{X}$	118,27	117,62
Cancer (n:19)	$\bar{X}$	100,13	98,32
Capricorn (n:18)	$\bar{X}$	101,33	110,42
Gemini (n:15)	$\bar{X}$	97,13	92,03
Leo (n:23)	$\bar{X}$	103,83	98,37
Libra (n:18)	$\bar{X}$	103,58	109,50
Pisces (n:9)	$\bar{X}$	116,22	125,61
Sagittarius (n:15)	$\bar{X}$	91,87	89,50
Scorpio (n:23)	$\bar{X}$	96,70	94,78
Taurus (n:13)	$\bar{X}$	107,69	108,19
Virgo (n:17)	$\bar{X}$	114,15	107,65
	χ^2	4,447	5,680
	P	,955	,894

When the participants' willingness to communicate in sub-categories and entire scale were examined in terms of their horoscopes (See Table 1 and 2), it was found that their scores did not change significantly according to their horoscopes. In other words, the participants' horoscopes had no effect on their willingness to communicate neither in sub-categories nor on the entire scale.

Table 3: *One-way analysis of variance (ANOVA) results by age*

Sub-score	**Age**	**N**	**$\bar{X}$**	**SS**	**SD**	**F**	**p**	**Sig. Difference**
Public speaking	18	68	56,57	21,49	3,195	,470	,704	-
	20	106	52,36	23,93				
	21	16	52,08	29,74				
	22	9	52,96	26,48				
	Total	199	53,80	23,65				

Table 4: *Kruskal Wallis test results by age*

Age	Statistic	Group Discussion	Meetings	Interper.	Stranger	Acquain.	Friend	WTC
18 (n:68)	M.R.	108,51	110,24	107,12	105,79	110,73	109,45	109,25
20(n:106)	M.R.	95,07	94,51	92,68	95,54	93,94	94,36	94,41
21 (n:16)	M.R.	94,06	95,25	102,41	99,53	91,75	94,78	93,44
22 (n:9)	M.R.	104,39	95,78	128,17	109,67	104,94	104,33	107,61
	χ^2	2,493	3,276	4,947	1,580	3,933	3,035	3,119
	p	,477	,351	,176	,664	,269	,386	,374

When the participants' willingness to communicate in sub-categories and entire scale were examined in terms of their ages (See Table 3 and 4), it was found that their scores did not show a significant difference according to their ages. In other words, the participants' ages did not affect their willingness to communicate neither in sub-categories nor on the entire scale.

Table 5: *Independent samples t test results by gender*

Sub-score	**Gender**	**N**	**X̄**	**SD**	**df**	***t***	**P**
Acquaintance	Female	111	61,53	21,42	201	-,092	,927
	Male	92	61,82	22,98			
Friend	Female	111	62,43	21,21	201	,188	,851
	Male	92	61,85	22,78			

Table 6: *Mann Whitney test results by gender*

Gender	Statistic	Group Discussion	Meetings	Interper.	Public S.	Stranger	WTC
Female (n:111)	M.R.	104,76	100,41	95,53	101,82	97,71	100,44
Male (n:92)	M.R.	98,67	103,92	109,80	102,22	107,18	103,88
	U	4800,000	4929,500	4388,000	5085,500	4629,500	4933,000
	p	,462	,671	,084	,961	,252	,678

As shown in Tables 5 and 6, the participants' scores in the sub-categories (group discussion, meetings, interpersonal, public speaking, and stranger) of WTC scale and entire scale did not differ significantly by gender. In other words, participants' gender does not affect their willingness to communicate in terms of neither the sub-categories nor the entire scale.

Table 7: *One-way analysis of variance (ANOVA) results by faculty*

Faculty	Statistic	Acquaintance	WTC
Engineering Faculty (n:46)	X̄	58,48	54,98
Faculty of Av. and Aero. Sciences (n:79)	X̄	60,85	59,14
Faculty of Education (n:21)	X̄	76,67	73,37
Faculty of Political Sciences (n:37)	X̄	60,74	57,36
Faculty of Social S. and Humanities (n:20)	X̄	58,13	54,21
	F	2,941	3,249
	P	**,022**	**,013**
	Sig. Difference	3-1, 3-2, 3-4, 3-5	3-1, 3-2, 3-4, 3-5

Table 8: *Kruskal Wallis test results by faculty*

Faculty	Statistic	Group Discussion	Meetings	Interper.	Public S.	Stranger	Friend
1*	M.R.	94,48	91,91	94,91	92,57	88,95	96,57
2*	M.R.	99,22	103,80	104,80	101,56	104,92	100,76
3*	M.R.	142,00	142,88	140,38	130,98	136,83	144,31

4*	M.R.	99,88	93,69	90,99	105,72	99,00	94,57
5*	M.R.	92,23	90,55	87,33	88,15	89,45	88,73
	χ^2	11,307	13,131	12,397	7,577	10,877	12,956
	p	**,023**	**,011**	**,015**	,108	**,028**	**,011**
	Sig. Difference	3-1, 3-2, 3-4,3-5	3-1, 3-2, 3-4,3-5	3-1, 3-2, 3-4,3-5	-	3-1, 3-2, 3-4,3-5	3-1, 3-2, 3-4,3-5

*1= Engineering Faculty, 2= Faculty of Av. and Aero. Sciences, 3= Faculty of Education, 4= Faculty of Political Sciences, 5= Faculty of Social S. and Humanities

As seen in Tables 7 and 8, the participants' willingness to communicate in English both in sub-categories and the entire scale significantly differed by faculty. As a result of the Mann Whitney Test, which was conducted to determine which binary groups were significantly different, it was revealed that the participants in the education faculty had higher willingness to communicate in English scores than the participants from other faculties both in all sub-categories of the scale and in the entire scale.

5.2. Findings of the participants' Self-Perceived Communication Competence levels according to their socio-demographic characteristics

In this section, the findings related to the second research question "*Does B2 level preparatory students' level of SPCC differ according to; a) horoscopes, b) age, c) gender, d) faculty?*" are presented.

Table 9: *One-way analysis of variance (ANOVA) results by horoscope*

Horoscope	Statistic	Public	Meeting	Dyad	Acquaintance	SPCC
Aquarius (n:20)	$\bar{X}$	52,50	49,50	57,67	55,50	53,75
Aries (n:13)	$\bar{X}$	55,38	52,56	63,85	61,35	58,14
Cancer (n:19)	$\bar{X}$	57,54	51,40	68,42	61,05	59,82
Capricorn (n:18)	$\bar{X}$	51,67	47,96	61,85	55,97	54,58
Gemini (n:15)	$\bar{X}$	50,22	52,67	66,00	61,50	57,83
Leo (n:23)	$\bar{X}$	57,68	51,45	66,81	62,50	58,30
Libra (n:18)	$\bar{X}$	59,44	50,37	67,78	60,28	59,26
Pisces (n:9)	$\bar{X}$	73,33	60,74	71,48	69,17	68,70
Sagittarius (n:15)	$\bar{X}$	53,11	49,78	64,44	57,67	56,17
Scorpio (n:23)	$\bar{X}$	54,20	53,04	65,22	61,74	57,57
Taurus (n:13)	$\bar{X}$	58,97	53,33	65,64	59,23	59,81
Virgo (n:17)	$\bar{X}$	60,00	54,90	68,82	62,21	61,72
	F	,731	,229	,439	,321	,379
	P	,708	,995	,937	,981	,963

Table 10: *Kruskal Wallis test results by horoscope*

Horoscope	Statistic	Group	Stranger	Friend
Aquarius (n:20)	M.R.	89,48	88,45	86,28
Aries (n:13)	M.R.	105,42	100,35	99,31
Cancer (n:19)	M.R.	109,24	109,92	109,08
Capricorn (n:18)	M.R.	94,31	98,78	90,19
Gemini (n:15)	M.R.	110,30	94,97	105,53
Leo (n:23)	M.R.	95,17	95,30	100,91
Libra (n:18)	M.R.	102,14	105,06	105,72
Pisces (n:9)	M.R.	128,33	143,22	124,67
Sagittarius (n:15)	M.R.	97,57	98,37	97,03
Scorpio (n:23)	M.R.	97,87	94,70	101,33
Taurus (n:13)	M.R.	106,12	112,58	102,85
Virgo (n:17)	M.R.	108,35	108,97	114,21
	χ^2	4,443	7,555	4,792
	P	,955	,753	,941

When the participants' self-perceived communication competence levels were examined in terms of their horoscopes (See Tables 9 and 10), it was found that the participants' self-perceived communication competence levels did not significantly differ according to their horoscopes. In other words, the horoscope type of the participants did not have a statistically significant effect on their self-perceived communication competence levels neither in sub-categories nor in the entire scale.

Table 11: *One-way analysis of variance (ANOVA) results by age*

Age	Statistic	Meeting	Dyad	Acquaintance	SPCC
18 (n:68)	$\bar{X}$	61,00	56,67	53,00	57,00
20 (n:106)	$\bar{X}$	70,51	68,97	55,38	64,62
21 (n:16)	$\bar{X}$	68,07	62,63	50,70	62,11
22 (n:9)	$\bar{X}$	69,07	59,44	55,19	59,86
	F	,922	1,413	,546	,906
	P	,431	,240	,651	,439

Table 12: *Kruskal Wallis test results by age*

Age	Statistic	Public	Group	Stranger	Friend
18 (n:68)	M.R.	105,43	107,43	105,63	108,94
20 (n:106)	M.R.	95,43	93,83	94,60	92,25
21 (n:16)	M.R.	105,19	105,22	108,16	110,63
22 (n:9)	M.R.	103,61	107,33	106,56	104,83
	χ^2	1,440	2,634	2,020	4,174
	P	,696	,452	,568	,243

As shown in Tables 11 and 12, the participants' self-perceived communication competence levels did not significantly differ according to their ages. This is all to say, the participants' ages did not have a significant effect on their self-perceived communication competence levels neither in sub-categories nor on the entire scale.

Table 13: *Independent samples t test results by gender*

Gender	Statistic	Dyad	Friend	SPCC
Female (n:111)	$\bar{X}$	64,35	62,55	56,77
Male (n:92)	$\bar{X}$	66,67	64,24	60,16
	T	-,755	-,541	4388,000
	P	,451	,589	,265

Table 14: *Mann Whitney test results by gender*

Gender	Statistic	Public	Meeting	Group	Stranger	Acquaintance
Female (n:111)	M.R.	98,05	95,56	98,98	105,79	100,06
Male (n:92)	M.R.	106,77	109,77	105,64	95,54	104,34
	U	4667,500	4391,000	4771,000	4147,000	4891,000
	P	,292	,086	,421	**,021**	,606

When the participants' self-perceived communication competence levels were examined in terms of their gender (See Tables 13 and 14), it was found that the participants' self-perceived communication competence levels did not significantly change according to their gender. In other words, the gender of the participants did not have a significant effect on their self-perceived communication competence levels neither in sub-categories nor in the entire scale.

Table 15: *One-way analysis of variance (ANOVA) results by horoscope*

Faculty	Statistic	Friend	SPCC
Engineering Faculty (n:46)	$\bar{X}$	59,89	54,76
Faculty of Av. and Aero. Sciences (n:79)	$\bar{X}$	63,61	59,14

Faculty of Education (n:21)	$\bar{X}$	80,00	74,68
Faculty of Political Sciences (n:37)	$\bar{X}$	58,11	53,65
Faculty of Social S. and Humanities (n:20)	$\bar{X}$	62,13	54,63
	F	4,003	4,190
	p	**,004**	**,003**
	Sig. Difference	3-1,3-2,3-4,3-5	3-1,3-2,3-4,3-5

Table 16: *Kruskal Wallis test results by faculty*

Faculty	Statistic	Public	Meeting	Group	Dyad	Stranger	Acquaintance
1 (n:46)	M.R.	96,58	94,95	89,99	93,04	96,29	92,86
2 (n:79)	M.R.	103,82	101,14	104,84	102,82	104,81	102,09
3 (n:21)	M.R.	147,40	143,05	143,98	145,88	142,52	148,17
4 (n:37)	M.R.	87,85	91,49	89,84	90,16	87,80	90,42
5 (n:20)	M.R.	85,78	97,98	96,83	95,20	87,75	95,60
	χ^2	16,720	12,239	14,612	14,612	13,972	15,788
	P	**,002**	**,016**	**,006**	**,006**	**,007**	**,003**
	Sig. Difference	3-1, 3-2, 3-4, 3-5	3-1,3-2, 3-4,3-5	3-1,3-2, 3-4,3-5	3-1,3-2, 3-4,3-5	3-1,3-2, 3-4,3-5	3-1,3-2, 3-4,3-5

1= Engineering Faculty, 2= Faculty of Av. and Aero. Sciences, 3= Faculty of Education, 4= Faculty of Political Sciences, 5= Faculty of Social S. and Humanities

As can be seen in Tables 15 and 16, the participants' self-perceived communication levels significantly differed both in sub-categories and the entire scale of SPCC according to their faculty type. As a result of the Mann Whitney Test, which was conducted to determine which binary groups were significantly different, it was found that the participants in the education faculty had higher self-perceived communication competency than the participants from other faculties both in all sub-categories of the scale and in the entire scale.

5.3. Findings from semi-structured interviews

In this part, the findings obtained by analysing qualitative data were presented.

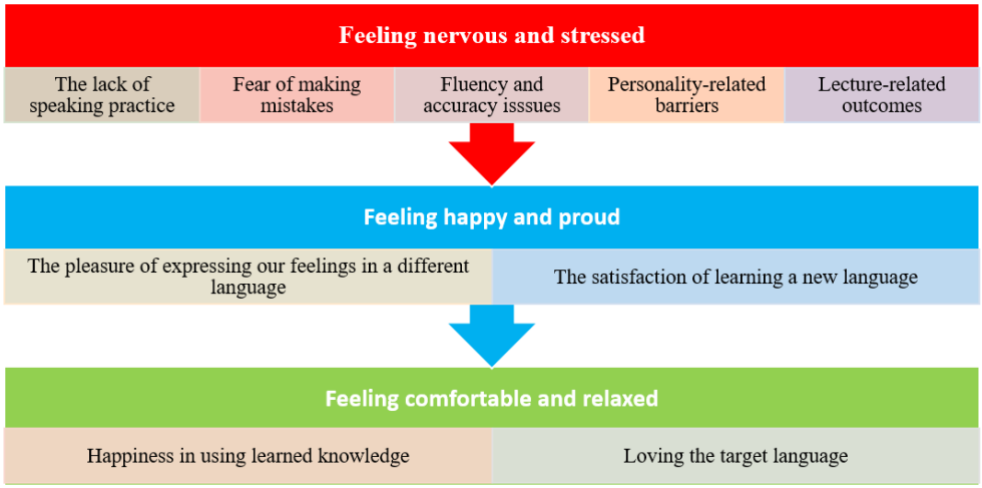

Figure 1: *Participants' feelings when they use English to communicate*

Figure 1 presents the feelings of the participants when they use English to communicate. As shown in the figure, the participants' feelings were classified into three themes: *feeling nervous and stressed (f:6), feeling happy and proud(f:3),* and *feeling comfortable and relaxed(f:3)*. The theme "feeling nervous and stressed" was most frequently expressed by the participants. Regarding this theme, five codes were obtained: the lack of speaking practice, fearing of making mistakes, fluency and accuracy issues, personality-related barriers, and lecture-related outcomes. The first theme was followed by the one entitled with "feeling happy and proud" in which two codes

"the pleasure of expressing our feelings in a different language, the satisfaction of learning a new language" were obtained. In the final theme "feeling comfortable and relaxed," two codes were found: *Happiness in using learned knowledge and loving the target language.*

Some excerpts of the participants' opinions for the themes were as follows:

"Generally, I feel nervous when I need to use English to communicate. Because I think I don't have enough chance to use English in my daily life." (P4)

"…when I have to make a presentation or talk with a teacher, I feel nervous and excited, and I think the reason of this is related to my personal characteristics…" (P9)

"The expressions are extremely important in the interaction on the other hand finding correct vocabulary can be difficult. I'm trying to solve this problem with using elementary words. I feel nervous and willing." (P10)

"I have always been very happy to be able to speak English. The idea of being able to express yourself in another language has always seemed unique to me. I can say that I feel comfortable while speaking English." (P11)

"I feel very excited because I love speaking English and when I speak, I feel so comfortable and relaxed." (P1)

Table 17: *Participants' personality traits and their effects on speaking*

	Are you an introvert or an extrovert?	**Frequency (f)**	**Percentage (%)**
	Introvert	4	33,33
	Extrovert	5	41,67
	Both (Depends on the situation)	3	25,00
	Does this personality trait affect your communication in English?	**Frequency (f)**	**Percentage (%)**
	Yes	11	91,67
	No	1	8,33
Effects/ Personality	**Introvert**	**Extrovert**	**Both**
Effects of personality on speaking	Lagging behind in speaking Having less social skills Feeling anxious while speaking	Advancing self-confidence in speaking Being enthusiastic to speak English	Not having direct effect

Table 17 displays the personality traits of the participants as well as their effects on speaking. When asked if they were introverts or extroverts, 5 participants stated "Extrovert," 4 participants stated "Introvert" and 3 participants stated "both". A large proportion of the participants (%91,67) stated that their personality trait affected their communication in English. When the expressions of the participants were examined, three codes were found for introvert, two for extrovert, and one code for both, regarding the effect of their personalities on speaking. It was noted that all of the codes pertaining to introverts covered negative remarks. Among these codes, the most expressed code was lagging behind in speaking (f:3). This code was followed by the codes of having less social skills and feeling anxious while speaking, respectively. The extrovert codes included *advancing self-confidence in speaking* and *being enthusiastic to speak English*. The code "advancing self-confidence in speaking" was the most frequently expressed by participants among these codes (f:4). Participants who commented on their personalities as both claimed that their personalities had no direct influence on their speaking.

Some excerpts of the participants' opinions for the themes were as follows:

"As I said before, I'm an extrovert person, I can easily make friends. I think being an extrovert person affects the willingness to communicate in English, because extrovert people can speak without being ashamed and they want to speak a lot, but introvert people are very shy, and they can't speak so much, not even with their families."

"I can say that I am an introvert without thinking. I prefer staying at home to going out with people. And I think it has a huge effect on communicating, especially communicating in English. Because introverts tend to have less socials kills than extroverts, thus, this makes speaking English hard for the introverts." (P5)

"I am usually an extrovert. I am not afraid to interact with people. I also try not to be shy about speaking English. Being an extrovert helps me a lot to talk to people comfortably." (P8)

"I am an introverted person and I think it affects my communication with people, but I don't think it is a willingness because I am willing to talk most of the time, but I don't feel comfy enough to do so." (P9)

Table 18: *Participants' horoscopes and the states of reflecting the traits of the horoscopes*

Participant	**Horoscope**	**Positive traits** ***(Participant ideas)***	**Negative traits** ***(Participant ideas)***
P4, P5, P7, P8	Leo	self-confident, leader/guide, helpful, perfectionist, ambitious	arrogant, reckless
P3, P10	Sagittarius	Enthusiastic, determined and fond of independence	Impatient and careless
P11, P12	Libra	balanced, fair, passionate, talented, funny	-
P2	Gemini	Social, talkative,	whimsical, indecisive and nosy
P1	Aquarius	Progressive, idealistic, intelligent and creative	-
P9	Scorpio	Bellicose, powerful, ambitious	

	Frequency (*f*)	Percentage (%)	Participants
Reflecting all the traits of his/her horoscope	6	54,55	P1,P3,P8,P9,P10,P12
Reflecting most/some traits of his/her horoscope	3	27,27	P2,P4,P11
Not reflecting the traits of his/her horoscope	2	18,18	P5,P7

Table 18 shows the horoscopes of the participants and the states of reflecting the traits of the horoscopes. Four Leo participants offered seven personality traits, five of which were positive (self-confident, leader/guide, helpful, perfectionist, ambitious) and two of which were negative (arrogant, reckless). Two Sagittarius participants mentioned general personality traits. They expressed five general personality traits, three of them positive (enthusiastic, determined and fond of independence) and two of them negative (impatient and careless).Two participants who voiced their thoughts about Libra indicated five general personality traits (balanced, fair, passionate, talented, funny)that were all positive. The Gemini participant expressed five general personality traits, two of which were positive (social and talkative) and three of which were negative (whimsical, indecisive, and nosy). One participant each gave an opinion for Aquarius and Scorpio signs; the participants stated four general personality traits (progressive, idealistic, intelligent, and creative) in Aquarius and three general personality traits (bellicose, powerful, ambitious) in Scorpio. When the opinions of the participants about the general personality traits of their horoscopes were examined, it was discovered that 6 participants believed they had all the characteristics of their horoscopes, 3 participants stated that they had most/some characteristics of their horoscopes, and 2 participants thought that they did not have any characteristic of their horoscopes.

Some excerpts of the participants' opinions for the themes were as follows:

"It's Gemini. Gemini traits are more varied than those of other astrological signs. They can be social, talkative, and whimsical but they can also be indecisive or nosy. I do reflect almost all of them except than being talkative all the time." (P2)

"My horoscope is Sagittarius. General characteristics of Sagittarius an enthusiastic, determined but sometimes impatient and careless person. These traits just reflect me." (P3)

"My zodiac sign is Leo. We can define Leos as confident. They love to take the lead when they have the chance. And it is said that they love themselves to death. To be honest, I don't believe in horoscopes that much because I don't have the same traits with other Leos. I can't say that I am confident, and I dislike taking the lead." (P5)

"My zodiac sign is Scorpio. General traits of Scorpio zodiac sign as bellicose, powerful, and ambitious. I think I reflect these traits because when I look at my life, I can see I am a person who has these personal traits." (P9)

"My horoscope is Libra. They say Libras are the most balanced, fair, passionate. In my opinion I reflect most of Libra traits." (P11)

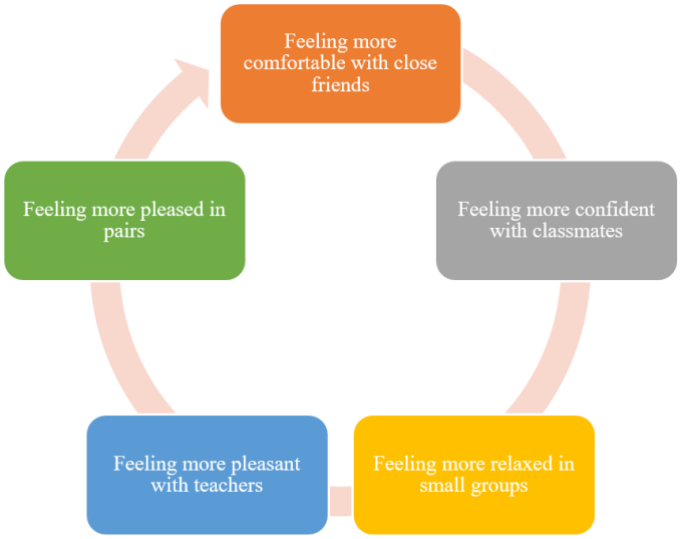

Figure 2: *Situations participants feel most willing to communicate in English*

Figure 2 depicts the situations in which participants feel most willing to communicate in English. The opinions of the participants were grouped under five themes. Among these themes, "Feeling more comfortable with close friends" was the most expressed one by the participants (f:5). In this theme, the participants pointed out that speaking with their close friends enabled them to feel more comfortable while speaking English. The situation that followed the close friends of the participants in terms of feeling more comfortable while speaking English was their classmates(f:4). Some participants reported that their classmates were a supportive force in feeling comfortable speaking English. Another situation that emerged in this regard was that they felt more relaxed in small groups (f:4). This finding revealed that the participants did not feel equally at ease speaking in front of large groups. Some participants emphasized that they felt more pleasant speaking with teachers in English (f:2). In this theme, the participants showed that their teachers were more understanding when it came to tolerating their mistakes and encouraging them to speak up. One participant noted that speaking in pairs helped her feel more pleased (f:1).

Some excerpts of the participants' opinions for the themes were as follows:

"Like I've said before, I feel nervous whenever I talk English in front of my teachers. I feel comfortable when I communicate in English with my close friends." (P3)

"Generally, I feel most willing to communicate in English when I am with my friends or classmates." (P9)

"I feel most willing to communicate in English generally in small groups, in front of the few people." (P7)

"I feel more comfortable speaking English with teachers because I know that even if I make mistakes, they will not judge me or belittle me." (P8)
"I believe that pair work is the most effective way to practice English since it gives learners more speaking time. I do feel the most comfortable when I work in pairs too because there's only one person, I need to explain myself." (P1)

The assumption that led to the investigation of this article was whether the months the students were born in, that is, their horoscopes influenced their willingness to communicate in English. The study set off with 3 research questions. The first of which aimed to find an answer to whether B2 level preparatory students' level of WTC differed according to their a) horoscopes, b) age, c) gender, d) faculty. On the contrary to what was assumed, the students showed no tendency to communicate according to their horoscopes. The only variable that had a significant effect statistically was the faculty of the students. The preparatory students of the education faculty tended to have a significantly higher level of willingness to communicate. When looked back at the literature, similarly, Ahmed (2006), found that no horoscope in particular highlighted a frequency count or a percentage of significance for his hypothesis that individuals whose horoscopes subsume personal qualities and characteristics have interest in English.

The second question in research was the perceptions of B2 level preparatory class students of their willingness to communicate (WTC) in English according to their socio-demographic characteristics. As a result of the Mann Whitney Test, which was conducted to determine which binary groups were significantly different, it was found that the participants in the education faculty had higher self-perceived communication competency than the participants from other faculties both in all sub-categories and in the entire scale.

To find an answer to the last research question to what the relationship was between B2 level preparatory class students' WTC in English and date of birth (horoscope), a semi structured interview was acted out with 11 preparatory class students of the education faculty. How willing the students of different horoscopes were in communicating and how they perceived themselves in interaction atmospheres was the first case in question. The students' feelings were classified into three themes: *feeling nervous and stressed (f:6), feeling happy and proud(f:3),* and *feeling comfortable and relaxed(f:3)*. The theme "feeling nervous and stressed" was most frequently expressed by the participants. Six students out of eleven stated that what made them unwilling to communicate in English was being nervous and stressed when doing so. Subsequently, a large proportion of the participants (%91,67) stated that their personality trait affected their communication in English. They were asked to define themselves as introverts or extroverts. Five of them expressed themselves as extroverts which showed their will and enthusiasm when communicating in English. Previous studies also demonstrated that personality has a moderately significant correlation with WTC (McCroskey & Richmond, 1990; Şener, 2014; Yashima et al., 2004, Öz, 2014) or an indirect affect on WTC (MacIntryre, 2007; MacIntyre & Charos, 1996).

When the answers of the students in the interview were examined, the most communicative horoscope was found to be the Leo. 4 students out of 11 gave positive traits going hand in hand with their will and confidence in communicative activities. One student who was a Gemini also claimed to be social and talkative. The remaining horoscopes belonging to the rest of the students showed no relevance with the related topic. Although no significant effect was observed in the statistical part of the study, the qualitative data elaborated to some extent that among the 5 other stated horoscopes, Leos were more willing to communicate with their friends, with their classmates and with strangers. Based on this discussion, it can be suggested that teachers should pay closer attention to their students' personality features, and should be able to provide a variety of different communicative activities that would be appealing for both extroverts and introverts in class.

6. Pedagogical Implications

Individual differences have always been an important factor in language teaching. These factors can be anything from learning aptitude, cultural background to age, gender, and personality. As Ehrman, Leaver and Oxford (2003) put it, learner differences include, among others, factors classified under three areas. Learning styles, learning

strategies and affective variables. The third research area, namely, affective variables was the starting point of the present study. As ELT practitioners, possible interventions that could be incorporated into instructional pedagogy should always be contemplated. It was this thought that gave a prompt to conduct a study to ascertain the relevance between the horoscopes and the willingness to communicate of students. Horoscopes are considered by many nowadays to be thoroughly affecting the characteristics of individuals. Each horoscope tends to harbour a variety of feature within itself, so believe it or not, the month and hour you are born in actually innately gives you a gift of traits. Interpreting horoscopes to identify learning styles is an area of research carried out by Raggini (2019). She points out that the predictions made in the horoscopes regarding the students' language learning abilities were found to be true to a greater level. (Raggini 2019). It is implied in the present study that students who are more social, extrovert, self-confident, talkative and ambitious are those of certain horoscopes which make them much more willing to communicate in language learning. Yet, the lack of some horoscopes such as Aries and Pisces within the group being interviewed can be considered as a shortcoming.

7. Conclusion

The present study having a mixed method approach shed light to the literature by examining the influence of horoscopes on Turkish preparatory class students' willingness to communicate in English and the factors affecting it. The variable being in issue for this study was horoscopes. Does it affect students' willingness to communicate, if so, in what way. Statistical results showed that horoscopes had no significant affect on the level of the participating students' willingness to communicate who were enrolled in B2 level classes of English preparatory program at a state university. The relationship between their WTC and age, gender, horoscopes was not found to be statistically significant apart from faculty. This was assumed to be partly because the students of Education Faculty had a higher level of linguistic proficiency, motivation and probably communicatively more competent than the remaining faculties. However, the interview results gave a deeper insight in some of these areas. For instance, when students were asked about their personality and how they think it affected their communication in English and their willingness to communicate, their answers showed diversity. The adjectives and prompts they used to define themselves gave clear evidence and a direct relevance with the general traits of their horoscopes. Herewith, subsequent to the findings and processes outlined above, it can be concluded from the current study that L2 WTC is a multilayered Notion which is intricately interconnected with linguistic, affective, individual and contextual, factors (Cao, 2011; Peng, 2020) within which horoscopes do have a somewhat significant role. The study is not an acknowledgement of astrology but only a shout out to science, which has came up with more than a few examples. It is an effort to reveal the way our birthdates might influence our personalities which indirectly plays a great role on our willingness to communicate. However, there is still plenty of room for more research to assure some of the findings on this list.

Conflicts of interest

The author has not declared any conflicts of interest.

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Appendix 1: Willingness to Communicate Scale (WTC)

_____ 1. Have a small-group conversation in English with acquaintances.
_____ 2. Give a presentation in English to a group of strangers.
_____ 3. Give a presentation in English to a group of friends.
_____ 4. Talk in English a large meeting among strangers.
_____ 5. Have a small-group conversation in English with strangers.
_____ 6. Talk in English in a large meeting among friends.
_____ 7. Talk in English to friends.
_____ 8. Talk in English in a large meeting with acquaintances.
_____ 9. Talk in English to acquaintances.
_____ 10. Give a presentation in English to a group of acquaintances

Appendix 2: Self-perceived Communication Competence Scale (SPCC)

_____1. Present a talk to a group of strangers.
_____2. Talk with an acquaintance.
_____3. Talk in a large meeting of friends.
_____4. Talk in a small group of strangers.
_____5. Talk with a friend.
_____6. Talk in a large meeting of acquaintances.
_____7. Talk with a stranger.
_____8. Present a talk to a group of friends.
_____9. Talk in a small group of acquaintances.
_____10. Talk in a large meeting of strangers.
_____11. Talk in a small group of friends.
_____12. Present a talk to a group of acquaintances.

Appendix 3: Ethical Approval

NECMETTİN ERBAKAN ÜNİVERSİTESİ
SOSYAL VE BEŞERİ BİLİMLER BİLİMSEL ARAŞTIRMALAR ETİK KURULU BAŞKANLIĞI
ETİK KURUL KARARI

Etik Kurul Toplantı Tarihi/Sayısı ve Karar No	**Tarih :08/04/2022** **Toplantı Sayısı:04** **Karar No :2022/148**
Araştırmanın Başlığı	The Influence Of Horoscopes On Preparatory Class Students' Willingness To Communicate
Sorumlu Araştırmacı	Dr. Öğr. Üyesi Feyza Nur EKİZER
Etik Kurul Kararı	9191 sayılı başvuru değerlendirilmiş olup, araştırma Etik Kurul tarafından uygun görülmüştür.

ASLI GİBİDİR
08/04/2022

Doç. Dr. Ahmet KURNAZ
Etik Kurul Başkanı

Appendix 4: Consent Form

NECMETTİN ERBAKAN ÜNİVERSİTESİ
SOSYAL VE BEŞERİ BİLİMLER BİLİMSEL ARAŞTIRMALAR ETİK KURULU
GÖNÜLLÜ KATILIMCI ONAY FORMU
(Katılımcı Bilgisi Olmadan Doldurulmalıdır)

Sizi _____tarafından yürütülen "_____" başlıklı araştırmaya davet ediyoruz. Bu araştırmanın amacı _____ dir. Araştırmada sizden tahminen ___ dakika ayırmanız istenmektedir.

Bu çalışmaya katılmak tamamen GÖNÜLLÜLÜK esasına dayanmaktadır.

Çalışmanın amacına ulaşması için sizden beklenen, bütün sorulara, kimsenin baskısı veya telkini altında olmadan, size en uygun gelen cevapları içtenlikle vermenizdir. Bu formu okuyup onaylamanız, araştırmaya katılmayı kabul ettiğiniz anlamına gelecektir. Ancak, çalışmaya katılmama veya katıldıktan sonra herhangi bir anda çalışmayı bırakma hakkına da sahipsiniz.

Bu çalışmadan elde edilecek bilgiler tamamen araştırma amacı ile kullanılacak olup KİŞİSEL BİLGİLERİNİZ GİZLİ TUTULACAKTIR; ancak verileriniz yayın amacı ile kullanılabilir.

Eğer araştırmanın amacı ile ilgili verilen bu bilgiler dışında, şimdi veya sonra daha fazla bilgiye ihtiyaç duyarsanız, araştırmacıya şimdi sorabilir veya aşağıdaki iletişim bilgilerinden ulaşabilirsiniz.

Yardımcı Araştırmacı/Sorumlu Araştırmacı Tarafından Doldurulacak	
Katılımcının kişisel bilgilerinin gizli tutulacağını, katılımcının çalışma kapsamında sağlayacağı tüm verilerin etik kurallara göre işleneceğini ve bu etik kuralların ihlali durumunda, ortaya çıkacak tüm sorumluluğu kabul ettiğimi beyan ederim.	
Unvanı, Adı-Soyadı:	_____
Tarih:	_____
İmza:	
Yetişkin Katılımcının Kendisi tarafından doldurulacak □ Yukarıda yer alan ve araştırmadan önce katılımcıya verilmesi gereken bilgileri okudum ve katılmam istenen çalışmanın kapsamını ve amacını, gönüllü olarak üzerime düşen sorumlulukları anladım. □ Çalışma hakkında yazılı/sözlü açıklama araştırmacı tarafından yapıldı ve kişisel bilgilerimin özenle korunacağı konusunda yeterli güven verildi. □ Bu koşullarda, araştırmaya kendi isteğimle, hiçbir baskı ve telkin olmaksızın katılmayı kabul ediyorum.	
18 Yaş Altı Kısıtlı Katılımcının Velisi/Vasisi tarafından doldurulacak □ Yukarıda yer alan ve araştırmadan önce katılımcıya verilmesi gereken bilgileri okudum ve bu çalışmanın kapsamını ve amacını, gönüllü katılımcılara düşen sorumlulukları anladım. □ Çalışma hakkında yazılı/sözlü açıklama araştırmacı tarafından yapıldı ve katılımcının kişisel bilgilerinin özenle korunacağı konusunda yeterli güven verildi. □ Bu koşullarda, Velisi/Vasisi bulunduğum _____'nın araştırmaya kendi isteğimle, hiçbir baskı ve telkin olmaksızın katılmasını kabul ediyorum.	
Araştırma tamamlandığında genel/özel sonuçların benimle paylaşılmasını	□ İstiyorum □ İstemiyorum

Adı-Soyadı: **veya Katılımcı Kodu:**	
Tarih:	
İmza:	
İletişim Bilgileri (İsteğe bağlı):	

Bu form, katılımcının kendisi/velisi/vasisi tarafından imzalandıktan sonra araştırmacıya teslim edilecektir. Ayrıca talep edildiği takdirde, bu formun bir nüshası katılımcıya verilecektir.

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Investigation of Nutritional Level Habits in Sedentary Women According to Body Mass Index

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Abstract
In this study, it was aimed to examine the nutritional level habits of sedentary women according to body mass index. A total of 504 sedentary women with a mean age of 48.79±3.65 living in Gaziantep city center voluntarily participated in the study. In order to determine the nutritional habits of the subjects participating in the study, a three-factor eating habits questionnaire, which was adapted into Turkish in 2015 by Kıvanç et al., was applied. The "IBM SPSS Statistics 22" package program was used in the statistical analysis of the obtained data, and the normality analysis of the data was tested with the Kolmogorov Smirnov test. One-way anavo test was used to compare normally distributed data. In this study, the margin of error was taken as 0.05. As a result of the analysis; It was determined that sedentary women with a high body mass index did not avoid eating at any time of the day, and they needed to eat when they felt restless and lonely. It was also found that these women ate until they finished the food in front of them even when they were full, they saw eating as a philosophy of life and they were not very conscious about nutrition. As a result; The reason for the nutritional irregularities of sedentary women is mostly due to insufficient nutritional knowledge. We believe that it will be possible to correct sedentary women's malnutrition behaviors and gain healthy and correct eating habits through nutrition education.

Keywords: Sedentary, Diet, Body Mass Index

1. Introductıon

A healthy lifestyle is the conscious behavior of people to preserve and improve their health. Therefore, people's attitudes and behaviors regarding healthy lifestyle behaviors have a key role (Kılıç, 2017). The dietary habits of people are also a significant factor in a healthy life. However, with the development of technology and changing living conditions, large irregularities are observed in people's eating and movement habits (Akyol & İmamoğlu, 2019). As a result of technological changes, sedentary life and fast-food-type eating habits have emerged. This has led to a decline in people's quality of life and caused health problems. It should be noted that a healthy diet as well as making exercises is important for improving our quality of life and minimizing the health problems that may occur with increasing age (Ersoy et al, 2008). Although the significance of dietary habits in improving and increasing the quality of life has been gaining importance each passing day, modern lifestyle negatively affects people's healthy eating habits. The negative effects of eating habits also lead to an increase in the body fat ratio of

individuals. The increases in body mass index (BMI) cause psychological problems in individuals by creating disorders in their physical structures as well as causing health problems. The duty of sports scientists is to raise awareness of society by conducting scientific studies on these issues and to help them have a healthy lifestyle. The present study tried to contribute to science by examining the relationship between body mass index and eating habits of individuals having a sedentary life.

2. Materıal And Method

A total of 504 women living in Gaziantep city center with an average age of 48.79±3.65 and having different body mass index values voluntarily participated in the study. In order to determine the nutritional habits of the subjects participating in the study, a three-factor eating habits questionnaire, which was adapted into Turkish in 2015 by Kıvanç et al., was applied (Kıvanç et al., 2015).

Table 1: Information about the characteristics measured by the questions in the questionnaire.

Question No.	Measured characteristic
1, 7, 13, 14, 17	They measure the uncontrolled eating levels of the subjects.
3, 6, 10	They measure the emotional eating degree of the subjects.
2, 11, 12, 15, 16, 18	They measure the extent to which subjects consciously restrict their eating.
4, 5, 8, 9	They measure the sensitivity level of subjects to hunger.

Height and Weight Measurement: The heights of the subjects were measured using a stadiometer with a precision of 0.01 m, and their body weights were measured using an electronic scale with a precision of 0.1 kg in accordance with the measurement technique.

BMI Calculation: The following formula was used to calculate the body mass index values of the individuals participating in the research.

Body Mass Index = weight / height^2

Statistical Analysis: The IBM SPSS Statistics 22 software package was used in the statistical analysis and evaluation of the data. The normality of the data used in the study was tested using the Kolmogorov-Smirnov test and the distribution was found to be normal. Therefore, the One-way ANOVA test was used to compare the data of the groups with each other. In this study, the margin of error (confidence interval) was assumed to be 0.05.

3. Fındıngs

Table 2: Demographic characteristics of the subjects

Variables	N (count)	Mean ± SD
Age (year)	504	48.79±3.65
Height (cm)	504	157.78±4.12
Weight (kg)	504	88.79±3.19
BMI (kg/m²)	504	35.66±2.13

Table 3: Frequency and percentage values of subjects' body mass index

Body mass index	*Frequency*	*%*
25-30 kg/m²	126	25.00
30-35 kg/m²	126	25.00
35-40 kg/m²	126	25.00
above 40 kg/m²	126	25.00

Table 4: Mean and standard deviations of body mass index values of the subjects according to their dietary habits

Variables	**Body mass index (kg/m²)**			
	25-30 (N=126)	30-35 (N=126)	35-40 (N=126)	above 40 (N=126)
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Level of uncontrolled eating behavior (LUEB)	7.47±0.995	8.29±1.112	13.78±2.201	16.39±2.329
Level of emotional eating behavior (LEEB)	4.51±1.101	5.19±0.991	9.32±1.703	10.77±1.057
Level of consciously restricting eating (LCRE)	8.16±1.599	8.71±1.501	14.89±2.404	1744±1,798
Level of sensitivity to hunger (LSH)	6.39±0.803	6.87±0.798	11.01±1.498	14.12±1.401

Considering Table 4, according to the mean scores of the sub-dimensions of the eating habits scale, sedentary women with a body mass index of 40 and above were found to have the highest score average while sedentary women with a body mass index of 25-30 have the lowest mean score.

Table 5: Comparison of the subjects' dietary habits in terms of their body mass index values

Variables		Sum of squares	Mean squares	F	P
LUEB	Between groups	2401.001	787.976	269.899	0.000*
LEEB	Between groups	1201.498	383.997	279.402	0.000*
LCRE	Between groups	2601.500	843.799	251.705	0.000*
LStH	Between groups	1597.975	529.597	389.379	0.000*

*p<0.05

According to Table 5, the comparison of the mean squares of the scores of the eating habits scale's sub-dimensions of the individuals participating in the study by their body mass index revealed significant differences in all sub-dimensions (p<0.05).

Table 6: Multiple comparisons of the dietary habits of the subjects participating in the study in terms of their body mass index values

Variables	**BMI**	**BMI**	**Mean difference**	**Standard error**	**P**
LUEB	25-30	30-35	-.663	.411	.301
		35-40	-5.903*	.411	.000*
		above 40	-8.946*	.411	.000*
	30-35	25-30	-.663	.411	.301
		35-40	-6.003*	.411	.000*
		above 40	-8.641*	.411	.000*

	35-40	25-30	-5.903*	.411	.000*
		30-35	-6.003*	.411	.000*
		above 40	-3.003*	.411	.000*
LEEB	25-30	30-35	-.801*	.355	.018
		35-40	-5.423*	.355	.000*
		above 40	-6.619*	.355	.000*
	30-35	25-30	-.801*	.355	.018
		35-40	-4.980*	.355	.000*
		above 40	-5.679*	.355	.000*
	35-40	25-30	-5.423*	.355	.000*
		30-35	-4.980*	.355	.000*
		above 40	-1.804*	.355	.000*
LCRE	25-30	30-35	-.714	.499	.487
		35-40	-7.089*	.499	.000*
		above 40	-8.973*	.499	.000*
	30-35	25-30	.714	.499	.487
		35-40	-4.409*	.499	.000*
		above 40	-8.627*	.499	.000*
	35-40	25-30	-7.089*	.499	.000*
		30-35	-4.409*	.499	.000*
		above 40	-2.761*	.499	.000*
LStH	25-30	30-35	-.483	.381	.251
		35-40	-5.638*	.381	.000*
		above 40	-7.493*	.381	.000*
	30-35	25-30	.483	.381	.251
		35-40	-5.011*	.381	.000*
		above 40	-7.002*	.381	.000*
	35-40	25-30	-5.638*	.381	.000*
		30-35	5.011*	.381	.000*

	above 40	-2,937*	.381	.000*

*p<0.05

According to Table 6, no statistically significant difference was found between the mean scores of women with a body mass index of 25-30 and women with a body mass index of 30-35 in terms of all sub-dimensions, which were the level of uncontrolled eating behavior, level of emotional eating behavior, level of consciously restricting eating, and the level of sensitivity to hunger (p>0.05). On the other hand, considering the mean scores of the women with other body mass index values, a statistically significant difference was found in all sub-dimensions (p<0.05).

4. Dıscussıon And Conclusıon

Improper dietary knowledge and habits are one of the most significant reasons that impair the quality of life of individuals. Positive changes in dietary habits are an important parameter in reducing the risk of chronic diseases. According to the results of the eating habits scale applied to sedentary women in the present study, no statistically significant difference was found between the scores of sedentary women with a body mass index of 25-30 and sedentary women with a body mass index of 35-40 in terms of the scores of the level of uncontrolled eating behavior, level of emotional eating behavior, level of consciously restricting eating, and the level of sensitivity to hunger (p>0.05). However, a statistically significant difference was found between the mean scores of women with all other body mass index values (p<0.05). The results of the analysis revealed that the sedentary women with higher body mass index values did not avoid eating at any time of the day, they needed eating when they felt restless and lonely, they continued to eat until they finished the food before them even when they were full, they considered eating as their philosophy of life, and they were not very conscious about their diets. A study on the dietary knowledge of female adolescents reported that the knowledge level of 39.3% of the participants was poor, that of 42.7% was medium, and that of 16.9% was good (Önay, 2002). According to another study conducted on 1208 adolescents aged between 14 and 18, the dietary knowledge and eating habits of the participants were found to be poor (Yıldız, 1992). In a study conducted on university students, the effect of the level of dietary knowledge and dietary training on their nutritional status was examined. The research reported that the body mass index values of male and female students were declined after the dietary training (Kızıltan, 2000).

Moreover, studies on depressive states due to malnutrition reported that the probability of having depression ranged between 17-53% in overweight women (Zhao et al., 2009). According to the results of a similar study, individuals living as obese for a long time were observed to have depression more, and a positive correlation was found between depression and insulin resistance (Pearson et al., 2010). Furthermore, according to the body mass index's correlation with sleep quality and depression, a positive correlation was found between the increase in the body mass index value and the occurrence of depression. Poor sleep quality due to depression may cause food intake at night. Therefore, the factors of depression, sleep quality, and body mass index was considered to be stimulants in night eating syndrome (Striegel-Moore et al., 2006). In the study of Yıldırım (2022) on sedentary men, no statistically significant difference was found between the 8-week life kinetic training sub-dimensions of sedentary men and the levels of self-confidence, attention and psychological skills.

Considering the above-mentioned studies, it can be concluded that improper dietary habits, especially unhealthy diets of women with higher body mass index due to lack of dietary knowledge, lead to fluctuations in the blood glycemic index which causes hormonal disorders. Therefore, insulin resistance, which develops as a result of this hormonal disorder, increases the habit of eating irregularly and at night, which contributes to obesity, the disease of our age. A study on the glycemic index reported that diets with a low glycemic index caused weight loss in overweight people and that it also provided improvements in lipid values by reducing body mass index values and body fat (Thomas et al., 2007). In their study, Morse et al. (2006) found that night eating was associated with glycemic index values. Moreover, the prevalence of night-eating syndrome was found to be high in patients who applied for bodyweight loss treatment (Aranoff et al., 2001; Lundgren et al., 2006).

In the present study, according to the answers of the overweight women to the questions, they were observed to feel the need to eat constantly. Therefore, especially overweight individuals need to make significant adjustments in their diets by including more foods with a low glycemic index and reducing their body fat ratios by making sports activities. Thus, the decrease in the fat rate improves the hormonal mechanisms and facilitates the use of nutrients in cells. In a study, it was determined that there were positive developments in blood lipids and serum insulin levels due to the decrease in body fat ratio (Zorba et al., 2011). It also has an effect on high weight oxygen saturation levels. In a study on obese people, significant improvements were found in oxygen saturation values depending on the decreased body fat ratio (Taşkın et al., 2017).

Therefore, recent studies have focused on dietary habits and it was observed that there has been an effort to offer proper dietary habits to consumers and to change their food preferences accordingly taking into account the "health" factor. Lack of dietary knowledge leads to the occurrence of several diseases. It is undoubted that lack of knowledge will result in malnutrition habits in individuals, and it is very difficult to overcome the established habits. Thus, having knowledge about nutrition and not gaining improper habits at all are the issues to be highlighted.

To conclude, it was observed that the irregularities in the eating habits of women having a sedentary lifestyle were generally caused by insufficient dietary knowledge. It is thought that dietary training may facilitate correcting improper eating habits and gaining healthy eating habits in sedentary women.

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Online Learning Impacts on General Foundation Program (GFP) Students` English Language Academic Performance during the Covid-19

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Abstract
This paper aims to investigate the potential effect of the Online Learning (OL) mode on Omani General Foundation Programs (GFP) students` English language skills performance. Numeric data related to the learning achievement of the GFP students (tests and assignment scores) was collected to explore the hypothetical differences between the two modes of learning. Five students were selected randomly to conduct the focused group interview. The difference in favour of any mode of learning is considered as a sign of the effectiveness of that model. Independent Samples t-test was used to analyze the data and the study found that although emergent unplanned strategies and policies to employ online learning in the University of Technology and Applied Sciences (UTAS), there is a statistically significant difference between the English language achievement of the GFP students who studied through OL was higher than those who had studied Face-to-Face (F2F) before the Covid-19 outbreak. As the difference was in favor of the OL group and statistically significant (p=.002 at alpha=.05 level), the study concluded that OL students appear to have outperformed their F2F counterparts and that, based on these findings, OL is an effective method of teaching/learning. The study offers a discussion of these findings.

Keywords: Face-to-Face Learning, GFP Students, the Covid-19, Online Learning, Synchronous and Asynchronous Learning

1. Introduction

Omani universities and schools, like many other educational institutions around the world, shifted to the online teaching/learning mode due to the COVID-19 pandemic at the beginning of March 2020. The shift came as a response to an emergency rather than as a matter of choice and students, teachers, and academics adopted new methods of teaching/learning to keep the delivery of their institutions' curricula ongoing at a time when Face-to-Face (F2F) interaction entailed substantial health risks, prompting decision-makers to halt it and adopt the Online Learning (OL) alternative. While the potential health consequences of the pandemic have now largely been put under check, humanity is yet to identify and respond to the long-term implications of this global pandemic on various aspects of human life. What is obvious thus far is that a new norm has been established, as life will not return to the pre-Covid state. As education operates in no isolation from other aspects, educational provision is expected to undergo significant changes in response to a growing conviction that teaching/learning may never return fully to the old, face-to-face mode. Some new research started to study the impact of Covid 19 on students.

Some of these studies' findings indicate positive effects on students' academic performance (Gonzalez, et al. 2020; Mahyoob, 2021; Lockman and Schirmer, 2020; Zheng, et al. 2021), while others showed negative impacts on students (Fawaz and Samaha, 2021; Noori, 2021). Research is scarce in this area, however, on the effect of online learning on Omani students' English academic performance. This study, thus, explores the effect of changing learning mode on GFP students' English skills performance and how they performed in the online teaching/learning mode compared to their counterparts in the face-to-face mode in the five years.

2. Theoretical Background

It has to be acknowledged from the onset that, although the impetus for modes of learning mediated by communication technologies (known throughout this paper as 'online teaching/learning') gained momentum with the Covid-19 pandemic, the move towards the use of technology as a tool for teaching/learning predated the pandemic. Its roots may be traced back to the last quarter of the outgoing century when personal computers became available and affordable and communication technology became more reliable. The debate has generated rich literature about both the concepts and practices of online teaching/learning. It may be ventured that the focal question in this debate is about the effectiveness of online methods in delivering the desired learning outcomes; this entails an equally important question about the ability of technology to replace humans in the creative, interactive process of teaching/learning.

3. The Concept and Applications of Online Learning

Many different concepts have been attributed to e-learning such as computer-based learning, technology-based training, computer-based training, and more recently online learning (Sangrà, et al. 2012). Online learning or e-learning refers to any learning process that takes place over the internet or " any learning that is Web-based or Internet-enabled" (Abbad, et al. 2009, p.2). It is not new and it has blurred the boundaries of traditional language instruction so teachers are no longer teaching using only printed textbooks and whiteboard and markers or blackboard and chalk. They started to employ a variety of electronic educational tools (e.g., Google Classroom, Skype, etc.) to extend students` exposure to authentic target language beyond the classroom and to entice their attention. Elliott-Dorans, (2018) found that preventing students from using laptops leads to hinder student performance in the class more than to help. Many new models of learning have emerged to better utilize technology for online learning, e.g.: the Flipped Learning pedagogical model, introduced by Kari M. Arfstrom in 2013 (Lesley University, (n.d.)), which refers to maximizing learning time and enabling teachers to utilize class time for active learning and provide students with supplementary materials to be viewed and studied at home.

On the other hand, using technology is not an alternative to instructors` interaction and guidelines but as a complementary and that technology can lead to negative effects on students` performance when it is not guided by instructors and parents. That is, students with different levels and grades, without appropriate management, might tend to overuse technology and/or use it for entertaining more than educational purposes which, as a result, lead to negative academic outcomes (Carstens, et al. 2021). Banning using smartphones, as Beland and Murphy, 2015 study showed, leads to improving low-achieving students' outcomes and does not affect high achievers.

Students' and teachers' F2F interaction and presence are vital and powerful in language learning as body language (e.g. facial expression, eye contact, growing, movement, etc.) may largely contribute to successful communication. With the remote distance between students and teachers, body language and interaction might become harder between students themselves and between students and teachers. In online learning, students with kinesthetic learning styles might be negatively affected. That is to state, students in fully OL might face many challenges like lack of physical and body interaction (Al-Nofaie, 2020; Newman, 2020) in which learning outcomes will not be achieved as planned.

The teacher can easily adjust his/her teaching method and provide instant feedback to suit students` levels and interests, which technology is hardly able to achieve. According to Darling-Aduana and Heinrich (2018), teachers can easily make adaptations to the used language but technology-based programs that assume grade-level reading

regarding the personal information of the signed participant may not be "practical in all settings, discouraging use and effectiveness if these are the only accessible resources" (p.419)

The question about the role of technology as an alternative teacher or mediator is even more crucial in the teaching/learning of language. Language learning refers to developing the skills and abilities in the use of an oral/aural, written, and semiotic code to communicate and socialize with the community using that code. As it has become a global language, used worldwide to facilitate universal communication, educational systems throughout the world have responded to the growing need to introduce English in their curricula, albeit to varying levels: while in some countries English was simply taught as a second or foreign language, many others adopted it as the language of instruction in all or some school subjects, notably in the fields of science and medicine. One such country is the Sultanate of Oman, an Arab country where English is the medium of teaching and training in private and public higher education institutions (Al-Issa, 2005). In EFL contexts, learning a new language effectively should be an interesting process and recent research suggests that the use of technology inside and outside the classroom, i.e., in teaching/learning may make this process even more motivating (Godzicki, et al. 2013; Ahmadi, 2018, Abo-alhija, 2021). The value added to the learning process is attributed to technology's ability to utilize and mobilize the learners' various senses, providing thus new learning opportunities for people with a variety of learning styles, interests, and needs. In other words, students can view and grasp the content of the course via using a variety of ways like in the form of texts, pictures, videos, tables, or graphs which can motivate, activate, and energize the students and encourage more thought-provoking (Yunus, et al., 2013; Licorish et al. 2017).

4. The Case for Online Teaching/Learning

Research comparing the potential impacts of OL and F2F teaching/learning on students' performance has not reached definitive, authoritative conclusions. Some research found that students perform better under the OL mode, whereas another body of literature argues that F2F teaching/learning is still the mode of choice for effective learning and the third set of researchers found that the teaching/learning model does not appear to be a predictor of learners' performance.

Ebadi and Rahimi (2019) examined the impact of using online synchronous learning and interaction with participants (through Google Docs) to provide standardized scaffolding feedback (Dynamic Assessment (DA)) on IELTS students' academic writing skills. The students benefited from the process and their IELTS writing skills have improved. Similarly, Narayanan and Mathew (2021) also studied the effectiveness of online learning on six Omani students` IELTS writing skills. The students were interviewed to self-assess themselves and teachers were interviewed to assess their students and the learning process. Students' results in the pre-test were compared to the post-test results. The study showed the positive effect of online learning on students' IELTS writing skills. This finding has been echoed in Croatia where Librenjak, et al. (2016) studied e-learning materials related to the curriculum and deployed them in Asian language (FL) classrooms. Croatian students were tested in grammar, vocabulary, and reading. Students` results in the pre-test were compared to their post-test results to identify the effectiveness of using e-learning. The results of the study showed a positive great improvement in the skills of reading, vocabulary, and grammar in students who used e-learning materials more frequently and only a slight difference in students who used e-learning materials less frequently. As communication has now become more associated with mobile/portable technology, the use of various communication gadgets as teaching/learning tools has become more frequent. Mahmoudi (2020) studied the impact of online learning via smartphones, i.e., Mobile-Assisted Language Learning (MALL), on Iranian EFL learners' grammatical accuracy improvement in the domains of knowledge, comprehension, application, and analysis. In his study, he divided the students into two groups; one in an experimental group and another in a control group. By comparing students' results in pre-test and post-test in both groups, the findings showed that the students' English grammar performance in online classrooms was much better than the students who studied it using the traditional method. Students', based on questionnaires he used, levels of motivation to learn English were also boosted.

Educational platforms such as Google Classroom, Moodle, Google Meet, etc. are designed for teaching/learning. They provide the students with a variety of interaction channels including chat rooms and video-conferencing. This allows learners to communicate with their teachers or classmates, providing them thus with an opportunity

to use and improve their writing, vocabulary, grammar, and reading skills. Kamnoetsin (2014) illustrates that in his study, he used Facebook as an interactive learning and socializing platform, positive impact on learners` writing, grammar, and vocabulary abilities. Besides, the actual performance improvement, learners who used OL appeared to have positive perceptions about the impact of this mode on their performance (Marcum and Kim, 2020; Kamal, et al. 2021).

On the other hand, OL is challenging and learners acknowledge that the main difficulty they encountered in distance learning was the lack of teacher-student interaction ((Pulker and Kukulska-Hulme, 2020) and which affected their learning outcomes. In Callister and Love's study (2016), students learning outcomes were compared in OL and F2F modes and they found that the F2F group outperformed the OL group in negotiation. They contributed this result to the lack of body movement and interaction. Similarly, Tratnik, et al. (2019) indicated in their study that students were less satisfied with the OL compared to F2F due to the lack of interaction. Students prefer F2F as it provides a memorable learning experience and less stressful environment, (2019). Students admitted that their learning has worsened when they moved to e-learning due to COVID-19 (Chen, et al., 2021). Many other studies found students' grades in F2F were higher than in OL ((Bettinger et al., 2017, Fischera, et al. 2020). Other studies indicate no significant difference between students` achievement in the two modes: F2F and OL (i.e. Lyke and Frank, 2012; Szeto, 2014; Lau, 2017). For example, in Lau's study (2017), she concluded that there was no significant relationship between using smartphones for academic purposes and learners` achievement.

5. The Setting of the Study

In line with the guidelines from the Supreme Committee, the Ministry of Higher Education and Research Innovation (MoHERI) announced a full lockdown of all educational institutions in Oman and instructed them to shift to online learning in March 2020. The former Colleges of Applied Sciences (CAS)- the setting of the present study- followed suit, ordering the immediate closure of their premises and the shift to the online mode, provided that teaching is synchronous, i.e., the interaction between the instructors and their students is live. Given the flexibility of choosing the platforms they deem most appropriate for their students' needs, instructors tended to use Zoom, Microsoft Teams, or Google Meet to deliver their synchronous classes. Instructors were expected to follow their regular schedules during the working hours between 8 am and 4 pm and students were required to attend their classes. Attendance regulations applicable to the FTF mode continued to be enforced: failure to attend class without excuse counts as a no-show and students are withdrawn from courses if their absence in those courses exceeds the predetermined rate. Online learning feature of flexibility in time is limited, however, lessons are recorded and uploaded after the class time in Google Classroom and blackboard to enable those students who had internet disconnect during the lesson to view their lessons. In other words, synchronous teaching/learning is the default and the asynchronous mode is used as a backup in anticipation of any emergencies that may prevent students from taking part in the live classes.

For socio-cultural reasons, students don't need to activate their cameras during the regular classes, but this option does not extend to examination sessions where examinees are expected to keep themselves visible to their remote invigilators. Students are assessed using blackboard and invigilators are available to make sure students are not using any other devices except their laptops during the examination time. Two raters then mark each student's paper to ensure test reliability. The test has four sections: Language Knowledge, Listening, Reading, and Writing. Speaking is assessed on a different day. The structure and test format have not changed after using fully online learning during Covid-19 and students are tested twice (mid-term and final examination) in one semester and part of their semester evaluation process involves writing a project paper and presenting it. Consequently, the overall performance of the GFP students covers their work during the semester and examination results.

6. Research Questions

The present study attempts to answer the following research questions:

1. Does online teaching/learning (OL) have any effect on GFP students` English language performance in the Sultanate of Oman?

2. How do the GFP students of the online teaching/learning mode perform compared to their counterparts in the face-to-face mode?

The Null and alternative (research) hypotheses for both questions are as follows:
Research Question 1:

- H_0: There is no impact of online teaching/learning on the performance of GFP students at alpha=.05
- H_1: There is a statistically significant impact of online teaching/learning on the performance of GFP students at alpha=.05

Research Question 2:

- H_0: The GFP students of the online teaching/learning mode perform at the same level as their counterparts in the face-to-face mode at alpha=.05.
- H_1: The GFP students of the online teaching/learning mode perform differently (higher or lower) from their counterparts in the face-to-face mode at alpha=.05.

7. Study Sample

For this study, a sample of n=768 scores were randomly selected among the overall scores of the GFP level A students, ages between 17-18 years (both males and females). GFP students in the six CAS colleges were selected as the population of this study because they adopt the same synchronized course materials and course objectives and are assessed using unified assessments. All the students involved in this study belonged to level A because this level is considered as the main door to move on to higher education programs and lower levels (B, C, and D) are subsumed to it, as those students placed in these levels have to achieve the learning outcomes of level A before they are allowed to start their post-foundation programs. Half of the cases (n=384) were randomly selected from the period between Fall 2017 to Fall 2019, i.e. when teaching/learning was face-to-face. The second half (n=384) was selected from the GFP students' scores during the pandemic period when OL was implemented, i.e., from Spring 2020 to Spring 2021.

8. Scope and Limitations of the Study

The scope of the present study is restricted in many respects. In terms of the target population, it was restricted to the GFP students who studied in the former Colleges of Applied Sciences before and during the Covid-19 pandemic. More specifically, only those students placed at the A level were included. Concerning the method of research, the experimental method was ruled out, leaving the study with the only option to adopt a descriptive approach.

9. Data Collection

The data collected for this study consisted of authentic results which GFP students scored at the end of academic semesters. As mentioned above, the final result of each student is regarded as a reliable indicator of their performance, as it encompasses the cumulative results of all assessments used during the semester namely: project and presentation, mid-term, and final examination. The project is a written piece during the whole semester which aims to encourage students to research and write academically about a specific topic. The students, at the end of the semester, present their projects. The students also have mid-term in Week 8 and final examination in week 16 of the semester. Both examinations adopt the same format: language knowledge, listening, reading, and writing, while speaking is assessed on different days.

Approval for access to the data was secured through the appropriate procedures and the scores were submitted in the form of data sets disaggregated by college, academic year, semester (Fall, Spring), and level (A, B, C, and D). The scores of Level A were consolidated into two sets, one for the semesters covering the F2F period and the other for the semesters where OL was implemented. The sample (n=736) was then randomly selected equally from both

sets and with both genders. Then, five students from those who experienced online learning during the pandemic, cohorts spring 2020 to spring 2021, were selected randomly as a focus group to dig deep to analyse the effect of online learning on students` performance from their perspectives. The interviews run in Arabic to avoid any lack of language that may hinder their expressions. The interviewees were informed about the research purpose and the interview was recorded, translated, and coded to find out major themes.

10. Data Analysis

The factors that helped determine the most appropriate tool for data analysis are as follows:

- The Grouping Variable (mode of study) consisted of two levels: online and face-to-face
- The data analyzed consisted of two sets of numeric data (namely), namely the performance of both online and face-to-face GFP students
- The data was collected from two separate groups of GFP students and not from the same students under two different conditions
- There was no manipulation of the data or procedures on the part of the researcher; the numeric data collected was the authentic scores of GFP students before and during the Covid-19 pandemic, i.e., the F2F and OL GFP students
- The data analysis process consisted only of comparing the two means
- Major themes and students' concerns of OL effects on academic performance are collected from the focused group interview

As the study design was descriptive rather than experimental, the Independent Samples T-test emerged as an appropriate tool and was used to compare the two means. A two-tailed analysis was conducted, as the study focused primarily on the potential similarity or difference between the means rather than on the performance of a specific group. The significance level was set at alpha=.05 level and the confidence interval at CI=3.5 due to the relatively large sample.

11. Findings

As mentioned above, the study aims to explore the potential effects of online learning on GFP students' English language performance by comparing their performance to the performance of GFP students who studied face-to-face. The study found that:

Table 1: Group Statistics

-	Mode	N	Mean	Std. Deviation	Std. Error Mean
Score	FTF	384	69.2214	13.83714	.70612
	OL	384	72.2500	13.16996	.67208

Table 2: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Score	Equal variances assumed	.032	.859	-3.107	766	.002	-3.02865	.97483	-4.942	-1.114
	Equal variances not assumed			-3.107	764.14	.002	-3.02865	.97483	-4.942	-1.114

- The T-score (F2F-OL) is negative (-3.107), suggesting that the performance of OL students is higher than the performance of their FTF counterparts. This is confirmed in **Table 1** where the mean score of OL students was m=72.25 whereas the FTF students' average performance was m=69.22
- As **Table 2** shows, the difference between the two groups is statistically significant (p=.002), at alpha =.05 level. The study rejects the null hypothesis (H_0) of no difference between the two means.
- A focused group interview has revealed two major themes which are convenience and accessibility.

Given the findings above, it appears that online learning (OL) has a positive effect on GFP students` English language performance. Students taught online tend to outperform their counterparts who study face-to-face.

12. Discussion

On the positive side, the conclusions reached by the present study hardly constitute any surprise: the general finding that the learning model is a predictor of learner performance is in line with the role of the environment in the learning process. More specifically, as outlined in the theoretical above, there is extensive research supporting the positive role of the online mode on the learners' performance. Lumadi (2013) found that online learning has a considerable positive effect on students` performance in which students who were taught using online learning/teaching consistently performed much better than students who were taught using the traditional learning/teaching methods in terms of student feedback. Although the CAS colleges' shift to the online mode took the form of a hasty, ill-planned move, with little training and infrastructure and up-to-date technical support (Slimi, 2020), two possible factors may be advanced to justify the rather unexpectedly positive results. Firstly, by the time the shift to online teaching was instated, CAS colleges were not completely unfamiliar with this mode; some of them had already been using educational platforms like Google Classroom and Moodle even before COVID-19 breakout to enrich the student learning experience. In other words, online learning was approached as supplementary rather than an alternative to face-to-face teaching/learning. Online platforms were used partly to post extra supplementary activities and lessons outside the classroom. Secondly, the results suggest that the young generations' adeptness to modern communication technologies may be a factor that institutions of higher learning need to take into consideration as potential facilitators of learning.

Students in the focused group interview expressed more positive feelings than negative toward the online learning experience. Two major themes were found which are: convenience, accessibility. Students stated that online

learning helps them to focus more as it provides them with a convenient environment. "*I feel more convenient at home holding my laptop with its screen very closed to me".* However, providing a convenient environment to students might sometimes be a disadvantage " *I sometimes tend to miss my classes and sleep or go around after being registered as a present".*
Students, also, expressed a high level of satisfaction when it comes to the easiness of using various websites to read, translate, and visualize. " In online learning, I can easily use a dictionary to help me translate some words and I do not see any problems with using multiple websites to expand my knowledge and learn something new".

However, students expressed negative feelings toward their teachers' attitudes and false expectations of their performance. On the negative side, there are procedural details that may have influenced the study findings. One such procedure is the administration of examinations remotely. With the narrow limit of the camera to capture 360-degree angles, there is no guarantee that students may not have access to unlawful means of support during examinations. According to Parksa, et al. (2018) technology has 'serious risks to academic environments and therefore has also been credited with the increased prevalence of academic cheating, or cyber-cheating, among students' (p. 308). Students might get better results in online learning because they were able to get assistance from outside resources, i.e., the internet or peers without invigilators' knowledge. Guangual et al. (2020) identified online cheating and dishonesty during Covid-19 as one of the main challenges encountered by faculty members in Oman when they were asked to express online learning challenges during the Covid-19 pandemic. Because of this shortage, teachers tend to express negative feelings toward students' answers. *" Our teachers always expect that we cheat and the essays we submit are not ours, but, with technology, we can read and check our grammar and vocabulary so obviously our writing will not be the same when technology is not available."*

Regardless of the statistical significance of the differences between the two groups and the practical importance of the findings of this study, it may be worth digging deeper below the surface to explore how and how much each of the language components is affected by online learning. While the overall performance appears to be improving, there may be language components where the effect may be adverse. Understanding how language learning is improved by the online mode of teaching/learning helps identify the mediation factors in the process which, in turn, provides curriculum designers valuable information on how to use technology optimally in learning. Thus, more qualitative studies on teachers' perspectives and evaluation of the effect of online learning on students' performance during and after the pandemic are encouraged in the future.

13. Conclusion

A learner`s academic achievement and productivity are affected by many factors (Walberg, 1981). Students' learning outcomes are influenced by learners' environment, learners` aptitudes, and frequency and quality of instruction. Face to face and online learning are two different environments. Many studies and academics encourage instructors to better utilize technology in learning and instruction as they believe that using technology contributes to enhanced learning. Teachers can easily post links that directly take students to watch, listen, and participate simultaneously with much engagement. However, online learning is not without risks, and without sufficient training and support to handle technical obstacles the results might be determining. To use technology effectively, educators need to design, organize, and follow up the process of students learning.

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Teacher Participatory Practices to Enhance Students' Leadership Skills

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Abstract
This study aimed at helping students to improve their leadership skills by utilizing the methodology of Participatory Action Research in which two cycles of research (one cycle per semester) were conducted during the Academic Year of 2021. The three anticipated developmental outcomes of change, learning, and knowledge were gained through the practices, which were administered in the particular setting of the Noensangawittaya School in Chaiyaphum Province. The target group for development consisted of 191 high school students, and 13 teachers served as the study's co-investigators. The findings revealed the changes that had been anticipated. In accordance with the comparative analysis of the three phases (before and after the first cycle of practices and after the second cycle), it was discovered that in order to improve the students' leadership skills, the co-researchers had continued to increase their activities since beginning the first phase. In a similar vein, there had been advancements in the leadership skills of the students. Together, the research team, the co-researchers, and the school discovered that any form of development, which prioritizes democratic or participatory principles, will produce better results. Additionally, a grounded theory known as the "Model for Developing Students' Leadership Skills: The Success of Lessons Learned through Participatory Action Research at Noensangawittaya School" was developed from the practices, which had been employed in this research.

Keywords: Leadership Skills, Participatory Action Research, Learning by Practice, Gaining Knowledge from Practices

1. Introduction

Half (2021) said, "Few are born leaders, but everyone can be made a leader." Likewise, Patulli stated (2018), "Everyone has the potential to be a leader when they use their ability to influence and take action." Whereas Kruse (2012) drew on famous quotes about the relationship of education and learning to the development of leadership skills, "Education is the mother of leadership."- Wendell Willkie and Leadership and learning are indispensable to each other." - John F. Kennedy.

Taubenfeld (2021), who is an assistant editor for Reader's Digest, stated, 'Good leaders encompass ten skills: integrity, the ability to delegate, communication, self-awareness, gratitude, learning agility, influence, empathy, courage, and respect.' At the same time, he assembled leadership quotes from notable leaders around the world, which were consistent with the statement 'Everyone can be made a leader.' For example, the following quotes demonstrate the truth of the previous quote: "The ability to learn is the most important quality a leader can have." —*Padmasree Warrior, CEO & founder of Fable*; "The most dangerous leadership myth is that leaders are born—that there is a genetic factor to leadership. That's nonsense; in fact, the opposite is true. Leaders are made rather

than born." —*Warren Bennis, American scholar, organizational consultant, and author*; "Leadership is not a person or a position. It is a complex moral relationship between people based on trust, obligation, commitment, emotion, and a shared vision of the good." —*Joanne Ciulla, author, and educator*; and "Leadership is not about men in suits. It is a way of life for those, who know who they are and are willing to be their best to create the life they want to live." —*Kathleen Schafer, CEO of Human Being Store.*

Regarding the development of student leadership skills, India Today Web Desk (2019) pointed out that leadership is the art of motivating, influencing, and directing a group of people to work together and to achieve the goals of a team. In each phase of life and at every stage of growth, leadership skills are a wealth that is worth possessing. It is for this reason that it is necessary for "students" to experience leadership opportunities during their schooling. If pursued and practiced with diligence, leadership can become well-implanted within an individual so that it can advance his/her professional and personal growth. The most crucial characteristics of a student leader are being goal-oriented, being honest, being hardworking, having a willingness to serve others, being a good listener, being a good communicator, and being a good decision-maker, as well as encouraging others, having a positive mindset, and being responsible.

Leadership skills can be developed for students. Fulton (2019) asked, 'How can you develop student leadership in schools?' He made the observation and explained that 'These types of students are generally what we would refer to as "natural-born leaders." However, does this ability make them good leaders? Does being a natural leader mean that anyone, who isn't as charismatic or persuasive, can't be a leader? What other traits and skills are needed in order for a person to become a good and effective leader? Fortunately for the world, leadership is something that can be taught.' At the same time, he suggested the following guidelines to develop students' leadership skills: 'Work hard, listen to the others, communicate their desires, make the final decisions, encourage others in their tasks, maintain a positive attitude; and take responsibility for the outcome of the project.'

In accordance with the concepts of "Everyone can be made a leader.", "Education is the mother of leadership.", "Leadership and learning are indispensable to each other.", "It is necessary for "students" to experience leadership opportunities during their schooling." and "Leadership skills can be developed for students," the research team was inspired to carry out the project: "Teacher Participatory Practices to Enhance Students' Leadership Skills" for students at Noensangawittaya School in Chaiyaphum by utilizing the methodology of Participatory Action Research (PAR). In this research, 13 teachers were the co-researchers, and 191 high school students composed the target group for development. The research was conducted in accordance with the characteristics of the research methodology in which the researchers and co-researchers collaborated in conducting the research equally from the processes of planning, acting, observing and reflecting in a manner that is a spiral drill circuit with continuous operations. These processes brought about successful changes and sustainable development due to the commitment to participation at all stages, which enabled the research team and co-researchers to learn from all the practices. Ultimately, this would enable the school to develop new knowledge, which could be used as a model for the further development of leadership skills in this school.

2. Research Objectives

This research aimed at strengthening the leadership skills of students at Noensangawittaya School in Chaiyaphum Province by utilizing Participatory Action Research (PAR) methodology. There were 13 teachers, who served as the co-investigators, and 191 high school students, who served as the target group for development. Three development outcomes were expected: (1) there would be changes in the expected and non-expected outcomes of the practices, (2) the learning from the practices would be obtained by the research team, co-researchers, and the school, and (3) the knowledge gained from the practices would be used as grounded theory in the specific context of Noensangawittaya School.

3. Literature Review

Participatory Action Research methodology, which was employed in this research, focuses on a review of the literature in order to obtain a wider variety of theoretical suggestions to present to the co-researchers and to

integrate in the suggestions from their experiences, which would, thus, yield vigorous development. It is consistent with the principle: "Theory and practice should be interwoven, and for this reason it is useful to think of the process as braiding a rope where the two aspects are continually connected together" (Flinders University, 2022). Therefore, in order to obtain a variety of theoretical suggestions, the research team, studied the theoretical perspectives on the 6 following issues: 1) the definitions of leadership skills from the concepts of NCTE Publications (2018), Psychology Today Staff (n.d.), Roffey Park Institute (n.d.), Science of People (n.d.), Skills You Need (n.d.), Smith (2010.), Ulrich (n.d.), and Ward (2020); 2) the importance of leadership skills from the viewpoints of Management Study Guide (n.d.), Henry (n.d.), Mittal (2020), Sharma (2018), Tasneem (n.d.), Anglia Ruskin University (n.d.), and Skills You Need (n.d.); 3) the characteristics of leadership skills from the perspectives of Eastwood (2019), Krakoff (n.d.), Mayhew (2018), Tobak (2017), and Waters (2021); 4) the developmental guidelines for leadership skills from Chastney (2020), Cherry (2019), Dawson (2019), Francisco (2518), Julka (2518), Prossack (2021), Reddy (n.d.), Yan (2019), and Zigarmi (2018); 5) the procedures for developing leadership skills from the concepts of Marone (2017), Davies (n.d.), Kangan Institute (2021), Petsinger (n.d.), and Ulrich (n.d.); and 6) the evaluation of leadership skills from the notions of Big Dog's & Little Dog's Performance Juxtaposition (2015), Nettles (2014), Stevens (2008), and White (n.d.).

According to the results of the study of the literature on the six mentioned issues, the researchers considered the viewpoint that the development of principles, concepts, techniques, methods, and activities are essential to broaden the co-researcher's perspectives on a variety of developmental approaches that strengthen the "Teacher Participatory Practices to Enhance Students' Leadership Skills." Therefore, the researchers presented 39 developmental guidelines (principles / concepts / techniques / methods / activities), which were derived from the synthesis of information from the scholars mentioned above: 1) being a visionary, 2) being motivated, 3) serving, 4) having creativity, 5) building a team, 6) having a flexible leadership style, 7) generating leadership intelligence, 8) recognizing the importance of personal power, 9) taking a positive approach, 10) taking initiative, 11) inspiring and motivating others, 12) analyzing strengths and weaknesses, 13) listening, 14) dealing with conflict, 15) modeling great leadership for others, 16) understanding your strengths and using them, 17) setting concrete goals and executing them, 18) motivating others, 19) finding a higher purpose, 20) continuing to learning, 21) communicating, 22) always seeing the bigger picture, 23) letting your actions speak, 24) serving as a role model, 25) being passionate, 26) taking more initiative, 27) improving communication skills, 28) gaining knowledge about leadership styles, 29) thinking critically, 30) advocating for creativity, 31) listening effectively, 32) following the role model, 33) being well-disciplined, 34) possessing a clear vision, 35) having the talent to delegate tasks, 36) trying new ideas, 37) upgrading traditional leadership skills, 38) developing a common leadership practice across an organization, and 39) being an inspiration (being a good leader depends upon how things get done).

4. Research Methodology

4.1 The types of Action Research

Carr and Kemmis (1992) categorized action research into three levels. Firstly, there is Technical Action Research, wherein the researcher acts as an outside expert, who brings his own ideas, plans, or projects to the participants. Secondly, there is Practical Action Research, in which the co-researchers are more involved with the researchers. Unlike the first type, the researchers' ideas, plans, or projects are not totally put into practice. In contrast, the researchers will function as consultants to motivate, raise issues, and to direct the co-researchers to think, act, observe, and reflect. Thirdly, there is Emancipatory Action Research (also known as Participatory Action Research), which has an important aspect in which the researchers participate in the research along with the co-researchers in a collaborative manner that gives each party equal status.

The methodology of Participatory Action Research (PAR) was chosen for this research. According to the results of an analytical and synthetic study by Sanrattana (2018), written by Arhar, Holly and Kasten (2001), Carr and Kemmis (1992), Coghlan and Brannick (2007), Creswell (2008), James, Milenkiewicz and Bucknam (2008), Kemmis and McTaggart (1992), McTaggart (1991), McTaggart (2010), and Mills (2007), it was found that the PAR methodology is a research paradigm that is in line with the concept of critical social science or pragmatism.

It is a type of research that partially uses scientific methods and a participatory action approach in a manner of collaboration between the researchers and the co-researchers. In order to affect the improvement of practical changes and better living conditions, both sides share equal status in the processes of Planning, Acting, Observing, and Reflecting (PAOR) in a continuous spiral cycle.

4.2 The Cycles, Steps, and Ethics of the Study

Participatory Action Research (PAR) methodology operates in accordance with the Planning, Acting, Observing, and Reflecting (PAOR) process in a continuous spiral cycle. However, for this research, due to a limitation on the duration of the course, the research team determined that there would be two cycles (one cycle per semester) in the Academic Year of 2021. The participants included 13 teachers, who acted as co-investigators, and 191 high school students, who composed the target group for development. The operations in each cycle and each step were conducted as follows:

Cycle1

Step 1: Preparation consisted of 3 activities.
1) The research method was explained to the research participants, so they could understand and decide whether to voluntarily participate in the research in accordance with the Code of Conduct: "(1) the investigator must first demonstrate the nature of the research process and the benefits to the participants, and (2) those who do not wish to participate, must be recognized and respected for individual rights."
2) A collaborative approach was designed in accordance with the Code of Conduct: "(1) Engage research participants in the design of the research process and (2) joint consultation are taken and recommendations are agreed upon by all parties."
3) The lessons learned were acquired in accordance with the principles of: "(1) analyze, critique, and assess one's self and (2) learn from both successful and unsuccessful actions and be involved in the process of learning together in a systematic way."

Step 2: Planning consisted of 4 activities.
1) Brainstorming sessions were held to determine the following: "Based on the knowledge and experience of the co-researchers (Tacit knowledge mentioned in knowledge management), what should be done and how to develop leadership skills in students?" This is consistent with the principle: "Realize the potential, expertise, and being a stakeholder of the research participants."
2) The research team presented the theoretical development guidelines from the results of the literature study (Explicit knowledge mentioned in knowledge management) to the research participants. The goal was for the participants to gain knowledge and understanding in accordance with the principle: "Research participants can equally access to various information."
3) The action plan was determined by conducting brainstorming sessions to integrate "Tacit knowledge in Explicit knowledge," which was in accordance with the principle of "listening to opinions from all research participants." As a result of the action plan, 44 developmental guidelines, which based on principles, concepts, techniques, methods, or activities, were decided upon as shown in the research summary (Table 1).
4) The lessons learned were acquired in accordance with the aforementioned principles.

Step 3: Acting consisted of 4 activities.
1) Two sets of evaluation forms were created as follows: 1) Set #1 was the participants' self-evaluation form, which focused on the level of implementation of the alternative suggestions, and 2) Set #2 was the students' self-evaluation form on leadership skills. Both forms were used in the three phases (before and after the practices of the First Cycle and after the practices of the Second Cycle) in accordance with the Code of Conduct: "Research direction and expected outcomes arise from joint decisions."
2) Prior to the practices of Cycle 1, the current conditions were evaluated by using the participants' self-evaluation form, which focused on the level of implementation of the alternative suggestions, and the students' self-evaluation, which focused on leadership skills.

3) The action plan was implemented based on the following principles: "(1) in a specific context, (2) diversified skills, (3) change-oriented, (4) action-oriented, and (5) sustainable development." and in accordance with the Code of Conduct: "All research participants have influence on work."
4) The lessons learned were acquired in accordance with the aforementioned principles.

Step 4: Observing was composed of collecting data from activities and practices by using an observation form, conducting in-depth interviews and group discussions, and by using examining records or journals, maps, audiotapes & videotapes, artifacts, and field notes, etc. This was carried out in accordance with the principle of: "recording of all study participants' activities and practices" and taking into account the Code of Conduct: "(1) Any observation or review of documents for any other purpose must be authorized, and (2) Do not infringe on the copyrights of writings or other people's views without negotiation before publication."

Step 5: Reflection
Reflection consisted of the 3 following activities:
1) After the practices in Cycle 1, the conditions were assessed by using the following: a) the co-researcher's self-evaluation form, which focused on the level of implementation of the alternative suggestions, and b) the students' self-evaluation form on leadership skills.
2) To reflect upon performance, brainstorming sessions were held to examine all the results of the steps that took place in Cycle 1 in accordance with the principles of: "(1) listening to the opinions of all research participants; (2) analyzing, critiquing, and performing self-assessments; (3) learning from both successful and unsuccessful actions and creating joint learning processes in a systematic way," as well as acting in accordance with the Code of Conduct: "The performance results will remain visible and open for feedback from others."
3) To acquire the lessons learned in accordance with the aforementioned principles, the researchers used Kurt Lewin's Force-Field Analysis (Lunenburg & Ornstein, 2000) in the performance of the reflection activities to identify and better understand the following: 1) the driving force powers and how they had been used to make changes, 2) how many of the powers had produced the expected changes, 3) what the resistances to change had been and how they had happened, and 4) then from the resistances to change, what were some of the suggestions that could be utilized to increase the driving force powers and at the same time, could reduce or remove all the resistances to change so that in Step 6, the results could be used for planning. This may be an improvement on the existing driving force powers or may be the discovery of a new, more efficient drive to replace an existing one. Alternatively, it could be both adjusting the existing driving force powers and adding new driving force powers.

Cycle 2

Step 6: Planning consisted of the 2 following activities: 1) creating the action plan and 2) acquiring the lessons that had been learned.
Step :7 Acting consisted of 2 activities: 1) following the action plan and 2) acquiring the lessons that had been learned.
Step 8: Observing was composed of collecting the data from the activities by using the observation form, the in-depth interview form, or by using the group interview form, and by examining or recording as was conducted in Cycle 1.
Step 9: Reflecting consisted of 3 activities: 1) assessing the current condition after Cycle 2 by using the co-researcher's self-evaluation form to assess the level of implementation of the alternative suggestions and using the students' self-evaluation form on leadership skills, 2) brainstorming to reflect upon the performance at each step in Cycle 2, and 3) acquiring the lessons that had been learned.
Step 10: Summarizing the results of the joint research was carried out by holding a workshop with both the research team and the co-researchers to record the results of the observations, the lessons learned, the evaluation of the current conditions in three phases (before and after the practices of the First Cycle and after the practices of the Second Cycle), as well as by examining the results from reflection in Step 5 & 9. The research results were summarized in accordance with the following principles: "1) noting the specific contexts; 2) listening to the opinions of all participants; 3) analyzing, critiquing, and performing self-assessment; 4) learning from both successful and unsuccessful actions; and 5) creating a joint learning process in a systematic way" In addition, the

results were summarized in accordance with the Code of Conduct “Consultation is jointly taken and suggestions are agreed upon by all parties” and “The results will remain visible and open for feedback from others.”

4.3. The research site and research participants

Noensangawittaya School in Chaiyaphum was selected as the research area due to its convenience, the potential of the research team, and the possibility of obtaining cooperation from the co-researchers. Thirteen teachers volunteered to participate in the study, and 191 high school students composed the target group for the development.

4.4. Research tools

1) The tools for collecting the qualitative data from the activities at different stages: In accordance with their appropriateness and the situation, the researchers utilized them based on the concept of Mills (2007) as follows: 1) an observation form, 2) in-depth interviews and group discussions, and 3) an examining record or journal, maps, audiotapes & videotapes, artifacts, and field notes, etc.
2) The Co-researchers' self-evaluation form focusing on the level of implementation of the alternative suggestions: The research team and co-researchers jointly created the form to allow the co-researchers to self-evaluate their levels of implementation of the alternative suggestions in the three phases (before and after the practices of the First Cycle and after the practices of the Second Cycle). The form was categorized by a 5-rating scale: the most, very, neutral, a little, and the least. This evaluation form was neither proofed by a qualified person to check the Content Validity for the IOC: Indices of Item-Objective Congruence, nor was it tried-out with a sample to determine the Alpha Coefficient of Reliability because the questions in the form had been developed based upon the "Common Intention" of the research team and the co-researchers and had centered on the results of brainstorming to integrate “Tacit knowledge + Explicit knowledge” in the planning phase of Cycle 1.
3) Student's Self-Assessment Form on Leadership Skills: The researchers and co-researchers built upon the results of the study of traits or attributes that demonstrate leadership skills from the viewpoints of Eastwood (2019), Krakoff (n.d.), Mayhew (2018), Tobak (2017), and Waters (2021) and from the study of the concepts of assessing leadership skills from the perspectives of Maxwell (2007), Nettles (2014), Nohria and Khurana (2009), Northouse (2011), and White (2007). This assessment, which consisted of 25 questions, had a 5-rating scale: the most, very, neutral, a little, and the least.

This assessment form was examined for the Indices of Item-Objective Congruence: IOC in accordance with Rovinelli and Hambleton (1977), by five experts in the fields of Educational Administration and Educational Measurements & Assessments. It revealed that all the questions scores had exceeded the specified criteria of 0.50 for all items, which indicated that the questions in the assessment had been consistent with the developmental objectives from the perspective of Chaichanawirote & Vantum (2017).

This assessment was tried out with 30 students at another school (not in the research area) to determine the Cronbach's alpha or coefficient alpha, which is a reliability coefficient that provides a method for measuring the internal consistency of tests. It was discovered that the overall reliability coefficient had been 0.89, which was higher than the specified criteria of 0.70 (UCLA: Statistical Consulting Group, 2016) and suggested that the items had shown a relatively high internal consistency.

4.5. Data Collection and Analysis

The researchers and co-researchers contributed to every step of data collection by using the above-mentioned tools in accordance with the principle: ‘All activities and practices of all co-researchers are recorded.’ The quantitative data from both self-assessments was analyzed by Mean ($\bar{x}$) and Standard Deviation (S.D.) descriptive statistics.

Regarding the qualitative data, it was the actual data that had been obtained from observations, interviews, and recordings. The data analysis process was as follows: 1) the integrity of the data was checked to determine whether or not it had met the desired objectives; 2) the reliability of the data information was checked in order to discover

whether or not it corresponded to the actual situation by comparing the results of each record and the recording results from using the different data collection tools; and 3) the data was presented in the form of a deep critical description (Thick, Critical Description) through storytelling and in accordance with the facts and neutrality (Factual and Neutral Manner). The data also contained descriptive evidence, such as numbers, statistics, tables, graphics, photographs, and direct quotes (verbatim). In addition, there were the informants' improvised conversations that had pointed to a wide variety of feelings and perceptions on the same issues, which may support or contradict each other.

5. Research results

In accordance with the research objectives, the research results were as follows: 1) there were both expected and unexpected changes, and the expected changes were gleaned from the results of the co-researchers' self-assessments based upon the degree of implementation of the alternative suggestions and the results of the students' self-assessment on leadership skills in the 3 phases (before and after the First Cycle and after the Second Cycle); 2) the learning that was derived from the practices conducted by the researcher, the co-researchers, and the school; and 3) the body of knowledge derived from the practices.

5.1. Expected Changes

1) The implementation of alternative suggestions by co-researchers was higher. According to the evaluation of the level of implementation of the developmental guidelines, which were the principles, concepts, techniques, methods or activities of the 13 participants in the 3 phases (before and after the practices of the First Cycle and after the practices of the Second Cycle), it was found that Mean values had increased respectively at 2.56, 2.74, and 2.87. This indicated that the co-researchers had used the alternative suggestions as developmental guidelines and had accordingly put them into action more often. Considering the Standard Deviations, it was found that there had been low values in all 3 phases, which were 0.56, 0.55, and 0.67, respectively. These values indicated a low variance in the opinions of the participants at each stage. The results of the analysis of the overall and discrete data are shown in Table 1.

Table 1: A comparison of the results of the co-researchers' self-assessment to the level of implementation of alternative suggestions by comparing 3 phases: Before and After the practices of the First Cycle and after the practices of the Second Cycle

Alternative Suggestions on the Developmental Approaches in Terms of Principles, Concepts, Techniques, Methods, and Activities that were expected to be Implemented by the Co-Researchers	**Assessment Results: Before the Practices in Cycle 1**		**Assessment Results: After the Practices in Cycle 1**		**Assessment Results: After the Practices in Cycle 2**	
	$\bar{x}$	**S.D.**	$\bar{x}$	**S.D.**	$\bar{x}$	**S.D.**
1. Students are enabled to present their work in class.	1.92	0.64	2.23	0.43	2.77	0.44
2. Students are enabled to work together.	2.76	0.43	2.92	1.03	3.15	0.69
3. Students are enabled to do volunteer activities.	2.46	0.77	2.69	0.63	2.77	0.60
4. Students are encouraged to try and to make mistakes.	2.69	0.48	3.07	0.27	3.15	0.55
5. Students are encouraged to express their visions.	2.30	0.48	2.53	0.51	2.69	0.75
6. Students are encouraged to develop their visions.	2.53	0.51	2.61	0.50	2.85	0.69
7. Students are encouraged to be motivated.	2.46	0.51	2.53	0.51	2.62	0.77
8. Students are encouraged to show leadership (Service).	2.84	0.55	3.07	0.49	3.15	0.80
9. Students are encouraged to show creativity.	2.46	0.51	2.61	0.50	2.85	0.80
10. Students are encouraged to build their teams.	3.07	0.49	3.23	0.92	3.31	0.48
11. Students are encouraged to upgrade traditional leadership skills.	3.00	0.57	3.15	0.80	3.23	0.60
12. Students are encouraged to develop a common leadership practice across the organization.	2.76	0.72	2.92	0.27	3.00	0.82

Alternative Suggestions on the Developmental Approaches in Terms of Principles, Concepts, Techniques, Methods, and Activities that were expected to be Implemented by the Co-Researchers	Assessment Results: Before the Practices in Cycle 1		Assessment Results: After the Practices in Cycle 1		Assessment Results: After the Practices in Cycle 2	
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.
13. Students are encouraged to have flexible leadership skills.	2.53	0.51	2.69	0.48	2.85	0.55
14. Students are encouraged to generate Leadership Intelligence.	2.76	0.72	2.92	1.03	3.00	0.71
15. Students are encouraged to perceive the importance of personal power.	2.92	0.49	3.07	0.75	3.15	0.38
16. Students are encouraged to develop approaches to positive thinking.	2.84	0.37	2.92	0.49	3.08	0.49
17. Students are encouraged to take initiative.	2.46	0.51	2.61	0.50	2.69	0.63
18. Students are encouraged to have inspirational and motivational skills.	2.07	0.75	2.23	0.43	2.31	0.63
19. Students are encouraged to be able to analyze their own strengths and weaknesses.	2.46	0.51	2.61	0.50	2.69	0.48
20. Students are encouraged to develop listening skills.	2.30	0.85	2.53	0.51	2.62	0.87
21. Students are encouraged to develop conflict management skills.	2.53	0.87	2.69	0.94	2.77	0.93
22. Teachers should serve as role models.	2.15	0.55	2.46	0.51	2.54	0.66
23. Teachers should be passionate.	2.23	0.59	2.38	0.50	2.46	0.52
24. Students are encouraged to be role models for leadership for others.	2.53	0.51	2.77	0.44	2.92	0.64
25. Students are encouraged to realize their strengths and be able to utilize them.	2.53	0.51	2.62	0.51	2.69	0.48
26. Students are encouraged to set concrete goals and to execute them.	2.46	0.66	2.61	0.50	2.69	0.63
27. Students are encouraged to motivate others.	2.15	0.68	2.38	0.50	2.46	0.88
28. Students are encouraged to seek a higher purpose.	2.00	0.40	2.15	0.37	2.23	0.60
29. Students are encouraged to be aware of being inspired to become a good leader depending on how to get things done.	2.23	0.43	2.38	0.50	2.46	0.66
30. Students are encouraged to learn continuously.	2.61	0.50	2.76	0.59	2.92	0.64
31. Students are encouraged to learn how to communicate.	2.38	0.65	2.61	0.50	2.77	0.83
32. Students are encouraged to incorporate bigger images of the future.	2.53	0.51	2.69	0.63	2.85	0.99
33. Students are encouraged to have the courage to speak up and to take action.	2.46	0.77	2.61	0.50	2.69	0.75
34. Teachers create and introduce activities that encourage students to take initiative.	2.61	0.50	2.76	0.72	2.92	0.49
35. Teachers conduct activities that improve communication skills.	2.92	0.75	3.07	0.64	3.23	0.83
36. Teachers conduct activities that promote knowledge about leadership styles.	2.92	0.27	3.07	0.64	3.38	0.51
37. Teachers conduct activities that develop the students' critical thinking skills.	2.84	0.55	2.92	0.49	3.08	0.76
38. Teachers conduct activities that advocate creativity.	3.23	0.43	3.38	0.65	3.46	0.88
39. Teachers conduct activities that promote effective listening procedures.	2.76	0.43	2.92	0.27	3.00	0.41
40. Teachers conduct activities that encourage students to become role models for others.	2.69	0.48	2.84	0.68	2.92	0.76
41. Teachers conduct activities that promote discipline.	2.76	0.72	3.07	0.75	3.31	0.75

Alternative Suggestions on the Developmental Approaches in Terms of Principles, Concepts, Techniques, Methods, and Activities that were expected to be Implemented by the Co-Researchers	Assessment Results: Before the Practices in Cycle 1		Assessment Results: After the Practices in Cycle 1		Assessment Results: After the Practices in Cycle 2	
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.
42. Teachers conduct activities that help students to develop a clear vision.	2.61	0.50	2.84	0.37	3.08	0.64
43. Teachers conduct activities that promote responsibility about assignments.	2.46	0.51	2.61	0.50	2.85	0.90
44. Teachers conduct challenging activities that encourage students to try new ideas.	2.60	0.75	2.84	0.37	2.92	0.86
Totals	**2.56**	**0.56**	**2.74**	**0.55**	**2.87**	**0.67**

2) Higher Leadership Skills for Students According to the results of the self-assessment of the leadership skills of 191 students, which was the goal for development in the 3 phases, it was found that the mean values rose as follows: in the pre-practice phase of Cycle 1 (2.47), in the post-practice phase of the Cycle 1 (2.58), and after the practices in Cycle 2 (2.75). It illustrated that this research had resulted in better changes in the leadership skills of students. In addition, the Standard Deviations had been at low levels of 0.62, 0.61, and 0.67 respectively. This indicated that there had been a low variance in the opinions of those students, who had been the evaluators. The results of the overall and discrete data analysis are shown in Table 2.

Table 2: A Comparison of the results of the students' self-assessment of leadership skills in the 3 phases: Before and After the First Cycle and after the Second Cycle

The Characteristics or Attributes that demonstrate the leadership skills expected from the students	Assessment Results: Before the Practices in Cycle 1		Assessment Results: After the Practices in Cycle 1		Assessment Results: After the Practices in Cycle 2	
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.
1. Students have broad ideas, attitudes, and visions.	2.27	0.52	2.37	0.56	2.46	0.66
2. Students like to seek out new learning.	2.67	0.76	2.77	0.73	2.92	0.64
3. Students give constructive criticism and solve problems.	2.60	0.56	2.70	0.53	2.85	0.55
4. Students always treat others with respect and dignity.	2.50	0.63	2.60	0.62	2.69	0.63
5. Students like to talk to people, and at the same time, they are good listeners.	2.50	0.63	2.53	0.57	2.62	0.51
6. Students are able to separate important points from non-essential points.	2.40	0.56	2.47	0.57	2.54	0.78
7. Students are honest and can be trusted by others.	2.47	0.68	2.57	0.68	2.77	0.60
8. Students are assertive when necessary.	2.30	0.60	2.40	0.62	2.69	0.75
9. Students admit their mistakes and correct them.	2.37	0.49	2.47	0.51	2.54	0.88
10. Students often set goals and are able to achieve them.	2.23	0.43	2.33	0.48	2.46	0.78
11. Students like to listen to others speak the truth.	2.30	0.53	2.43	0.57	2.54	0.52
12. Problem-solving is one of the strengths of students.	2.20	0.41	2.33	0.48	2.46	0.52
13. Students are comfortable in guiding and mentoring others.	2.47	0.68	2.60	0.67	2.77	0.44
14. Students enjoy using new methods and strategies.	2.47	0.68	2.57	0.68	2.62	0.77
15. Students try to solve conflicts with others.	2.50	0.68	2.63	0.61	2.85	0.80

The Characteristics or Attributes that demonstrate the leadership skills expected from the students	Assessment Results: Before the Practices in Cycle 1		Assessment Results: After the Practices in Cycle 1		Assessment Results: After the Practices in Cycle 2	
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.
16. When students encounter a problem, they immediately find a possible solution.	2.43	0.63	2.53	0.63	2.62	0.65
17. The students' actions reflect their core values.	2.47	0.57	2.63	0.56	2.92	0.49
18. Students like to listen to the opinions of others before making their own decisions.	2.43	0.50	2.50	0.51	2.69	0.85
19. Students open up and express their feelings to others.	2.40	0.62	2.57	0.57	2.92	0.76
20. Students listen closely to the thoughts of those, who disagree with them.	2.53	0.68	2.67	0.66	3.00	0.58
21. Students listen carefully to the opinions of others before making decisions.	2.67	0.71	2.73	0.69	3.15	0.38
22. Students make an emotional effort to convince others.	2.57	0.73	2.63	0.72	2.77	0.93
23. Students work hard to come to reach a consensus in situations where there is conflict.	2.67	0.80	2.83	0.75	2.92	0.86
24. Students are flexible about making changes.	2.77	0.73	2.87	0.68	3.08	0.76
25. Students enjoy communicating with others.	2.73	0.83	2.80	0.81	3.00	0.71
Totals	**2.47**	**0.62**	**2.58**	**0.61**	**2.75**	**0.67**

5.2. The unexpected changes

In accordance with the reflection activities in Cycle 1 and Cycle 2 and the workshop to jointly summarize the results of the research from the researchers and the co-researchers, it was found that the results of this research had brought about several unexpected changes in an improved manner. Firstly, in the beginning, the level of the co-researchers' participation in the activities had been low. However, after some time, they realized the importance of the activities and the effects that these activities could have on the development of their students, and in these activities, they began to demonstrate higher levels of contribution. Secondly, this action research focused upon gathering the teachers, who were the co-researchers, and on fostering unity and cooperation so that the goals that had been set together could be achieved. Moreover, it also created a good atmosphere in which to have positive interactions with each other and thereby, created a happy work environment in which they could work together without any pressure. Thirdly, the students showed greater degrees of assertiveness and leadership.

5.3. Learning from the practices

Based on what the researchers had learned, it was revealed that working collaboratively allows for the exchange of knowledge and enhances the success of the work in a better way than working individually. As discovered from the conversations and consultation meetings, the work became more systematic. In addition, dependent assistance contributed to collective benefits rather than to personal advantages. This strengthens relationships within the organization and team because everyone thinks together and works together to solve problems, which, in a concrete way, results in more efficient and effective performance.

Furthermore, the co-researchers learned that the work, which everyone had set as a common goal and which before acting, everyone had first come to have the same comprehension of, had created an understanding and a suitable common practice. This can be seen from the phenomenon of brainstorming for the convergence of the stream of experience and from the stream of academic expertise. This allowed the researchers and the co-researchers to bring together their knowledge and their work experiences to formulate a variety of alternative developmental

approaches. As a result, with the ideas that arose from their previous experiences, the co-researchers learned the value of integrating academic concepts. This differed from what they had previously done because in the past, they had often worked based on their same or similar experiences, which they had carried out without integrating any new ideas into the work or being creative.

Regarding the learning in the school, any development that places emphasis on participatory or democratic principles contributes to better development, such as in the case of developing leadership skills for students through various joint activities, which are based on experiential learning principles and on participatory learning. By using this method, the students were given opportunities to express themselves. Both thoughtful and practical skills, which can be applied to continually develop the students' potential, were shared with them.

5.4. Knowledge from the practices

Knowledge gained from the practices in this research represents a body of knowledge, which is based on the framework of Kurt Lewin's Force-Field Analysis (Lunenburg & Ornstein, 2000). The framework describes the relationship between expected changes and driving force power that is used to bring about change and how resistances to change can be overcome within specific contexts.

There were two expected changes: 1) it was expected that the co-researchers would implement the joint development guidelines and put them into action, and 2) it was also expected that the students would have developed leadership skills according to comparisons from the three phases (before and after the First Cycle and after the Second Cycle). The positive changes were identified based on the means and standard deviations.

The driving forces, which were employed in the research and which resulted in the two expected changes, consisted of the "three main driving forces": 1) the usage of Participatory Action Research methodology, in which the main element focuses on the equal collaboration between the researchers and the co-researchers in planning, acting, observing, and reflecting in a spiral cycle; 2) the usage of Buddhist teachings as a reminder to work with quality and success; and 3) an action plan, which had resulted from the integration of the co-researchers' previous experiences with the viewpoints from the academic literature study. The study was conducted under the principle of "Listening to all co-researchers' opinions" and in accordance with the Code of Conduct: "There was consultation, and recommendations were agreed by all parties." Moreover, there were the "three driving forces," which consisted of: 1) formulating the principles of collaboration between the researchers and the co-researchers that attaches importance to communication, (delegation, efficiency, ideas, and support); 2) setting the collaboration strategies that focused on positive attitudes, being accountable, reading a lot, continuing to learn, and using digital organization tools; and 3) identifying the steps to be used to implement the shared developmental approaches, which prioritized shared planning, shared implementation, shared observations, and shared reflection.

When examining the resistances to change and how to overcome them, the key findings consisted of the following: 1) most of the co-researchers did not have any knowledge of Participatory Action Research, which meant that the researcher had to provide them with a handbook that outlined the research step-by-step; 2) the co-researchers lacked the skills to integrate ideas from their own experiences with theoretical concepts, which, therefore, required the researcher to clarify the points, to encourage the co-researchers, and to use a case study as an example; 3) the co-researchers lacked the skills to take lessons learned and the skills to summarize learning outcomes from the practices, and this required the researchers to find good examples for them to study as a guideline for practice; and 4) the co-researchers had routine tasks to do, which led to time constraints for participating in the activities of many stages of the research. Furthermore, the researcher needed to periodically encourage and motivate them to take part in the research.

6. Discussion

This research is a study in the field of educational administration in which the research team has considered the response to the professional standards of educational institute administrators and education administrators, which

has been set by The Teachers Council of Thailand. Accordingly, the following theories and principles of educational administration must be utilized: 1) analyze, synthesize and create a body of knowledge from practices, 2) develop teachers and personnel in educational institutions so that they are able to perform their duties effectively, 3) create developmental activities for learners, 4) strive to develop colleagues so that they are able to work at their full potential, 5) develop work plans that are practical and effective by placing emphasis on obtaining permanent results, and 6) create opportunities for development in all situations (The Teachers Council of Thailand, n.d.).

Therefore, in addition to the six driving forces mentioned in this research titled, "Teacher Participatory Practices to Enhance Students' Leadership Skills", the research team also placed special emphasis on the principles of educational administration. Therefore, it is expected that those, who are interested in the results from this research, will use the following principles as reminders in their future studies: 1) Change management takes into account the principles of understanding changes, planning for changes, implementing changes, and communicating changes (Mind Tools Content Team, n.d.); 2) in management that is based on a democratic/participative leadership style, actions by them and for them are based on equality (STU Online, n.d.); 3) Administration uses an open approach, which places emphasis on the critical science of reflection for learning and creating new knowledge from practices in a specific context (Gordon, 2022); and 4) Theory Y management centers on the belief that the actual potential of the co-researchers can be integrated with the principles, concepts, or theories to result in effective practices (The Economic Times, 2022).

According to the practices of using the six driving forces and paying special attention to the four principles of Change Management, Democratic/Participative Leadership Style, Open Approach, and Theory Y, it was found that they had contributed to a body of knowledge that demonstrated the causal relationship of the forces for change in development that the researcher believes had resulted in both expected and unanticipated changes. Moreover, in the development, it was revealed what the resistances to change had been, and how the researchers and co-researchers had overcome the obstacles. Therefore, it is an important lesson that shows a successful operation, which can be used as a guideline to continuously develop the leadership skills of students in "Nernsangawittaya School" in the future. This research represents knowledge, which was derived from grounded theory and gained from the practices carried out in the specific context of this school. Therefore, it is not applicable to be referenced in general. However, some ideas or important events that have arisen from this research can be applied in other schools that are similar in nature or that are pursuing similar changes, in accordance with Coghlan and Brannick (2007) and James, Milenkiewcz, and Bucknam (2008).

7. Suggestions

Regarding the body of knowledge gained from this research, which the research team has called the “Prototype Model for Developing Student Leadership Skills: Lessons Learned from Participatory Action Research at Nernsangawittaya School”, other schools, which desire to adapt or to apply the model in accordance with their own contexts, should visualize it as a system that demonstrates the interrelationship of expected changes, the driving forces that are used to produce the changes, the resistances to change, and the best ways to overcome the resistances to change in a specific context as shown in the illustration below:

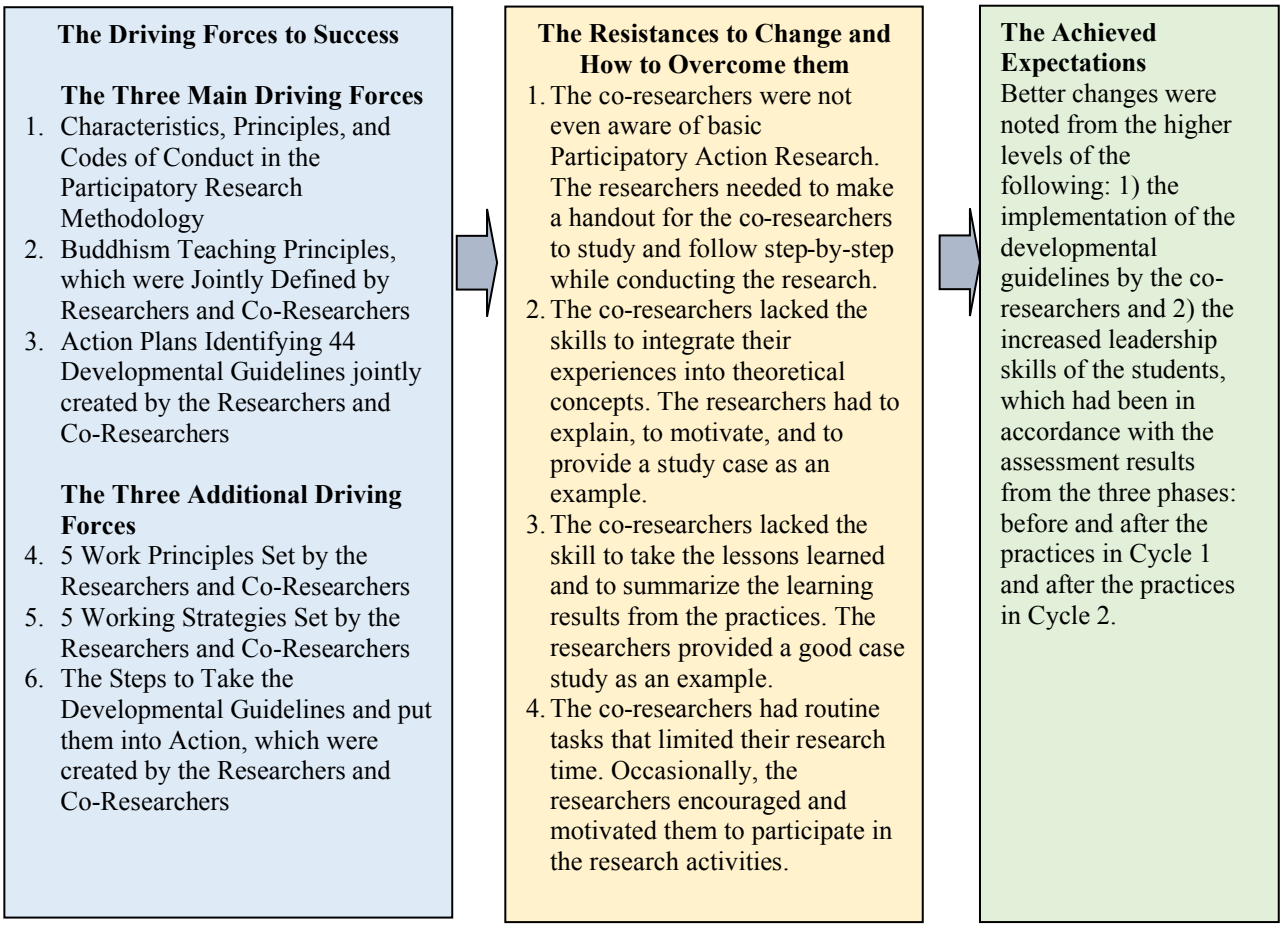

Figure 1: The Prototype Model for Developing the Leadership Skills of the Students: Lessons Learned from Participatory Action Research at Noensangawittaya School

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Students' Views Studying in Arabic Preparatory Class on Distance Education During the Covid-19 Pandemic

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Abstract
Countries have taken some urgent decisions in order not to experience an irreparable loss in the field of education due to the Covid-19 pandemic that affected the world as of the end of 2019. In this process, the distance education decision was among the measures taken for the students to get through the education period with the least damage and without loss of time. Distance education tools, which were previously used at a limited level in many areas, have become widespread and used at all levels of education processes. In Turkey, distance education tools were used in all stages of education in this process and universities had to expand this education tool that they were familiar with. Due to the Covid-19 pandemic, the 2020-2021 academic year was carried out almost entirely with distance education tools. Due to the decision taken by the Higher Education Council (CoHE) and universities during the pandemic process, there were also students who had to take their foreign language learning with distance education tools. In this study, it is aimed to reveal the situation faced by students who had to take one year preparatory education through online programs before starting the Arabic Language Education undergraduate program. In this process, open-ended questions were asked with a semi-structured interview form to the students who continued their education. The answers given by the students to the questions posed were evaluated with descriptive analysis. While there are students who find distance education positive due to situations such as listening to lessons in a comfortable environment at home, being with the family, there are those who evaluate this process negatively due to situations such as the ineffectiveness of the lessons, the internet shortage, and the inability to take the exams in a reliable environment. Students stated that they generally see this education process negatively and that they don't want to learn a foreign language with distance education tools if an option is offered.

Keywords: Covid-19, Distance Education, Arabic Learning, Preparatory Education

1. Introduction

Distance education is a tool that enables individuals to continue their education and training without having to be in any place, and brings the educator and students together on online platforms. Distance education has been used in various fields for many years, and it is a tool for educators to come together with students and ensure the continuation of education. Distance education, which is a frequently used system for people who cannot find the opportunity for education due to the conditions of education, to benefit from the right to education, has become a system that individuals from all levels benefit from in today's world. Distance education, which has been familiar

to students especially at university level in the past years, has been known and used by everyone in recent years. Distance education, which had to be used actively due to the covid-19 pandemic, which affected the whole world for about two years, affected educators and students at all stages. Distance education tools, which were used for various reasons such as conferences, seminars, in-service training in the pre-pandemic period, were perhaps used for the first time to cover all teaching stages during the pandemic period.

Due to the Covid-19 pandemic that broke out around the world at the end of 2019, distance education tools had to be used in all stages of education in Turkey, as well as all over the world. During the Covid-19 pandemic, the field of education is one of the areas most affected by this situation. The urgent goal of countries to continue education with distance education tools has been to get through this process with the least damage. UNESCO, a total of 1.646 million students in 172 countries have been affected by the pandemic since it broke out (UNESCO, 2020). In the information shared by UNICEF, it is stated that more than one billion children in the world are at risk of falling behind in the field of education due to Covid-19, and that countries implement distance education programs to enable children to learn in this process ("Education and COVID-19", 2020). On the other hand, UNESCO announced that many countries closed schools for a long time during the pandemic process and all countries either opened completely or continued their education partially by doing online education as the risk of the pandemic decreased ("COVID-19 impact on education", 2022). In this process, the Ministry of National Education (2020) in Turkey, with its decision, stated that education should be continued with distance education tools in all units of education. In the information note shared by the Council of Higher Education (CoHE) in March 2020, higher education institutions decided to continue their education remotely, with the exception of applied and face-to-face education, for the programs that have been decided to be distance education due to the pandemic and which are currently being carried out with distance education ("Koronavirüs covid-19", 2020). During the pandemic, many departments in universities continued their courses on distance education platforms. However, this situation caused students to look at education from different perspectives. In this process, due to technological opportunities, geographical location or personal reasons, it was not possible for all students to fully attend classes. This situation affected the motivation of the students in many departments and the students were generally negatively affected by the distance education process.

Sahin and Shelley (2008, p. 216) state that as long as students have the skills to use online tools during distance education and perceive distance education as a useful and flexible way of learning, communication and sharing, it will be possible for them to enjoy online education. Success in foreign language learning is directly proportional to the person's ability to make sense of what they have learned. In order to achieve this, language learning must be made meaningful for the individual (Gömleksiz, 2013, p. 651). The statements of the students that what they learned while learning a foreign language through distance education is incomplete may have resulted from the lack of an effective means of communication in this process.

Various studies have been conducted on the effectiveness of distance education in many fields. The use of distance education tools in foreign language teaching, especially during the pandemic process, reveals the necessity of working towards this. Despite the possibility of using distance education completely again due to similar situations such as the pandemic, it is important to evaluate the positive and negative aspects by conducting studies on the distance education process. Accordingly, this study was carried out in order to determine how positive or negative the process, which covers the preparatory period of Arabic language learning, was for the students. Students who had to take the Arabic preparatory period with distance education tools were asked questions with a semi-structured interview form and the answers given to the questions were analyzed by descriptive analysis method.

In the study, various questions were asked to the students about how the effectiveness of distance education in learning Arabic as a foreign language is perceived by the students. Based on the answers given by the students depending on the questions about how they went through this process, various evaluations were made and suggestions were presented.

In addition, students who had to continue their Arabic preparatory education with distance education tools in the 2020-2021 academic year had the opportunity to compare these two periods with the start of face-to-face education after the decision taken due to the decrease in the pandemic. This study provided the opportunity to evaluate the

teaching process of the students in general during the pandemic period. Students freely answered the questions posed to them. As a result, special and general evaluations were made. The general purpose of the study is to evaluate this process based on the opinions of the students who received Arabic preparatory education in the distance education process. In addition, it is to reveal the positive and negative aspects of distance education, which has to be used by students in foreign language learning.

1.1 Distance Education

Distance education is an interdisciplinary field that tries to eliminate the limitations between learning, teaching and learning resources, and uses existing technologies with a pragmatist approach to achieve this (Bozkurt, 2017, p. 87). Koçdar (2006, p. 23) states that distance education offers students the opportunity to benefit from education whenever and wherever they want, regardless of time and place. Akgül and Oran (2020, p. 17) also state that with the introduction of technology into the field of education, distance education changes the habits of people and societies, and they adapt to new opportunities in the learning process. During the pandemic that has erupted around the world in the past two years, almost all people have made an effort to fully adapt to distance education.

With the emergence of distance education, it provides the opportunity to easily access information by providing equal opportunities in education to individuals with various disabilities or individuals with different socio-economic status, who are in different geographical conditions, and the individual can access information from anywhere (Başar, Arslan, Günsel, & Akpınar, 2019, p.16). In fact, although this is an indicator of convenience and development, it has been a matter of debate whether it provides the same effect as face-to-face education. Uşun (2006, p.19-21) states that distance education provides lifelong, individual and independent learning opportunities, and besides the responsibility of learning is on the individual, it has benefits such as improving the ability of individuals to make decisions on their own in terms of access to information and entrepreneurship. However, he underlines that distance education may not be effective enough for students who do not have the habit of working and learning individually and independently.

Distance education is advantageous in that it appeals to a wide audience, eliminates physical distance, and can be adjusted according to the individual pace of the student and those who do not have the opportunity to go to school; It is also considered to be disadvantageous due to the high initial investment cost, the disruptions that may occur in technological systems, the difficulty in preparing the curriculum and the application-oriented subjects, and the lack of motivation of the students who do not have the ability to work individually (Altıparmak, Kurt ve Kapıdere, 2011, s. 321).

Erfidan (2019, p.8-9) stated that distance education is carried out in two different ways as synchronous and asynchronous, and that it is a classroom system in which the teacher and the student come together in various ways in synchronous education platforms; expresses that asynchronous learning platforms are a system in which the student can start and finish education whenever the student wants by acting independently of the teacher. In the asynchronous model, the necessary materials are loaded into the system and can be accessed at any time.

The advantages and disadvantages of asynchronous learning environments can be listed as follows (Midkiff & DaSilva, 2000; cited in Erfidan, 2019, p. 9-10):
Advantages of Asynchronous Distance Education Model:
- Eliminates the barrier of time and space.
- Anyone who wants to have the opportunity to participate in the training.
- Education gains an international qualification as an identity.
- The student can participate in the course and the content as he wishes.
- The participation of shy students in classes increases.

Disadvantages of Asynchronous Distance Education Model:
- Creates a virtual and dispersed student community.
- The courses are not suitable for practical application.
- There is external dependency in exams that require a supervisor.
- It can create an isolated effect on students.

- Immediate feedback is not possible.

1.2 The Purpose of the Study

Arslan, Arı and Kanat (2021, p.193) stated that it was decided to suspend face-to-face education in schools in Turkey with the thought that the student population might increase the contagiousness of the pandemic to higher levels, and that the necessity of switching to distance education has arisen due to the fact that approximately 25 million students in Turkey are affected by this situation. Başar et al. (2019, p. 17) underlines that the attitude towards distance education is directly proportional to the efficiency, success and learning quality of the individual during education. They also state that it is very important to raise awareness about the functionality of distance education, as well as to improve the existing perception of distance education in individuals in a positive way. Due to the pandemic in the past education period, almost all educational institutions had to prefer distance education instead of face-to-face education. In this process, students who encountered distance education for the first time encountered various problems in distance education, where they had to continue their education. The aim of this study is to reveal the problems faced by the students who had to study during the preparatory period before starting the undergraduate program in the field of Arabic language education during the pandemic period and to evaluate the process in line with the answers they gave. Thus, students' perspectives on learning Arabic with distance education tools were revealed. As a result of this study, which was carried out in order to reveal the experiences of students during the preparatory period, which is an important period for students in Arabic language learning, while they were using distance education tools, the effectiveness of distance education in language learning was evaluated in a way. In addition, one of the aims of the study is to make suggestions for language teaching with distance education as a result of the study. The problem statement of the research was determined as follows. "What are the views of the students who had to take the Arabic preparatory period with the distance education tool during the Covid-19 process on distance education?" In this context, answers to the following questions were generally sought in the study:

1. Are distance education tools sufficient for learning a foreign language in general, Arabic in particular?
2. What are the positive and negative aspects of distance education in learning Arabic?
3. How did learning Arabic through distance education affect students?
4. What are the difficulties encountered during distance education in Arabic learning?

Evaluating the answers given to the questions posed to the students in the study and making general conclusions enabled the deficiencies of this process to be revealed. In addition, it is thought that such studies are important in terms of providing an idea about which aspects should be taken into account in a similar situation that may occur in the future. Balaman and Tiryaki (2021, p. 59) state that the evaluation of the teachers' views on distance education during the pandemic period will contribute to the development of distance education activities to be carried out in the following periods and to eliminate the deficiencies.

2. Method

2.1 The Model of the Research

This research, in which students' opinions are evaluated, is in the phenomenology model, one of the qualitative research designs. The main purpose of qualitative research is to focus on the experiences and perspectives of the participants and to reveal their perceptions and experiences (Tekindal and Uğuz Arsu, 2020, p. 158). Sart (2015, p. 73) states that the basic question is what is the meaning, structure and essence of the lived experience of a person or a phenomenon that is the subject of research in phenomenology. In the study, questions were asked to the students with a semi-structured interview form about distance education. Allowing the students to freely answer the questions posed to the students with the semi-structured interview form ensures that the data of the study are objective. The answers given to the questions were analyzed by descriptive analysis and evaluated under certain headings, presented graphically and interpreted. In the study, the opinions of the students who personally experienced the distance education process were consulted. As a result, the positive and negative aspects of this process, the situations that need to be developed and the students' thoughts on which distance education would prefer face-to-face education were revealed.

2.2 Participant Characteristics

The study group was formed with the purposeful sampling method. One of the characteristics of qualitative studies is to work on a small-scale sample with distinctive features (Snape and Spencer 2003, p.4-5 cited in Buran, 2015, p. 43). In phenomenological studies, data sources are individuals or groups that carry the phenomenon that the research focuses on and can express or reflect this phenomenon (Büyüköztürk, Çakmak Kılıç, Akgün, Karadeniz, & Demirel, 2014, p. 20). The study group consists of 22 students who had to take Arabic preparatory education remotely at a state university in Turkey in the 2020-2021 academic year. The criterion for determining the study group is that the students receive their Arabic preparatory education through distance education. Before the study, the questions prepared on google.forms were sent to 35 students and they were asked to answer the questions voluntarily. Demographic information of the students participating in the study is given in Table 1.

Table 1: Demographic information of students.

Variables	Category	F	%
Gender	Girl	18	81.8%
	Male	4	18,2%
Place	Village	3	13,6%
	District	5	22,7%
	City	15	68,2%

81.8% of the participants in the study are female and 18.2% are male students. Considering the place where the students live, which is an important situation for benefiting from distance education as a technical infrastructure, 13.6% stated that they live in the village, 22.7% in the district and 68.2% in the city center.

2.3 Data Collection Tool and Analysis

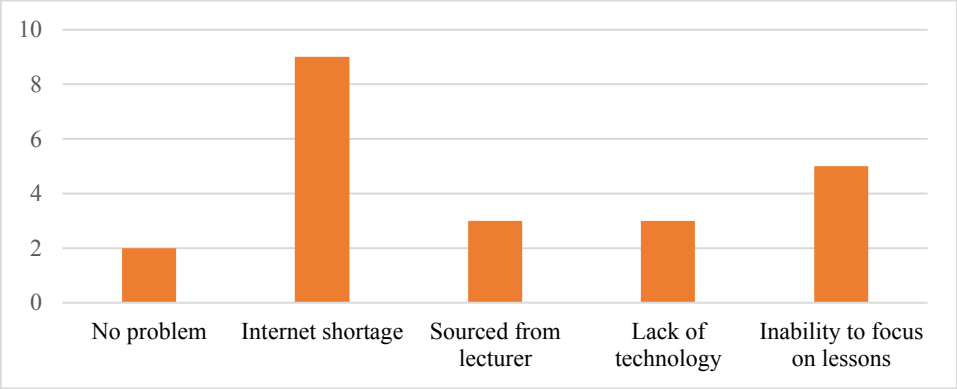
The questions prepared by taking expert opinion were sent to the students who took the preparatory period with the distance education tool through the google.forms link and the volunteers were asked to be answered. In qualitative research, data obtained from interview forms can be collected both face-to-face and offline. The semi-structured interview form is the form that allows the participants to answer the questions prepared within the framework of a topic and the data is reached from the interview held to collect information about the subject. Within the scope of the study, the data obtained from the semi-structured interview form were analyzed by descriptive analysis method. Baltacı (2019, p. 379) states that the purpose of descriptive analysis is to bring together the data collected as a result of interviews and observations with the reader in an organized and interpreted way. The answers given by the students were classified on the basis of questions and quotations were included to reflect the students' views. The data are presented descriptively. In the study, the answers given by the students to the questions were evaluated and a general evaluation was given with numerical information in the graph and the results were analyzed by interpreting. The interview form was initially composed of 13 questions. Then, depending on the opinions of the field experts, 1 question was removed and 4 questions were asked by combining them with other questions. In this context, the following questions were asked to the students:

1. What are the problems you have faced in distance education during the preparatory education?
2. What are your views on the efficiency of remote preparatory education?
3. What are your views on the effectiveness of homework assignments given during the distance education process?
4. What do you think about the reliability of the exams held during distance education?
5. Would you prefer if distance education was given again after face-to-face education?
6. Can you indicate the positive aspects of distance education for you?
7. Do you think distance education is a useful system for learning a foreign language?
8. In what way do you think the distance education process affects your Arabic learning?

3. Results

As a result of the descriptive analysis, the data were graphically coded and interpreted. In the study, the quantitative results of the data obtained from the answers given by the students to the questions were given in the graph, and then quotations from the answers of the students were also included. The questions and answers directed to the students are as follows:

1. What are the problems you have faced in distance education during the preparatory education?



Graphic 1: Problems Encountered During Distance Education

The students stated that they mostly experienced problems related to internet problems during distance education with a rate of 41%. The motivation of the students to the lessons was negatively affected due to the reasons arising from the internet speed or the disconnection during the lesson. Students stated that they had problems reconnecting to the course due to the internet interruption. Secondly, 23% of the students stated that they had problems focusing on the lessons in distance education. In this case, it is possible that a productive course period has not been spent. 14% of the students stated that they had a lack of technology. Students who do not have sufficient technological devices in any distance education period may face the problem of not being able to follow the lessons. 13% of the students stated that they had problems related to the lecturer during this period and that they could not communicate well with the lecturers. This situation shows that students experience problems during communication due to similar reasons such as internet interruption during the distance education process. 9% of the students stated that they did not face any problems. Some of the answers given by the students to this question are as follows:

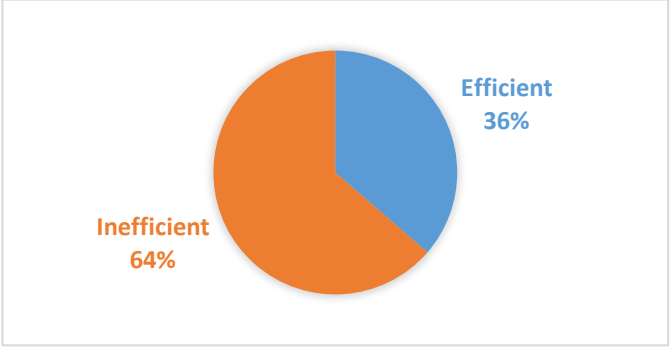
S3: "There was a problem when the internet was cut off in the live lesson or there was no sound due to weak internet."

S5: "Continuous interruptions in the lessons caused the efficiency of the lessons to remain at a much lower level than it should have been."

S7: "Technology was not enough and therefore there was a problem in understanding the lesson."

S9: "Internet access, home environment, difficulties in understanding lessons."

2. What are your views on the efficiency of remote preparatory education?



Graphic 2: Efficiency of Distance Education

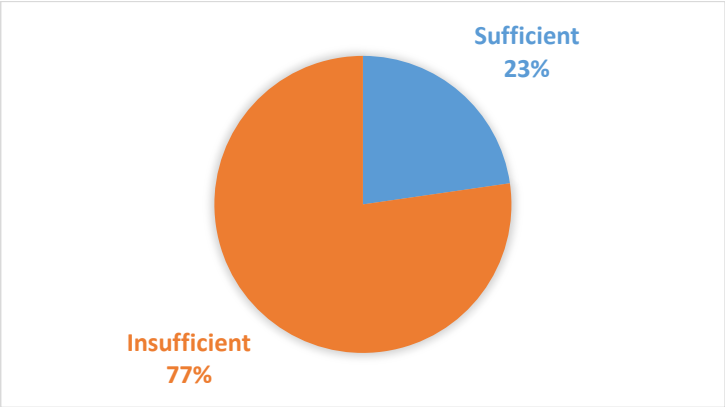
Although 36% of the students stated that distance education was efficient for them, 64% of them stated that it was inefficient. This shows that the majority of the students participating in the study were not satisfied with this process. Even though some students state that the lessons are efficient, they say that they think of this efficiency because "it is easy to attend the lesson." The main aim is to achieve the generally targeted learning outcomes in the curriculum. However, the fact that this is the opinion of the majority about the inefficiency of distance education shows that the targeted gains were not achieved in this period. It seems very difficult for students who cannot gain the proficiency to study on their own to make this process effective. Some of the students' answers are as follows:

S1: "I think that I got efficiency because the course records are registered in the system. However, the efficiency of contacting the teacher and asking questions seemed a little low. Because there was no obligation to attend the classes during the lesson."

S16: "It was not efficient, I had difficulty in understanding the subjects."

S18: "I had difficulty in understanding the subjects."

3. What are your views on the adequacy of the homework given during the distance education process?



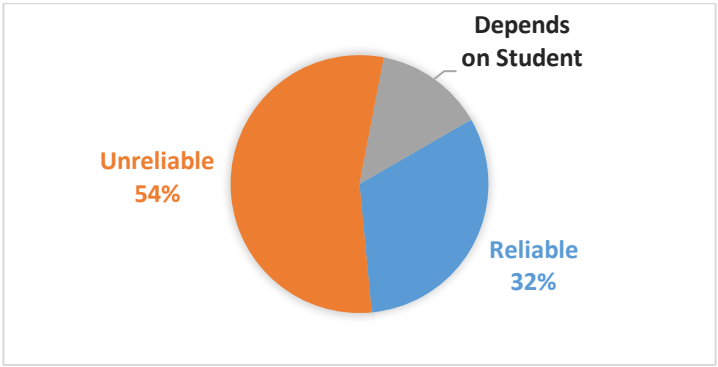
Graphic 3: Adequacy of Homework During Distance Education

When students evaluate the homework given during the preparatory education quantitatively, 77% of them think that they are insufficient and 23% think that they are sufficient. However, in order to reach more objective information on this subject, the homework they gave and the feedback they received during that period can be asked to the lecturers in another study. Because some of the students who answered made evaluations according to the courses.

S5: "Homework in some courses was quite sufficient, in others it was not."

S7: "Assignments were insufficient."

4. What do you think about the reliability of the exams held during distance education?



Graphic 4: Reliability of Exams

Three different variables emerged regarding the reliability of the exams. While 32% of the students stated that the exams were reliable, 54% stated that they were not reliable. 14% of them, namely 3 students, emphasized that this situation depends on the student. Some students' answers are as follows:

S3: "Of course it is open to abuse, but I think that those who want to cheat can find a way even when they are face to face."

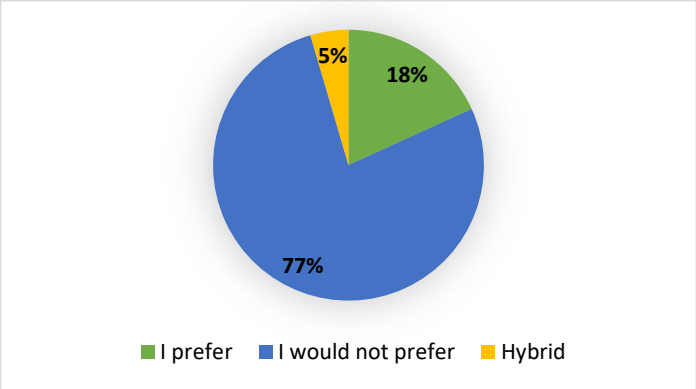
S5: "No, it is not reliable at all, how can students who have not attended the course even once get high grades?"

S18: "It was not reliable."

S20: "There was no security. It was not even known that the student who took the exam was himself."

When the answers of the students are evaluated, it is understood that the students do not find the exams very reliable during the distance education. For this purpose, different systems such as camera tracking from another device can be developed during the exam. However, since there is no obligation to open the camera during the lessons during the preparation period, even if the camera is on during the exam, it may not be understood whether the student is the student taking the lesson. It is obvious that a versatile control mechanism should be established in online exams. Otherwise, it will be very difficult to ensure security in online exams.

5. Would you prefer if distance education was given again after face-to-face education?



Graphic 5: Preferring Distance Education to Face-to-face Education

The majority of the students stated that they would never prefer distance education again if they were given the opportunity to choose. One student stated that both face-to-face education and distance education should be at the same time. However, some courses are already taking place online. Field courses are conducted face to face. Some of the students' answers to this question are as follows:

S3: "I wouldn't prefer it because when it comes to distance education, I can hardly understand the lessons."

S5: "No, I would not prefer it. Because I wasn't getting any efficiency."

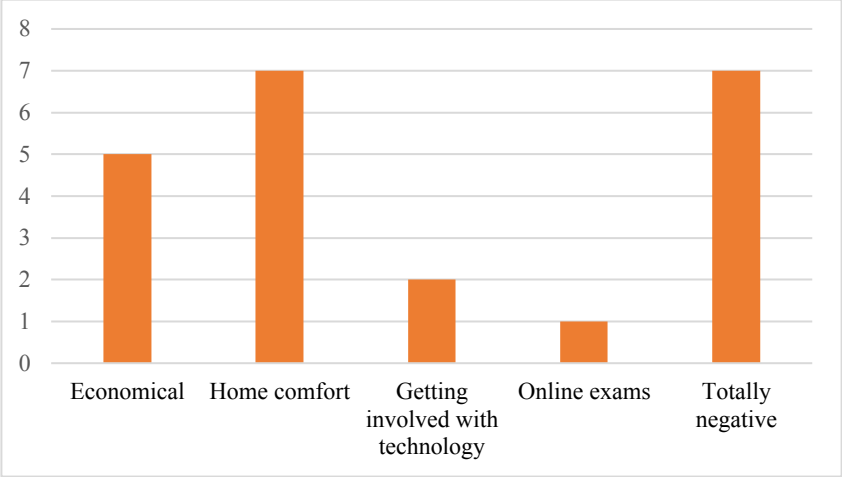
S6: "Of course, distance education is better in terms of comfort. It would be very useful if the lessons were attended regularly and homework was done. I don't want distance education for only one reason, the reliability of the exams."

S7: "No, I would not prefer it, because I get more efficiency from face-to-face education."

S21: "No, I would not prefer it. Face to face is a more effective system. It is very important to adapt in a period such as preparatory education, which is basic education, and to evaluate the education you have received and to be in the same environment with the teacher who teaches at the same time."

Students stated that they would not prefer distance education because they get more efficiency from face-to-face education. It is understood that the presence of students in foreign language learning and their active participation in the lesson affect learning positively. In addition, when the answers of the students are analyzed, it is thought that the motivation for the lessons in face-to-face education will be high.

6. Can you tell us the positive aspects of distance education for you?

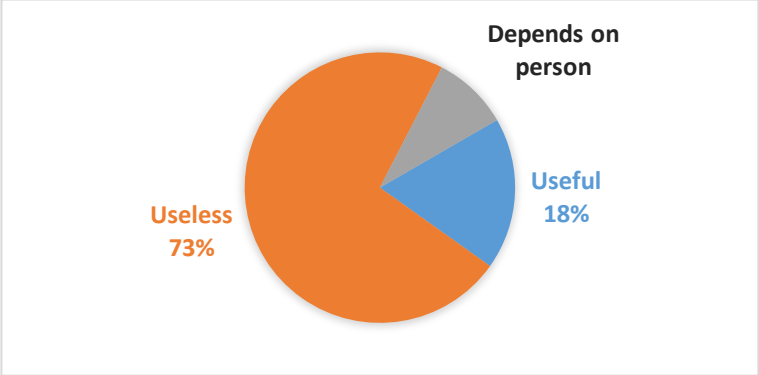


Graphic 6: Positive Aspects of Distance Education

It is noteworthy that 32% of the students found distance education positive in terms of providing the opportunity to listen to lectures comfortably in their home environment. However, there are also those who say that they find this process completely negative at the same rate. In addition, 23% of the students stated that distance education has a positive economic aspect. In addition, there were those who saw this process positively, as it enabled them to be intertwined with technology tools. One student stated that it is positive that the exams are online.

S2: "I became interested in technology."
S6: "I could listen to lectures in a more comfortable environment."
S10: "I was taking lessons at my house in a nice environment every season."
S18: "There was no positive aspect."
S22: "It was positive for me economically."

7. Do you think distance education is a useful system for learning a foreign language?



Graphic 7: Foreign Language Learning with Distance Education

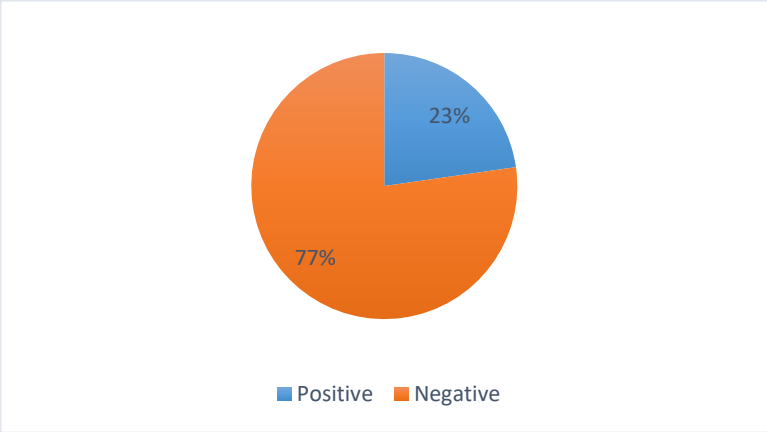
73% of the students stated that they found it useless to learn a foreign language with distance education tools. 18% of students think that learning a language through distance education is useful. However, those who think that this situation is beneficial stated that they think so because they have the opportunity to listen to the lectures again. Two of the students stated that foreign language learning depends on the person, even by distance education. In other words, they stated that personal effort is the most important point in success in any way. As in all other subjects, it is thought that individuals with self-study competence will progress in foreign language learning.

S3: "It was useful because the language demands it again. Thanks to the lecture recordings, we could watch the lectures over and over again."
S9: "It is a useless system because the practical ear saturation gained while face-to-face in the lesson is not the same as in distance education."
S10: "No, it is definitely not useful. Learning face-to-face is more beautiful and effective."

S22: "It depends on the effort of the person. Of course, face-to-face teaching is more efficient as we can communicate with the teacher. Learning a foreign language from a distance is something that requires more effort."

The fact that most of the students want to be in the same environment with the lecturer while learning a foreign language shows the importance of being interactive in language learning. Some students were not able to take part in the interactive process during the course because they acted with the idea that I would listen to the lecture later during the distance education process, so they stated that this process was ineffective.

8. How do you think the distance education process affects your Arabic learning?



Graphic 8: The Effect of Distance Education on Arabic Learning

77% of the students, that is the majority of them, stated that their learning of Arabic through distance education was negatively affected. It is thought that this may be due to the lack of obligation to attend classes during the pandemic and the lack of motivation they experience. It is thought that it would be successful if the study process was carried out in a disciplined way by continuing the lessons during the education process. It is thought that 23% of the students who think that it has a positive effect spend this process actively and give importance to the subject of attending classes.

S1: "I took the preparatory period with distance education and it was a very busy period for me. I spent a lot of time understanding the lessons thoroughly. I think I can learn Arabic well up to a certain level."

S11: "My Arabic learning was negatively affected."

S22: "It did not affect positively in terms of speaking skill. But it was useful in terms of paragraph, text translation and grammar."

The students thought that they were more active in the classroom environment in lessons such as verbal communication skills and stated that the process was negative in terms of similar lessons. Despite this, they stated that their Arabic learning was negatively affected in general. It can be deduced that learning Arabic as a foreign language has been a negative process for students due to the pandemic.

4. Discussion and Suggestions

Distance education tools, which are widely used almost all over the world during the pandemic process, were most actively used in the field of education. Programs used as distance education tools such as Zoom, Microsoft teams, moodle, adobe connect have strengthened the infrastructure due to the pandemic. However, various problems were encountered in this process. Students who continue their education at universities have encountered various problems in organizing this process. In addition to the technological and infrastructural shortcomings, they have mostly failed to pass the process efficiently by experiencing adaptation difficulties in distance education. This negative effect was less for students with self-study efficacy. However, for those who continued their learning process with distance education for the first time, a negative process was experienced. Kuyucu (2021, p. 91) states that, based on the students' opinions, the rate of those who think that the traditional campus will be replaced by the digital campus in the future is quite high. This shows that some of the students adapt quickly to the distance education system. However, it still does not seem possible to claim that this can happen for all departments in the

university. It is thought that it will take time for this to happen, especially in departments where direct application-oriented courses take place.

As a result of the study, although the students find distance education positive in some aspects such as continuing their education with the family and more economically, they think that it is negative in terms of foreign language learning. Because they emphasized the necessity of effective communication in foreign language learning. They stated that this would be more effective if the lecturer and the student were in the same environment. Students who state that they have difficulties in adaptation in the lessons during the preparatory education think that the positive effects of learning Arabic face to face will be more. They also emphasized that the reliability of the exams held during distance education is low. It is understood that students spend the distance education process with low motivation. In this case, assuming that there is a direct relationship between motivation and learning, it seems difficult to state that distance education can be successful without motivation. To the question 'about motivation and attendance to classes' directed to students who took courses through distance education during the undergraduate period, the students generally stated that they attended the courses with low motivation or did not attend the courses because there was no obligation to attend (Şanverdi, 2022, p.170).

Distance education tools have been used for many years, especially in higher education institutions. However, due to the pandemic, such widespread use at every stage of education has been experienced for the first time. Therefore, it was possible to encounter many problems in this process. As a result of the study, some suggestions can be made for the distance education process:

Despite the possibility of a similar situation to be experienced again, trainings containing detailed information for lecturers and students should be given in the context of distance education tools.

In order to avoid technical problems in the distance education process, teams that can intervene quickly should be formed.

Distance education courses should be organized in a way that ensures active interaction between students and teachers. In addition, the synchronous continuation of the courses and the planning of the attendance requirement will ensure a more effective learning process.

In order for distance education to be useful enough, students should have gained the ability to work on their own at all stages. Otherwise, it should not be forgotten that incomplete learning will be faced.

The continuity of studies that will increase the motivation of students and lecturers in the distance education process should be ensured. It should not be forgotten that the readiness of the students is important in distance education. In particular, students should be informed and studies on the importance of self-study competence. In addition, useful and effective homework should be given to students during distance education. These homeworks will increase the student's focus on the lessons.

Studies evaluating distance education covering many fields should be carried out. Especially during the pandemic process, detailed analyzes should be made by taking the opinions of the students who continue their education in various fields. The reports resulting from these analyzes should be submitted to the necessary units and evaluated by them. In addition, these authorized units should take improvement decisions regarding distance education based on the reports.

Workshops where the pandemic process is evaluated in various fields, especially in the field of education, should be organized and the decisions taken as a result of the workshop should be presented as a report.

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Buddhist Way School with Performance as a Model: A Grounded Theory Study

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Abstract
This was a qualitative research study, which utilized systematic Grounded Theory methodologies and was conducted at the Dhammavithi School (alias), which has been recognized as an exemplary Buddhist Way School from the perspective of those, who had witnessed the phenomenon. The results of the research presented a procedural theory that illustrated the following two important operational characteristics of this school: 1) it was operated by utilizing the principle of "Dtrai Sìk-Kăa," and 2) it was managed by utilizing the twenty-nine ways of Buddhist identity. There were three important reasons for the implementation of such methods: 1) the problems, 2) inspiration & expectations, and 3) cooperation from communities, schools, and temples. Therefore, this led to the following two key strategies: 1) determining the school's aspirations, visions, and identities to work together; and 2) determining the roles of the personnel that could emphasize the adoption of the Buddhist ways of life under the contextual conditions, in which students were at risk and the intervening conditions had created an integrated student care system. Many positive results led the Dhammavithi School (alias) to be recognized as an exemplary Buddhist Way School.

Keywords: Buddhist Way School, Dtrai Sìk-Kăa, The Identity of the Buddhist Way School, Grounded Theory Study

1. Introduction

In this 21st century, the world has undergone many changes. Being subjected to such changes, we all must adapt, and the most likely way to adapt is to accelerate human capacity at all levels of this new society. Thailand today has adopted Buddhist guidelines for human development, especially in educational institutions. Given that the principles of Buddhism emphasize abilities and virtues, those who practice the Dharma are, therefore, both competent and virtuous (Suktam, 2017). (Suktam, 2017). This is in line with the views of Watanabutr (2014), Council to Drive National Reforms in Education (2017), Athimutto (2018), Suwichano (2018), and Meeraka (2019), all of whom stated that amid the growing awareness of 21st-century education, the development of human capital in the Buddhist way is a process of developing human capital so that the capital can be used in the management and development of the organization. This will enable organizations to adapt and keep up with the changes and to strengthen the nation in a more systematic and concrete manner. The results are self-development, human development, and work development. The three main components are as follows: 1) Morality, which focuses upon good behavior to support oneself and the environment; 2) Concentration, which represents the ability

to create or to develop changes under the principles of morality in successful management; and 3) Wisdom, which is concerned with validity and correctness.

In the past, learning for the Thai people was closely related to Buddhism because temples were used as schools and the educators were monks. The subjects taught were reading, writing, and occupations, including self-development with the principles of Buddhist teachings. Some people were ordained as monks in order to receive an education. Later, there was the development of education, which meant that the learning places were changed into schools and the educators became teachers in 1911. These changes resulted in the creation of a distance between the learning conditions of the Thai people and Buddhism. (Educational Management Innovation Development Bureau, 2018) After that, it was recommended that the teachings of Buddhism should be taken seriously in schools. This led to the creation of the "Buddhist Way School" project in 2002. The definition of Buddhist Way School, as defined by the Educational Management Innovation Development Bureau (2003), is a normal school system that applies the principles of Buddhism in management and (in the) overall development of learners of educational institutions based on integration according to the development framework of "Dtrai Sìk-Kăa."

Dtrai Sìk-Kăa refers to three studies (three-fold methods) of training in Morality, Concentration, and Wisdom (Long Do Dict, n.d.), which are described as follows. Firstly, ***Morality*** (behavior) consists of: (a) having good manners in eating, living, watching, listening, and being, (b) using wisdom to learn how to choose and use consumer products and media for one's benefit, (c) knowing and practicing moderation in the pursuit, consumption, and accumulation of things, (d) complying with regulations and legitimate external rules for self-discipline; and (e) not doing harm to one's self and others in alignment with the five precepts as the basis for living. Secondly, there is ***Concentration*** (mind), which is composed of (a) being competent (i.e., having determination, being strong, having the determination to do good with courage, patience, hard work, and diligence, being indomitable, being able to overcome obstacles through hardships, and being self-reliant); (b) possessing qualities (i.e., having gratitude, being compassionate, being kind, being generous, being ashamed, being fearful of sin, being honest, being responsible, being courageous, and consistently being philanthropic); and (c) having good health, which is happiness, cheerfulness, optimism, encouragement, inspiration in learning, and participating in various activities. Lastly, there is ***Wisdom***, which means (a) having good faith and understanding the Three Jewels, the law of karma, and the principles of sin and virtue; (b) having good learning skills and habits (i.e., taking notes creates learning from real practice and promotes analytical thinking in both groups and individuals); (c) having the necessary life skills to keep up with external stimuli, having the passion within one's self to solve life's problems, being able to apply dharmic principles to gain benefits in life, having a good base for life, and having a good attitude towards dharma practices so that one can become wise and understand the truths of life in accordance with one's maturity, which can be further developed into the practice of dharma that can grow in higher dharma (The Buddhist Education Institute Project of Mahachulalongkornrajavidyalaya University, n.d.-a); and Srithammawophon, 2018).

Later, there were administrators, teachers, and professors from Mahachulalongkornrajavidyalaya University, who jointly drafted a concrete action plan in line with the Buddhist Way School's operational guidelines for 2005. These guidelines were divided into five areas and consisted of a total of twenty-nine items. Regarding the draft, it went through several sets of inquiries to seek the opinions of those involved. Moreover, on 18 August 2010, it was approved by the Basic Education Commission and since 2010, has been approved as a guideline for self-assessment.

The 29 operational guidelines for becoming a Buddhist Way School consist of the following: **1) The seven physical aspects**: (a) there is a sign showing that it is Buddhist Way School, (b) there is a Buddha image in front of the school, (c) there are Buddha images in the classrooms, (d) there are Buddha's proverbs, words and royal speeches posted in various places, (e) there are cleanliness, tranquility, and serenity, (f) there is a Buddhist room or Dharma courtyard and (g) there are 100% no drugs, alcohol, and cigarettes; **2) The four activities focusing on the holy days**: (a) everyone wears white shirts, (b) makes merit and listens to sermons, (c) has vegetarian lunches, and (d) prays using translated chants; **3) The five teaching and learning aspects**: (a) there is mental and intellectual management before the morning and afternoon classes (for both teachers and students), (b) there is the

integration of the Buddhist way in all subject groups and on important Buddhist days, (c) once a week, the teachers and students conduct a moral project, such as performing volunteer activities, (d) all teachers, administrators and students go to religious activities at the temple once a month, and the temple is considered a learning center, and (e) all teachers, administrators, and students attend a meditation camp at least once a year; **4) The behavioral aspects of the teachers, school administrators, and the students:** (a) they keep the 5 precepts, (b) they smile easily, pay homage, and are respectful, (c) they think about the food that they are about to consume before they start eating, they do not eat loudly, do not spill any food, and do not have any leftovers, (d) they save money and things, and (e) they develop the habit of being curious and dealing with challenges, and 5) **The eight ways to promote Buddhism**; (a) junk food is not sold in schools; (b) kids are not reprimanded, (c) virtues are valued in front of the flagpole, (d) homeroom activities that reflect feelings are conducted, such as the feeling of doing good deeds, (e) good deeds journals are kept by educators, administrators, and students, (f) teachers, administrators and students complete at least the primary level of Dhamma Studies, (g) wisdom and mental control are practiced before each meeting, and (h) classes are regularly taught by monks. (The Buddhist Education Institute Project of Mahachulalongkornrajavidyalaya University, n.d.-b).

The National Education Act, B.E. 2542 (1999), Amendment No. 2, B.E. 2554 aimed at developing the Thai people to be human beings, who are perfect in body, mind, intelligence, knowledge, and morality, and who have ethics and culture in their lives. Even though the Ministry of Education has defined the Buddhist Way School model as a method of education, a school may choose whether to adopt it. The total management of each school is also carried out by volunteers. Each school, therefore, is operated in line with the available resources and conducts activities, as experiments, in line with the established patterns. (Thongboonkham, 2008) In summary, a Buddhist Way School is a school of wisdom, which aims at enabling students to understand real life and giving students the ability to live properly according to the Buddhist principles, which are called "Dtrai Sìk-Kăa" and consist of Morality, Concentration, and Wisdom. (Brahmakunaphorn, 2007); Educational Management Innovation Development Bureau, 2019).

The Buddhist Way Schools have been operating for quite a long time, and there are people, who have been drawn to conduct research on several aspects. The research team was interested in studying three areas as follows: 1) *From the perspective of the people in the phenomenon, what is the core phenomenon in the model Buddhist Way School, and what causal conditions does it result in?* 2) *What are the model strategies of the Buddhist Way Schools? and What are the contextual and intervening conditions that affect the selection of those strategies?* and 3) *What are the consequences that have arisen from the strategies that the model Buddhist Way School has chosen to adopt?* Sanrattana (2018) studied the conceptual framework of the Grounded Theory study in a systematic model, which was based on the viewpoint of Strauss and Cabin (1998), and which referred to the Development of a Logic Paradigm or a Visual Picture of the Theory Generated as a "written theory" from the model. There are rational Relationships between the following: the Core Phenomenon, the Causal Conditions, the Strategies, the Contextual Conditions, the Intervening Conditions, and the Consequences. Therefore, the researchers realized that it was an idea that could be used as a research methodology in order to find the answers to those questions. The study will lead to new knowledge originating from real phenomena in the good model of a Buddhist Way School. The derived knowledge can be used as a model for the development of other schools so that the schools can effectively achieve success.

2. Research Objectives

The objectives of this study were: 1) to study the core phenomena and causal conditions in the model Buddhist Way School; 2) to study the model Buddhist Way School's strategies and the contextual and intervening conditions, which had affected the selection of those strategies; and 3) to study the consequences that arose from the implementation of the strategies that the model Buddhist Way School had adopted.

3. Scope of the study

The model Buddhist Way School in this study was "Dhammavithi school (alias)." It is a school under the Office of the Basic Education Commission. There are many schools under the Office of the Basic Education Commission

scattered across the country. Therefore, the results of this research can be widely used as a model for the development of other schools. The period of data collection for the research was Semester 1 and Semester 2 of the Academic Year of 2021.

4. Research Methodology

4.1. Concepts and patterns

Grounded Theory studies are used when a researcher wants to discover a broad theory or an explanation to appropriately describe the process and the context. The theories are derived from fundamental data. It does not represent knowledge borrowed from textbooks, and therefore, corresponds to actual situations and the feelings of people at work. It also covers complex facts and can be referred to at a certain level (Generalizable). It is a Middle Range Theory, but it is not equivalent to other Grand Theories, such as Behaviorism or Gestalt Theories (Schwandt, 2001; Strauss, 1987; and Willis, 2007).

Grounded Theory Study comes in a variety of formats. However, they can be classified in three ways: 1) the Systematic procedures of Strauss and Corbin (1998), 2) Glaser's Emerging study or Classical Grounded theory (Glaser & Strauss, 1967), and 3) the Constructivism of Charmaz (2000). When deciding between these three styles, there are several factors that should be considered, according to Creswell (2008). For instance, there were the following questions: 1) *How important are systematic procedures? 2) Would you like to provide categories for data analysis? 3) What is the researcher's position? 4) What process was used to make judgments? and 5) Does research make particular assumptions or broader ones?* However, Creswell noted that due to seeking clarity in the research processes, most new researchers opt to use the Strauss and Corbin systematic approach. It is regarded as new research since it was the first time the researcher had employed this research methodology. Therefore, Strauss and Corbin's methodical approaches were chosen.

4.2. Research Procedures

4.2.1. Selection of research areas and the use of pseudonyms

The researcher used the research process to achieve a unique Buddhist Way School. A total of 1,221 Buddhist Way Schools, which were inspected by the staff who oversees the correctness of the Buddhist Way School guidelines, were gathered. It is a school that is in a nearby area for easy access to the study operations. The school chosen was “Dhammavithi school (alias).” Instead of using the actual name in the study, the researcher substituted a pseudonym. The names of the schools, the nearby locations, and the information providers have all been hidden. They confidently and willingly shared the information. Moreover, the researcher was free to analyze and to interpret the information using academic standards.

4.2.2. Preparation and entry into the research areas

Open-ended questionnaires, which were based on research objectives and on basic research concepts, were utilized to collect the information through in-depth individual interviews and targeted conversations. The researcher examined the quality of the questionnaires by using them in in-depth interviews with school administrators, teachers, students, parents, school committee members, and one community leader in a school other than “Dhammavithi school (alias).” The results indicated that all the interviewees had the same understanding of the meaning of the guidelines, which indicated that the questionnaire for the data collection, which had been generated, was of a sufficient quality to be used in the field.

Regarding self-development, researchers must acquire effective research tools. Therefore, the researcher had previously gained knowledge and an understanding of the concepts, theories, policies, and laws that are related to the development of Buddhist Way Schools in order to accomplish the following: 1) to confidently go to the field to collect data and 2) to be able to interpret the phenomena, which had been observed or referred to with theoretical sensitivity. In addition, the researcher also received training and gained a knowledge and understanding of the various data collection techniques that are used in qualitative research.

The equipment that was needed to collect data in the field was prepared and tested, such as a small computer with a device, a motion picture recorder, recording tape recorders, cameras, and operational facilities.

With respect to choosing the key contributors for information, those people, who could provide the information that would contribute to building the theory, were the main targets. The research team set a wide selection of guidelines. The forty people, who were involved in the phenomenon of this research, were divided into the ten following groups: 1) two school directors and a deputy school director, 2) eight teachers, 3) eight student leaders and outstanding students, 4) five school committee members (representing both parents and experts), 5) the parents of five students, 6) five people from the community (the village headman, senior community leaders, and the community development group leader), 7) one director from a nearby school, 8) two directors and deputy director of a related Educational Service Area Office, 9) two supervisors from the Educational Service Area Office, and 10) two teachers and administrator from the guess schools.

4.3. Data Collection in the Field

The researchers used the following methods: 1) In-Depth Interviews, 2) Focus Group Discussions, 3) Observations and Field-Notes, and 4) Document Analysis. In addition, the researcher always held the following questions in mind: 1) *What data is there to study?* 2) *What category does this event refer to?* 3) *What are the actual outcomes of the obtained data?* and 4) *What are the fundamental socio-psychological processes or social-structural processes that can be seen in the actions?*

4.4. Data Analysis and Processing

There were four steps of data analysis: 1) Open Coding, 2) Axial Coding, 3) Selective Coding, and 4) the Development of a Logic Paradigm or a Visual Picture of the Theory Generated. All the above steps were employed to "write the theory" from the model of the Core Phenomenon, the Causal Conditions, the Strategies, the Contextual Conditions, the Intervening Conditions, and the Consequences, which had been established from the Axial Coding. It is a theory of writing that describes the "process" of the research issue by using a storyline technique and by using personal memos that are recorded as the supporting information. The researchers also examined this rational relationship over time. (Strauss & Corbin, 1998)

4.5. The Theory Generation or the Presentation of the Theory

A Grounded Theory Study generates three possible Theory Generations or Presentations of the Theory: 1) the Development of a Logic Paradigm or a Visual Coding Paradigm; 2) the Theoretical Hypotheses/Propositions, and the 3) Narrative Form/Descriptive Story (Strauss & Corbin, 1998). The researcher chose the first approach which was the Development of a Logic Paradigm or a Visual Coding Paradigm.

4.6. The Verification of the Validity of the Theory Presented

The validation of the theories, which resulted from this Grounded Theory research process and which were in accordance with the perspectives of Creswell (2008), Willis (2007), Locke (2001), Leedy & Ormrod (2001), and others, were examined in the following ways: 1) to determine whether the findings had been consistent or inconsistent, and how they had been consistent or inconsistent; and 2) the Dhammavithi School (alias), namely the school director, teacher, and deputy school director conducted the examination.

5. Research Results

5.1. The Core Phenomenon and the Causal Conditions in the Dhammavithi school (alias) from the perspective of phenomenon participants

The Core phenomenon in the Dhammavithi school (alias), which is considered as a model Buddhist Way School, exhibited two main characteristics as follows: 1) it was managed in accordance with the Buddhist teaching

principle of "Dtrai Sìk-Kăa" and 2) it was operated by utilizing the 29 identities and incorporating the Buddhist Way School guidelines and received an award from the inspection agency. The inspection of twenty-nine identities revealed the following aspects:

1) The physical aspects

(a) The school placed a Buddhist Way School sign in front of the school grounds.
(b) The school placed an appropriate Buddha image in the school.
(c) The school placed a Buddha image in each classroom.
(d) The teachers and students jointly searched for Buddhist teachings and proverbs and then placed them on the school building and on the trees.
(e) The school used the meeting room as a Dharma courtyard and practiced Buddhist activities.
(f) The school organized activities in the daily life of Buddhists.
(g) The school promoted the following precepts: eating, living, watching, and listening under the integration of the threefold principles.
(h) On Buddhist holy days, all teachers and students wear white clothing to practice Dharma.
(i) The school invited monks to come to the school to collect alms.
(j) The teachers and students ate vegetarian meals on every Buddhist Holy day of the week as a reminder to reduce killing or harassing others.

2) The teaching and learning aspects

(a) The school developed a plan for integrating the Buddhist Way of Life in all classes.
(b) The school developed a curriculum for educational institutions emphasizing the principles of Buddhism.
(c) The school organized Buddhist learning activities for all subject groups.
(d) The school integrated morality, ethics, and the Buddhist Way of Life into the classroom learning content.
(e) The school organized activities on important religious days, which included giving alms, meditating, and praying to monks.
(f) The teachers and students worked together to co-create a moral project and to practice volunteering activities every week.
(g) The students participated in the competition for moral project activities on important Buddhist days.
(h) The school had students participate in community activities and to practice religious activities at the temple.
(i) The teachers, administrators, and students attended a moral camp once a year to practice dharma.

3) The Behavioral Aspects

(a) The teachers and administrators upheld the five precepts for conducting themselves based on Dharmic principles.
(b) The teachers helped to develop within the students the following habits: 1) being courteous, respectful, and frugal; 2) learning to preserve and utilize resources properly; 3) developing the habit of being curious; 4) learning to do challenging tasks; 5) working hard to succeed; and 6) expressing consumption etiquette by thinking about the food before eating it so that the concept of expressing thanks to the giver could be understood.
(c) The students and teachers ate vegetarian meals one day each week.
(d) The teachers and students participated in activities or activities on important Buddhist holy days.
(e) The teachers and students participated in community traditional activities.
(f) The school regularly and continually conducted religious ceremonies.
(g) The students and teachers wore white every Friday.

4) The Promotion of the Buddhist Way of Life

(a) The teachers encouraged the cultural environment of seeking insight and engaging in amicable and compassionate interactions with one another.
(b) The school encouraged personnel and students to function as role models, to stay away from allurements, and to do regular volunteer activities.
(c) No junk food was allowed in the schools; an emphasis was placed on consuming healthy food.
(d) With the goal of promoting the appreciation of role models, the school organized activities for the good people of the community to give them opportunities to praise and appreciate the merits of students in front of the flagpole.
(e) Teachers organized homeroom activities in each class to reflect the feelings of doing good in an orderly and disciplined manner.
(f) The school encouraged students and staff members to have their merit journals.

(g) The school encouraged students to take the Dharma Education Examination and stated that they should be able to pass the three levels of examinations.
(h) Everyone does meditation before attending meetings and before going to classes in the afternoon.
(i) The school regularly provided a moral teaching program in schools and invited monks to teach Dharma and morals every week in Grades 4 - 9.
(j) Before and after school, students prayed short and long prayers.
The three causal conditions that have led to the above identities consisted of the following: 1) problems, 2) inspiration and expectations, and 3) the power of the unity of the community, school, and the temple.
1) Problems: An informant stated, *"The current problems are about the kids. The problematic state of society causes school skipping. Some kids do not line up in front of the flagpole. Some kids do not listen to their parents. Some kids are spoiled. Some kids like bike racing, running away, and refusing to go to school"*
2) Inspiration and expectations: An informant stated, *"You need to find a way to help your students integrate morality and ethics into society. As the student is a product of the institution, it can be compared to a farmer, who cultivates land to acquire good harvests from planting sugarcane."*
3) The power of the unity of the community, school, and temple: An informant stated, "*The school administrators serve as the inspiration for this Buddhist school. Buddhist Way Schools are run by monks in the community, who work together. Therefore, teacher readiness also reflects community readiness (by) placing the student's needs first in terms of what should occur. Since students are the result of teaching and learning, they need to be raised to be moral members of society. The "Dtrai Sk-Kăa" or "three studies" or "threefold way of training in morality, attention, and wisdom" must be instilled in pupils, as well as extended to teachers and other stakeholders. The pupils' behaviors are based on being decent people, which is what makes this school's Buddhist Way School unique. Regardless of how the laws, norms, or moral principles of society are upheld, the school is in charge of fostering students by incorporating the Dtrai Sk-Kăa School of Buddhism.*"

5.2. The model Dhammavithi school (alias) strategies and the contextual and intervening conditions that had affected the selection of those strategies

The Dhammavithi school (alias) adopted the following strategies 1) to determine the school's aspirations, visions, and identity for commitment to working together; and 2) to determine the roles of personnel in schools that emphasize the adoption of the Buddhist way of life.
Determination of Aspirations: The informant stated, "*One of the aspirations that we are striving for is to create good and brave people. He is knowledgeable and virtuous. To develop a peaceful Thai society."*
Determination of Vision: The informant stated, *"Our vision is to be a quality school. Learners have 21st-century skills, all (are) involved in improving the quality of education and adopting the Sufficiency Economy Philosophy into sustainable practice."*
Determination of Identity: The informant stated, "*It requires students to have the identity, namely, to pay respect beautifully, to be disciplined, (and) to use ICT. And the identity of the school is to be a sufficiency education institution."*
The roles of personnel in schools that emphasize the adoption of the Buddhist way of life consisted of the following:
1) Administrators must:
(a) have vision, philosophy, goals, and strategies, and must focus on the development of the Buddhist Way School.
(b) operate the Buddhist Way School and manage it with the participation of all parties.
(c) cultivate the Buddhist faith and wisdom among the personnel and the related people.
(d) collaborate with parents, temples, and members of the communities to develop learners and the communities.
(e) supervise, direct, and monitor the operation of Buddhist schools.
(f) examine, evaluate, and provide opportunities for friendly suggestions.
(g) live in accordance with the Buddhist teachings and set a good example.
(h) be honest in their work and have faith in Buddhism.
2) The Teachers must:
(a) live in harmony with the principles, have morals, and function as good role models.
(b) have Brahma Viharn Dharma, be an ally, and aim to develop students so that they can prosper according to the threefold principles.

(c) correctly understand the principles of learner development in accordance with the principles of the Dtrai-Sikka, morality, concentration, and wisdom.
(d) have a learning management process and must use the materials from learning sources in a cost-effective manner.
(e) measure and assess results in accordance with the actual conditions and with a variety of methods by utilizing the four meditation principles (body, morality, mind, and wisdom).

3) The Cooks must:

(a) cooperate with educational institutions in developing and operating according to Buddhist schools.
(b) prepare a vegetarian-focused meals in order to reduce the harassment of others.
(c) behave in a friendly manner and maintain the cleanliness of the kitchen and canteens in order to ensure proper hygiene.
(d) apply and practice the Dharma principles in daily life.

4) The Members of the Board of Education must:

(a) attend meetings, explain, and support the school's Buddhist activities.
(b) apply the principles in daily life and set a good example.
(c) provide advice, support activities, and participate in the procurement of equipment that is conducive to learning in accordance with Buddhist schools.
(d) be a moderator, promote local wisdom, and educate students in the Buddhist ways, such as doing "*Bai Sri Su Kwan"* and prayer traditional activities, etc.

5) The Temple or learning source must:

(a) be a place of learning for students to come to study and learn about the Buddhist ways.
(b) be a religious leader and conduct religious activities on important Buddhist days.
(c) function as a good role model by strictly applying the principles of Dharma.
(d) take part in an educational establishment by effectively teaching morality and ethics for the students.

Contextual conditions and intervening conditions that the Dhammavithi School (alias) had adopted were discussed in the following manner:

1) Contextual conditions: The students in the at-risk groups need a good care system. The informant said, "*Contextual Conditions. Everywhere the students are found to be sexually active and smoke cigarettes. This village is semi-urban and semi-rural. Some families have migrated from elsewhere. Parents do not have time to take care of students due to having to work in an industrial plant. They workday and night. And they move in and out of the school midway, which results in the students being in a high-risk group Therefore, we need to change the behaviors of the children in the at-risk groups."*

2) Intervening conditions: An integrated system of student care is needed. The informant stated, "*There must be an integrated system for taking care of students as well. Originally, we did it individually. Our teachers are more attentive to students. When students have a meal, have them show gratitude for rice. There should be cooperation of the community with the school, for example, on the Buddhist Lent Day and Bun Phat. The community should attend and support school Buddhism activities."*

5.3. The consequences arising from the adoption of the strategies by Dhammavithi school **(***alias)*

The results that arose from the strategies that the Dhammavithi school (alias) had adopted were as follows:
1) The practice persisted until it had become ingrained in the culture of the school.
2) Students were polite, moral, generous, and capable of working cooperatively in groups.
3) Students participated in the moral project competition at the district level.
4) Outstanding performances by the students brought numerous honors to the school.
5) Teachers and school staff members worked in a systematic way and happily worked together.
6) Students exhibited more desirable characteristics, and they received satisfactory feedback from their parents.
7) Daily activities were practiced using Buddhist principles, which were inserted in every activity.
8) Students practiced the daily routine until it turned into a sustainable habit.
9) The school became a model of a Buddhist Way School, which can become a place for study visits.
10) The community and parents participated in the operations and took pride in the behavior of students

5.4. The Presentation of the Theory

The three separate ways to present the theory in a Grounded Theory study are as follows: 1) the Development of a Logic Paradigm or a Visual Coding Paradigm, 2) the determination of the Theoretical Hypotheses/Propositions, and 3) the creation of the Narrative Form/Descriptive Story. The researchers chose the first approach, which was the *Development of a Logic Paradigm or a Visual Coding Paradigm*. Sanrattana (2018) studied the conceptual framework of the Grounded Theory study in a systematic model based on the viewpoint of Strauss and Cabin (1998), which referred to the Development of a Logic Paradigm or a Visual Picture of the Generated Theory as a "written theory" from the model featuring the following: 1) the Rational Relationships Between Core Phenomenon, 2) the Causal Conditions, 3) the Strategies, 4) the Contextual Conditions, 5) the Intervening Conditions, and 6) the Consequences. The research team would like to present a summary of the procedural theory in a theoretical causal model or factors and consequences of the model Buddhist Way School of Dhammavithi school (alias) as shown in Figure 1.

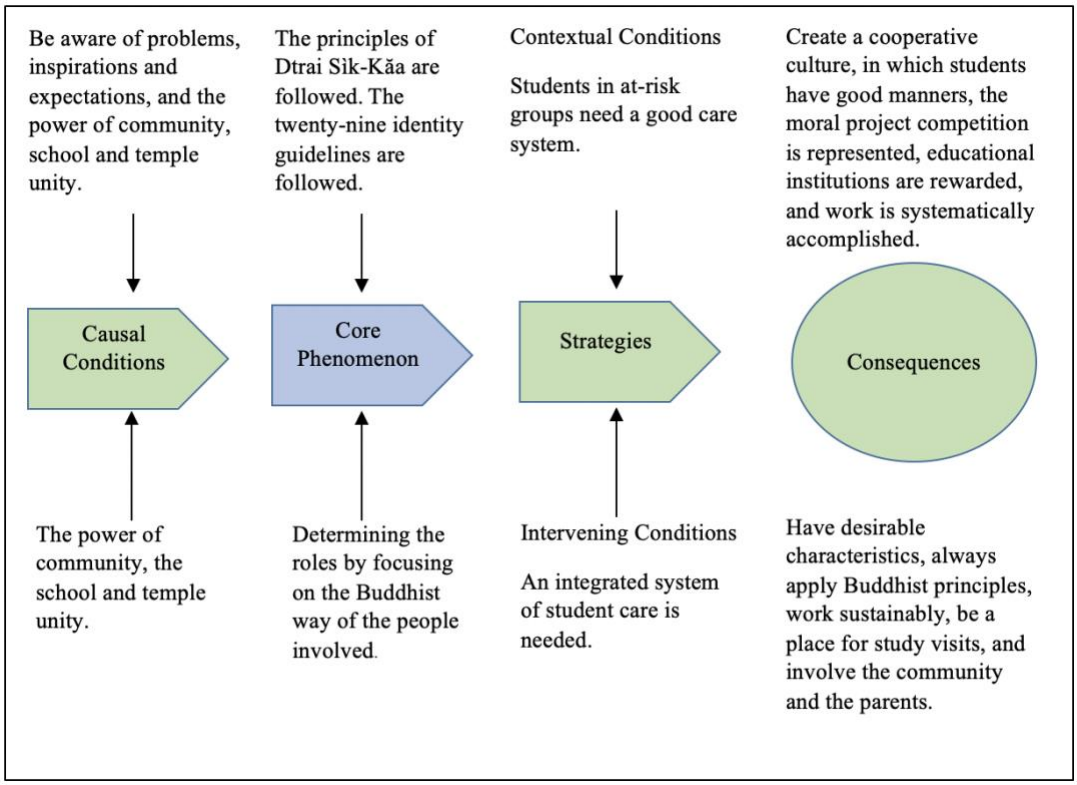

Figure 1: A summary of the procedural theory in a theoretical model of causal or factor and consequence of the model Buddhist way school of Dhammavithi school (alias)

6. Discussion

The results of this grounded theory study with its systematic procedures in the Dhammavithi school (alias) demonstrated the efficient working concept that resulted in the school being recognized as a good example of a Buddhist Way School. Therefore, the school model should be used as in other schools. This school was operated in accordance with the principle of "Dtrai Sìk-Kăa" with the twenty-nine Buddhist Way School identities. It also revealed the awareness of the causes and factors, which represented the problems that needed to be solved and the aspirations and expectations that needed to be achieved, as well as cooperation from communities, schools, and temples, which was needed to make the work more efficient. It demonstrated the proper application of management principles and the importance of working with clear goals. Setting realistic goals for clients drastically increases their chances of success, while maximizing time and resources for you and the client. Accomplishing goals more often (even if they are small) also helps keep them motivated. (Healthie (n.d.) As Pettit (2020) pointed out, the benefits of working with a clear goal are as follows: 1) provides direction, 2) gives you focus, 3) provides greater

productivity, 4) gives you clarity, 5) gives more time freedom, 6) provides accountability, 7) offers better decision making, and 8) gives you control over your future, provides motivation, and inspires you.

The importance of working with such clear goals is reflected in the implementation of the Dhammavithi school (alias). The implementation of effective strategies takes into account the contextual conditions and the implementation of key measures. This can be seen in the determination to cooperate to support the school's aspirations, vision, and identity, as well as to support the roles of personnel that place emphasis on the adoption of the Buddhist way of life under contextual conditions in which the students are at risk, and there are conditions for creating an integrated student care system. The effective strategy, which makes the future happen, allows organizations to be pro-active rather than reactive, sets up a sense of direction, makes wise decisions, creates longevity of the mission, increases operational efficiency, and increases job satisfaction, is meaningful and full of purpose (Casey, 2022; Ong, 2015). Finally, several positive consequences made the Dhammavithi school (alias) recognized as an exemplary Buddhist Way School.

7. Suggestions

A Grounded Theory Study is used when a researcher wants to comprehend a broad theory or explanation and is employed to appropriately describe the process based on its context. The theories are derived from fundamental data and does not represent knowledge borrowed from a textbook. Therefore, it corresponds to the actual situation and the feelings of the people involved. Moreover, it also covers complex facts and can be referred to at a certain level (Generalizable). It is a Middle Range Theory, but it is not equivalent to other Grand Theories, such as Behaviorism or Gestalt Theories. (Schwandt, 2001; Strauss, 1987; and Willis, 2007). Thus, the procedural theory that emerged from this research and is depicted in Figure 1 is a conceptual framework that other schools, who are seeking to transform their establishments into model Buddhist Way Schools, can adopt as a model.

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Examination of the Problems that Teachers Face During Vocational Education

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Abstract
The purpose of this research is to determine the problems faced by the teachers who give vocational courses during their vocational practice. A semi-structured interview form was used in order to collect the data required for the research. The research is a qualitative study and it was carried out in order to determine the opinions of teachers about the problems encountered in vocational education. The case study method, which is one of the qualitative research methods, was used in the research. All the data obtained in the research were analyzed by coding with the content analysis method. The study group of the research consists of a total of 30 vocational course teachers, 21 male and 9 female, working in state vocational high schools in the central districts of Hatay province in the 2020-2021 academic year, and they participated in the research on a voluntary basis. In the research, one conclusion was that the students who receive vocational education have sufficient skills for business life, albeit partially, that students sometimes have difficulties in adapting to the work discipline, and that there may be problems due to cognitive, affective and psychomotor, that is, individual characteristics, especially during internship training. In addition, in the research, it can be concluded that practical training should be carried out with a wider scope, physical facilities should be improved by giving more importance to vocational high schools, and students should be admitted to vocational education institutions with aptitude tests.

Keywords: Vocational Education, Technical Education, Vocational Practice, Training Course

1. Introduction

For people to continue their lives happily and efficiently depends primarily on having a job and being successful in their profession. Being successful in a profession depends on the theoretical and practical training to be taken related to the profession. The success of a student who is studying depends on the quality, qualification and characteristics of the school, the education s/he received when s/he finished school, and the efficiency and effectiveness of vocational practices (Desimone, 2011; Macia, & Garcia, 2016; Kang, et al. 2013). The individual's success in vocational education primarily depends on his/her self-belief, self-confidence or self-efficacy (Bozak, 2021). Self-efficacy is based on the idea that people's belief in themselves about how successful they can be have an impact on their performance and motivation (Bandura, 1982). The subject of success and self-efficacy in education is a concept that has been started to be researched in recent years and was used for the first time by Albert Bandura (Bandura, 1987). Perceived self-efficacy is related to the individual's beliefs in her/his ability to influence events that affect her/his life. This fundamental belief is the basis of human motivation, performance

achievements and emotional well-being (Bandura, 2010). In that case, it is necessary that the interns who will start vocational practice have high self-efficacy, self-confidence and self-belief.

In their senior year, especially in vocational schools, students go to vocational practices or internships in order to develop or increase their self-confidence and self-esteem (Donger et al., 2016; Sarigoz, 2016). The reason for these internships or vocational practices is to try to improve the vocational knowledge and skills of the interns in order to manage the process by the help of the teachers who take more active roles (Day, 2007; Fullan, 2001).

In the dictionary of the Turkish Language Institution (2017), internship or vocational practice is defined as the applied learning period spent by someone who will have a profession, and the period spent by a person working in one or more departments of an institution to increase her/his vocational knowledge. METARGEM, (1997) has defined vocational education as the educational process that enables the individual to acquire a profession in line with his/her interest, talent and ability in a field he/she wants and it aims to improve his/her abilities.

While vocational education enables people to lead their lives in prosperity, they also aim to increase the quality of life in the society by increasing the qualified workforce needed by the sector (Demir & Sen, 2009). For this reason, vocational education programs should be kept up-to-date, workshops should be equipped with advanced equipment, students should be placed in professions according to their interests, abilities and wishes and they should be prepared for life (Bozak, 2019). This situation will contribute to the countries to catch up with the era and become a civilized society in every sense, especially with qualified and well-educated individuals.

In today's schools, it is tried to combine cognitive, affective and psychomotor behaviors with the knowledge, critical thinking skills, practice, experience and achievements required by a profession through vocational education and practice teachers (Donnelly, 2008; Kutlu & Schreglmann, 2011). It is also among the aims of vocational education to disseminate the skills and experiences gained through laboratory and workplace practices throughout the education period of students studying in vocational and technical education regions, especially in vocational schools, to enable them to recognize their responsibilities, relationships, organization and production process, and to learn new technologies in the workplace (Official Gazette of the Republic of Turkey, 2002). In particular, subjects such as the vocational practices or internships of teacher candidates during their undergraduate education process are seen as the first step of business life, contributing to the theory-practice relationship, affecting vocational knowledge and skills, experiencing business life and giving an idea about the vocational future are also among the most important benefits of vocational education (Katajavuori et al., 2006).

With the Law No. 3308 on vocational education in Turkey, a change was made in 1988 regarding internships in workplaces and it has been seen that this law comprehensively regulates internship practices in schools, workplaces and companies (Kepenekci, 2008). Based on this law, the regulation regarding the internship of students at the workplace, which was made in 2002, was put into effect in vocational schools by the Ministry of National Education (Kuzgun, 2013). With this amendment, it is stated in the 5th article of the regulation that it is aimed for students to develop their vocational knowledge and skills, and to make a career in production and in the workplace (Regulation, 2007).

According to the reports of OECD (1995), vocational education has also been mentioned as a solution proposal for youth unemployment among the active employment measures for the young population. Vocational education gives students both work experience and job opportunities when they graduate (Gokdogan & Sarigoz, 2012; Sarigoz, 2016). Students not only gain experience from the vocational practice training they receive, but also teachers, educators and trainers who participate in internships increase their knowledge and experience thanks to their vocational practices. Counselors participating in vocational practice gain new information during practice, and gain insight into various new topics by reasoning and observation (Bozak, 2021). They also gain experience by observing problems from different perspectives. When interns encounter problems during their vocational practice, they gain experience and become more productive by solving these problems (Gokdogan & Sarigoz, 2012).

In addition, when interns who participate in vocational practice do not feel obliged to this practice and do it voluntarily, they can be more productive both for their workplaces and for themselves. If students do not see this course as an obligation and study it efficiently, it can also increase their personal success (Dogan et al., 2021). When a wide-ranging literature research was conducted on vocational practices, it was seen that there were some studies on vocational practices in high schools, vocational colleges and faculties, but there were not enough studies on vocational practices in high schools, vocational schools and faculties. Therefore, it was decided to conduct this research in order to give an idea to academicians, teachers, students and all educators.

1.1 Research Aim

The purpose of this research was to identify the problems faced by the teachers who give applied vocational courses in vocational high schools during this vocational education and to offer solutions to these problems. In addition, the importance of applied education in the research and its effects on the development of the country are the other the purposes of the research.

1.2 Problem of the Research

What are the problems faced by teachers who give applied courses or internship courses in vocational high schools during vocational education?

Sub-problems of the research

1. What are the opinions of the vocational course teachers about the lack of vocational competence of the students?
2. What are the opinions of the vocational course teachers about the working discipline and adaptability of the students who receive internship training in their workplaces?
3. What are the opinions of the vocational course teachers about the problems related to vocational practice training and the causes of the problems?
4. What are the opinions of the vocational course teachers about the achievement of the determined goal of the vocational practice training?
5. What are the opinions of vocational course teachers on the improvement of vocational education?

2. Method

This section consists of the model used in the research, the participants, the data collection tools of the research, how to obtain the data, the interview process, the findings obtained from the data and the analysis of the findings.

2.1 Research Model

The research is a qualitative study and it was carried out in order to determine the problems faced by vocational high school students who receive vocational education according to the opinions of teachers. In the research, by using the interview method, the answers given by the teachers to the questions were gathered and the case study method was used in the research because "the situations were examined in detail and the themes related to the situation were described" (Buyukozturk et al., 2014: 21). In the research, During the interviews and meetings with the teachers, the opinions of the teachers regarding the vocational practices were recorded and analyzed, and the case study method was used in the research so that it could be possible to describe the subject in depth, grounded on the interviews and the analyzes.

2.2 Study Group

The study group of the research consists of a total of 30 vocational course teachers, 21 male and 9 female, from different branches working in state-affiliated vocational high schools in the central districts of Hatay province in the 2021-2022 academic year and they participated in the research on a voluntary basis. In order to answer the research problems and propose solutions, the study group was chosen from the teachers who gave vocational

courses. Based on the fact that the number of teachers participating in the research was small, it was possible to conduct an in-depth study of the opinions of the participants. In the research, the participants were determined by using the purposive sampling method (Creswell, 2009). In this context, it was tried to provide field diversity in the vocational course teachers interviewed. In the interviews, in order to get the sincere thoughts of the teachers, it was told to the teachers that the answers to the prepared questions would be kept confidential within the framework of ethical principles and that they would not be used anywhere other than research. The following table shows the demographic information about the study group consisting of vocational teachers.

Table 1: Demographic characteristics of vocational course teachers

Demographic characteristics		F	%
Gender	Female	9	30.00
	Male	21	70.00
Age range	20-25	3	10.00
	26-30	2	6.67
	31-35	4	13.33
	36-40	10	33.33
	41-45	6	20.00
	46 and over	5	16.67
Graduation	Bachelors degree	24	80.00
	Master's Degree	6	20.00
Branch	Biomedical Device Technologies	5	16.67
	Child Development	3	10.00
	Electric Electronic Technology	8	26.67
	Construction Technologies	4	13.33
	Accounting	2	6.67
	Plumbing Technology and Climate	4	13.33
	Food and Beverage Services	4	13.33
Professional experience	1-5 years	12	40.00
	6-10 years	4	13.33
	11-15 years	1	3.33
	16 years or more	13	43.33
Total		30	100.00

When Table 1 is examined, it has been determined that 9 of the 30 vocational course teachers participating in the research are female and 21 are male. There are 3 participants between the ages of 20-25, 2 participants between the ages of 26-30, 4 participants between the ages of 31-35, 10 participants between the ages of 36-40, 6 participants between the ages of 41-45 and 5 participants in the age group 46 and over. It has been determined that 24 of the teachers have bachelors degree and 6 of them have master's degrees. It has been determined that 5 vocational course teachers from the Biomedical Device Technologies branch, 3 from the Child Development branch, 8 from the Electrical and Electronics Technology branch, 4 from the Construction Technologies branch, 2 from the Accounting Field, 4 from the Plumbing Technology and Climate branch, and 4 from the Food and Beverage Services branch participated in the research. It was determined that 12 teachers who participated in the research had work experience between 1-5 years, 4 teachers between 6-10 years, 1 teacher between 11-15 years, and 13 teachers 16 years or more.

2.3 Data Collection Tool

For this research, first of all, a literature study was conducted on vocational education and the problems encountered in vocational education. As a data collection tool, a semi-structured interview form developed by Gur-Erdogan, Demirtas & Ozalan (2020) about vocational practices was used in the research. In order to use the semi-structured interview form in the research, permission was obtained from the researchers via email. For data

collection in the research, the days and exact times of the interviews were determined by meeting with the school administration and teachers. An average of 45 minutes was interviewed with each teacher to collect the research data. In this way, it took approximately 4 weeks to collect the research data.

2.4 Data Analysis

The data obtained as a result of the participant personal information questionnaire, participant interview form, and interviews were arranged in tables and analyzed using descriptive analysis method. In descriptive analysis, the data is organized according to predetermined themes with research questions or presented within the framework of the questions or dimensions used in the interview (Yildirim & Simsek, 2013). In addition, while analyzing the data in the research, the questions in the semi-structured interview form were also used to determine the main themes. The data obtained as a result of the interviews conducted in research can be organized according to the themes under various headings determined within the framework of the research questions and presented around the questions asked in the research (Yildirim & Simsek, 2013).

First of all, teachers filled the forms and the recorded interviews were transcribed from the audio recording and all the data were transferred to the computer in the data analysis process. All the data obtained from the interviews were organized by classification and subjected to content analysis. In order to obtain accurate and reliable findings in the code generation process, the codes determined by the researchers were used in the analyzes in line with the common opinion, by performing coding with 3 associate professor who worked in the field of curriculum development in education and had done coding many times before. The generated codes were tabulated and making the codes understandable was another vital point. the teachers who would participate in the research signed a volunteer agreement document within the framework of ethical rules. The names of the teachers participating in the research were kept confidential throughout the research and the teachers were coded as H1., H2., H3., H4., ...H30.

3. Findings

In this part of the research, the findings, analyzes and analysis of the research is included.

Table 2: Vocational course teachers' opinions about the lack of vocational competence of students

The problem content	Explanations	N	%
Vocational competence of the students	Sufficient (H4,H6,H10,H11,H17,H19,H24,H27,H28,H29)	10	33.33
	Partially sufficient (H1,H2,H3,H5,H7,H8,H9,H12,H13,H14,H15, H16,H18,H20,H22,H25,H26,H30)	18	60.00
	Insufficient (H21,H23)	2	6.67
Reasons why students do not have vocational competence	Inconsistency of theoretical education with practical training (H7, H8,H10,H11,H12,H13,H14,H15,H20,H21,H22,H24,H26)	13	43.33
	The student's physical inadequacy (H1,H2,H3,H5,H9,H25)	6	20.00
	Lack of practical and theoretical knowledge (H2,H12,H18, H30)	4	13.33
	Behavioral problems (H2,H16,H23,H30)	4	13.33

When Table 2 is examined, 18 of the vocational teachers stated that the students graduated with partial vocational knowledge when they finished their vocational education, while 10 teachers stated that the students graduated with vocational skills. On the other hand, 2 of the teachers think that the students graduated without being aware of their vocational skills. Considering the reasons for students' graduation without vocational qualifications, teachers stated that the inconsistency of theoretical education and the training given in practice (13 participant), the student's physical inadequacy (6 participant), lack of practical and theoretical knowledge (4 participant), behavioral problems (4 participant).

Some of the teacher's statements expressing their opinions on this subject;

"Although some of the students do not have vocational qualifications, the changes made in the regulations for passing a grade level in recent years have negatively affected the learning of the students, allowing them to pass to the next grade despite their lack of knowledge." (H15).
"Their inability to adopt their profession, lack of knowledge, lack of any concern about the future affect their ability to have vocational competence." (H28).
"The readiness of the students is one of the main reasons why students cannot gain vocational competence. The attitude of students who have a low level of basic competence and interest in vocational education towards the course negatively affects them." (H23).
"When students do not support the vocational education they receive at school with repetitions when they go to workplaces, they forget. These forgotten things cause students to have difficulty in following vocational education." (H13).

Table 3: Opinions of vocational course teachers on the work discipline and adaptation status of students who receive internship training at workplaces

The problem content	Explanations	N	%
Adaptation of intern students to work discipline	They have difficulty in following the rules (H3,H9,H10,H11,H12,H14,H15, H18,H20,H22,H30)	11	36.67
	They have some difficulty in following the rules (H1,H2,H4,H5,H6, H7,H8, H16,H19,H20,H21,H23,H24,H25,H26,H27,H28,H29)	18	60.00
	They don't have any difficulty in following the rules (H13,H17)	2	6.67
Reasons why students find it difficult to adapt to work discipline	Students' not being accustomed to the regular work process (H1,H2,H4,H5, H7,H11,H12,H15,H18,H20,H26,H27,H29,H30)	14	46.67
	Reluctance (H2,H3,H5,H7,H14,H20,H21,H23,H25)	9	30.00
	Inability to understand work discipline (H16,H18,H24,H30)	4	13.33
	Unwillingness to take responsibility (H6,H7,H8,H9,H10,H12,H19,H20,H21, H22,H28)	11	36.67
	Not being taken seriously by experienced or knowledgeable employees (H3, H21)	2	6.67

When Table 3 is examined, 11 of the vocational teachers stated that the students had difficulty in getting used to the order in the workplace, 18 teachers stated that the students had some difficulties in getting used to it, and 2 teachers stated that the students did not have any difficulty in getting used to work discipline. When the reasons why students have difficulty in getting used to the workplace discipline are examined, vocational course teachers think that students are not used to working at this pace *(N=14)*, they think that students have a weak interest in acquiring a profession *(N=9),* they think that students are not satisfied with the position they work *(N=4),* they think that students have problems due to their personality traits *(N=11)* and they think that experienced or knowledgeable employees are indifferent to students *(N=2).*

Some of the teacher's statements expressing their opinions on this subject;
"Spending too much time on social media and taking the events there as an example causes them to have difficulty in adapting to the work discipline. In addition, we can say that they have difficulty in adapting because they are out of the discipline they were used to." (H3)
"They have difficulties because they cannot grasp whether they have vocational qualifications or not, and they do not exactly understand the need to work in a disciplined system." (H14)
"The reason why work discipline cannot be provided in the educational environment may be due to many reasons. The first of these may be that the workshop rules are not clearly stated and the teacher does not have professional competence." (H6)
"In recent years, education has been insufficient because students have taken distance education courses due to the pandemic. Therefore, students have difficulty in maintaining work discipline. (H7).

Table 4: Vocational course teachers' thoughts on the problems related to vocational practice training and the causes of the problems

The problem content	Explanations	N	%
Problems of vocational teachers related to internship training arising from students	I have problems with skills training (H2,H3,H4,H5,H12,H16,H21, H22,H25,H26,H28,H29,H30)	13	43.33
	I don't have problems with skill training (H1,H7,H8,H10,H11,H13, H14,H15,H17,H18,H19,H20,H23,H24)	14	46.67
The reasons for the problems that teachers encounter in internship training related to students	Workplace or employer-related problems (H10,H11,H12,H14,H29, H30)	6	20.00
	Problems stemming from individual differences (H5,H6,H7,H8,H9, H10,H16,H18,H19,H20,H21,H22,H25,H28)	14	46.67
	Absenteeism or problems with classes (H2,H9,H10,H21,H26,H30)	6	20.00
	Motivation or adaptation problems (H2,H3,H4,H5,H12,H15,H27)	7	23.33

When Table 4 is examined, 13 teachers who participated in the research stated that their students had problems with skill training *(N=13),* while 14 teachers stated that they did not encounter any problems *(N=14).* According to the teachers, the reasons for the problems experienced by the students in the internship training are the problems caused by the workplace or the employer *(N=6)*, the problems arising from individual differences *(N=14),* the problems caused by the students' absenteeism *(N=6)* and the problems caused by the students having difficulties in adapting *(N=7).* Some of the opinions of vocational course teachers are given below with one-on-one citations.

Some of the teacher's statements expressing an opinion on this issue;
"The reasons why students encounter problems in vocational practice are that they have difficulty in adapting to disciplined work and do not take the warnings of the qualified instructor seriously." (H9).
"The reason for the problems is that they do not think that they are required to participate, that they do not understand the importance of internship, that they do not understand the purpose of the internship, that the workplaces cannot provide adequate confidence to the students." (H21).
"The reasons for the problems are the inadequacy of the workplaces in the education of the students, the indifference of the students towards their own fields, the fact that the students behave as if the school is over because the internships are in the last year." (H29).
"I think that the main source of the problems is that students consider the internship as a burden and obligation for them. However, if they accept that the internship period is an opportunity for them, many problems will disappear." (H30).

Table 5: Vocational course teachers' thoughts on the achievement of the determined goal of vocational practice training

The problem content	Explanations	N	%
Achieving the goal of internship training	It reaches its goal, purpose (H9,H17,H19,H24,H27,H29).	6	20.00
	It partially achieves its goal, purpose (H1,H2,H3,H4, H5,H6,H7,H8,H10,H11,H12,H13,H14,H15,H16,H18,H20, H21,H22,H23,H25,H26,H28,H30).	24	80.00
	It does not reach its goal, purpose.	0	0.00

When Table 5 is examined, *(N=6)* teachers who participated in the research think that the internship training has achieved its goal, *(N=24)* the teacher think that internship training has partially achieved its goal, and *(N=0)* the teacher thinks that the internship training has not reached its goal.

Some of the expressions of teachers expressing their opinions on this subject;

"Students who go to the workplace for learning purposes do not have any difficulties in terms of learning. However, unfortunately, positive results cannot be obtained for students who do not like the profession or behave reluctantly." (H2).
"The main reason why the internship does not comply with its purpose is that it is compulsory to do the internship and the students do the internship only for the purpose of completing it." (H21).
"My experience as a coordinator shows me that when students who care about internship education and conscious workplaces come together, I think that efficiency will increase and students will gain more experience." (H21).
"Internship training is important for the student to see the workplace environment, to adapt to workplace rules, to see and experience the negativities that may occur in business life." (H17).

Table 6: Vocational course teachers' opinions on the improvement of vocational training

The problem content	Explanations	N	%
Recommendations for improving vocational education	Curriculum should be rearranged (H4,H7,H10,H11,H12,H20,H25).	7	23.33
	Practical course time should be increased (H19,H24).	3	10.00
	There should be cooperation between vocational high schools, state institutions and workplaces (H2,H3,H4,H5,H6,H7,H9,H10,H11, H12,H13,H14,H15,H18,H19,H20,H21,H22,H26,H27,H28,H29,H30).	23	76.67
	The scope of internship training should be increased (H2,H3,H6,H7, H11,H18,H19,H20,H21,H27,H29).	11	36.67
	Opportunities of vocational high schools should be increased (H1,H2,H4, H5,H6,H7,H12,H13,H14,H19,H20,H29,H30).	13	43.33
	Students should be admitted to vocational education institutions with an aptitude test (H2,H3,H5,H6,H7,H8,H9,H10,H11,H12,H14,H16,H17, H19,H20,H2,H22,H23).	18	60.00

When Table 6 is examined, the suggestions of the vocational course teachers who participated in the research for the improvement of vocational education are as follows; curricula should be rearranged *(N=7),* practical course time should be increased *(N=3),* there should be cooperation between vocational high schools, state institutions and workplaces *(N=23),* the scope of internship training should be increased *(N=11),* the opportunities of vocational high schools should be increased *(N=13)* and students must be admitted to vocational education institutions with an aptitude test *(N=18).*

Some of the statements of teachers expressing their opinions on this subject;
"Practical training should be given more time, the curriculum should be simplified, and the work environment and economic conditions of teachers should be improved." (H13).
"My suggestions are to have sufficient equipment at the internship places, to cover the damages that students will cause to the workplace during the education, and to instill self-confidence in the students." (H24).
"I believe that vocational education schools should be closer to the market and production points (organized industrial zones, government institutions, etc.) and that cooperation with different facilities is absolutely necessary. In this way, students will complete their development by receiving more realistic and more up-to-date education." (H19).
"It will be healthier for the students and the school if the internship training is given at different times from the school education instead of being given simultaneously." (H28).

4. Conclusion and Recommendations

In this section, the findings obtained from the answers given by the teachers participating in the research to the data collection tool were evaluated and the results and recommendations regarding the students' achievements in obtaining a profession, internship training and the problems encountered during vocational education are given.

4.1 Conclusion

In the research, based on the answers given by the vocational course teachers, it was concluded that the students did not have enough professional competence when they graduated. From the interviews with the teachers, it was determined that the reasons for this situation stemmed from problems such as lack of knowledge, different applied trainings, inability to follow technological developments, and not repeating the skills learned at school in workplaces. In a study by Nayir, (2006), it was found out that the theoretical knowledge that students learn in schools is not sufficient for them to practice during skill training in workplace.

In the research, it was concluded that vocational teachers could not implement the curriculum as they wished, that some courses in the curriculum had few weekly course hours and that their schools had weak network with other workplaces. In a study by Dahil, Karabulut and Mutlu, (2015), it was deduced that the course hours of vocational practices should be increased and courses related to technological developments should be added to the curriculum. In a study conducted by Aslanturk (2014), it was concluded that it is very important to ensure the integrity of the curriculum in vocational schools, to increase the number of practical courses, and to strengthen the links between vocational education and business areas in the sector.

In the research, it was concluded that the students had difficulty in getting used to the vocational education they received and the discipline in the work environment. From the interviews with the teachers, it was determined that the reasons for this situation were that the students could not get used to the workload and the speed of work and their interest in their profession was weak. In a study conducted by Zengin, (2014), it was concluded that students could not get used to the workload and speed of work, and this was due to their weak interest in their profession. A study conducted by Jones (2018) also concluded that vocational education is very important for the development of high-level skills and the ability of individuals to adapt to conditions in the workplace, so much more research should be done on this subject.

In the study, it was also determined that teachers had some problems related to skill training caused by students. From interviews with teachers, it was determined that the reasons for this situation are mostly due to the personality of the students, their behavior, as well as the work and employer. In a study by Ozer (2019), it was found out that the reason for the lack of cooperation between schools and the vocational sector is that the students studying at vocational high schools are less successful than the students in other schools and they are less interested in vocational training and courses. Problems with students in schools should not be neglected. Because neglected problems can cause bigger problems and chaos over time (Yavas, 2022).

In the research, one of the student-related problems is that the students do not take the warnings of the qualified instructors seriously, do not comply with the work discipline, and they think that going to the internship is just compulsory. Another problem is that workplaces lack education and do not provide adequate support and education to students. In a study conducted by Akkus-Aydemir, (2015), the conclusion was that the reason why students do not take vocational practices seriously is due to reasons such as not telling students enough about the machinery and equipment at workplace and not having enough practice, as well as not working in the fields or jobs students are studying.

In the research, it has been concluded that according to some teachers, vocational education has been successful in educating students as qualified, and according to some teachers, professional practices in vocational education partially reach their goal. Vocational education is very important especially for students who graduate from vocational schools. Of course, theoretical courses should be included in vocational schools. However, it should not be forgotten that the main purpose of vocational schools is to train qualified personnel. This can only be achieved through vocational practices that achieve their goals.

4.2 Recommendations

Taking into account the changing world, developing technology and the opinions of vocational course teachers, vocational lessons and vocational practices should be reviewed and the necessary arrangements should be made as soon as possible.
Relevant institutions and organizations should find solutions to all the problems in the curriculum, especially the application days and hours related to vocational practices, and to increase or strengthen the cooperation between vocational schools and other workplaces by interviewing vocational teachers.

Both vocational and theoretical courses to be given to the students in vocational schools should be of a quality that will enable the student to acquire all the knowledge and skills that may be required in the profession. Thanks to the core trainings that will be given to the student through vocational education, the student should be able to easily find a place for himself/herself in the future career, and thanks to the trainings s/he have received, he should be able to constantly update himself on new technology with ease. Hence, vocational education in schools and theoretical education should be combined and supported by training in workplaces.

Both professional teachers and other teachers who feel inadequate or think that they have deficiencies should be provided with in-service trainings by the relevant institutions and the deficiencies of teachers should be made up. Since vocational schools provide education all day, both physical and financial opportunities of teachers, students and schools should be improved.

Vocational schools should be in contact with other workplaces, and students should be trained on the type of qualified people demanded by the markets or workplaces and the jobs requested.

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The Relationship Between Sport, Self-Regulation and School Burnout in High School Students

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Abstract
The purpose of this research is to investigate the relationship between sports and self-regulation and school burnout in high school students who are athletes and nonathletes. Relational screening method was used in the research. 387 high school students (188 athletes, 199 non-athletes) participated in the study. The average age of the participants was ± 15.9 years. The participating students were determined by the convenience sampling method. The data of the research were collected with the Personal Information Form, the Perceived Self-Regulation Scale and the School Burnout Scale. The data were analyzed by using the SPSS program, Independent Sample T-Test, One Way Anova Test, Tukey and Pearson Correlation tests. The significance level was accepted as $p<0.05$ in the analyses. According to the results of this research, the school burnout levels of non-athlete students are higher than those of athlete students. There is no significant relationship between athletes and self-regulation. The school burnout levels of athlete students who workout for 1-4 months and 9-12 months during the year are higher than those who workout for 5-8 months. On the other hand, female students' self-regulation levels are higher than males. The self-regulation and school burnout levels of the participants did not show a significant difference depending on the age.

Keywords: Student, Sports, Self-Regulation, School Burnout

1. Introduction

Sport facilitates the development of positive self-esteem, self-perception and mental endurance in the individual (Malina, 1996; Weiss, 1993), reduces the level of anxiety, stress and depression (Berger & Owen 1983). Besides, it supports the establishment of new friendships, the consolidation of these friendships and social integration (Peluso & Andrade2005). Accordingly, the key concept should be sport in order for students to take responsibility in the lifelong learning process and accordingly be able to take control of their own life, ultimately recognize themselves, be conscious of their own abilities, and integrate this ability and skill capacity into every area of their life in the form of constantly expanding rings. As the most basic reason for this, sports can be one of the best tools for an individual to perceive the limits of their own capacity in a sense. It is believed that sports provide an opportunity for students to take action for themselves, take responsibility, learn and develop self-regulation and become aware of themselves.

When self-regulation is evaluated in terms of social cognition theory, individuals have an internal system through which they can control their feelings, thoughts and actions, and this internal system is expressed as planning alternative strategies for the individual, regulating their own behaviours, symbolizing skills, and learning from others (Bandura, 1986; Şahan & Duy, 2017). On the other hand, in other words, self-regulation has been expressed as the individual's directing her/his own emotions, thoughts and behaviours to achieve a goal (Şahin, 2015; Zimmerman, 2002). Pursuant to all this information, self-regulation can be explained as a complex process consisting of many skills that allow an individual to optimally adapt/react to stimuli from the environment. Self-regulation, in the most general terms, can be the expression of a process related to the control of emotions, thoughts and actions.

School burnout is expressed as exhaustion by getting a sense of inadequacy due to excessive school demands, depersonalization towards school, and adopting an independent and cynical attitude (Koçak & Çakır, 2020; Salmela-Aro et al., 2009). The weight of the students' course load on issues related to school life, the fact that the educational process is long and exhausting also brings about a process that has negative consequences for both students and parents. This is why the students have problems in their school life. The continuity of high school students' school-oriented duties and responsibilities and the increasing expectations about these responsibilities cause school life to be intense and stressful. These reasons have led to the perception of student activities as ‘work’ (Kutsal & Bilge, 2012; Salmela et al., 2008; Seçer & Gençdoğan, 2012; Schaufeli et al., 2008). It is thought that problems experienced as a result of both school burnout and daily communication with other students in the education and training life of the students may cause the individual to see this process as a stressful and exhausting area.

The ability of self-regulation acquired at an early age is a fundamental issue for a positive life. It is estimated that sport raises the levels of self-regulation in the individual. There are studies that show that some sports can also provide improvements in the level of self-regulation in the short term, and elite athletes have higher levels of self-regulation. What is uncertain is whether sport raises self-regulation or whether better self-regulators are engaged in sports (Howard et al., 2018). Sports can positively affect social attitudes, and increase motivation for school. In this way, it can prevent the occurrence of school burnout or reduce the devastating effects of these syndromes. On the other hand, heavy workouts, high sports expectations and sports failure in high school students can also lead to an increase in the level of school burnout. In this direction, the determination of the relationship between the level of self-regulation and school burnout in high school athletes and non-athletes may provide insight into the protection of high school students from self-regulation and school-oriented burnout syndrome (Koçak & Çakır 2020).

When the current literature is examined it has been seen that the learning process and self-regulation in sports (Carvalho & Araújo, 2022), eating attitudes of athletes and self-regulation (Scoffier-Meriaux & Paquet, 2022), sport-based youth development and self-regulation (Lee et al., 2021) and the relationship between early childhood (4-5 years) sports participation and self-regulation (Howard et al., 2018) were searched. Nonetheless, studies examining the relationship between school burnout and sports (Koçak & Çakır 2020; Sorkkila et al., 2017; Sorkkila et al., 2018; Sorkkila et al., 2019; Sorkkila et al., 2020) are in a wide range. However, it has been seen in the literature that there are no studies searching the relationship between sports and self-regulation and school burnout in a sample of high school students. This research is important in terms of the contribution that it will provide to the literature on a new topic. The main purpose of this research is to investigate the relationship between self-regulation and school burnout in high school-age athletes and non-athletes through some variables. The research problems determined for this purpose are given below.

The hypotheses to be tested in this research are as follows:
The level of self-regulation and school burnout in high school students differs according to gender.
The level of self-regulation and school burnout in high school students differs according to age.
Self-regulation and school burnout and athletes in high school students differ according to their status.
The level of self-regulation and school burnout in high school student-athletes differs according to the training time during the year.
There is a significant relationship between self-regulation and school burnout level in high school students.

2. Method

2.1. Model of the Research

The present study employed a non-experimental quantitative method with a correlational research design. The correlational survey design has been defined as "a research model that aims to determine the degree of change between two or more variables or the presence of change together" (Karasar, 2012). Thus, the rationale for employing the correlational research is to describe the opinions or characteristics of a large community on a certain research topic (Fraenkel & Wallen, 2006).

2.2. Participants

The sample of the research included 387 students (187 Female, 200 Male) studying at different high schools in Çorum during the 2021-2022 academic year. The students to be sampled were determined by the "convenience sampling" method (Cohen & Manion, 1998).

2.3. Data Collection Tool

The data of the research were collected with the Personal Information Form, the “Perceived Self-Regulation Scale” (Arslan & Gelişli, 2015) and the “School Burnout Scale" (Seçer et al., 2013). Since the participants were under the age of 18, the data were collected by obtaining permission from the participants' parents, "TC Hitit University Non-Interventional Research Ethics Committee Parent Consent Form" and the Provincial Directorate of National Education Research Permission Commission. The created form was added to the data collection tool for approval by the researcher and participant's parents.

Personal Information Form: It was created by the researchers to collect data on the participants' gender, age, athletic status, sports, school burnout, and annual training duration.

Self-Regulation Scale: The scale developed by Arslan and Gelişli (2015) is in 5-point Likert type. It consists of a total of 16 items and 2 sub-dimensions. These dimensions are Openness and Seeking. The Cronbach Alpha value for the whole scale was found to be .90

School Burnout Scale: Salmela-Aro, Kiuru, Leskinen, and Nurmi (2009) developed it to measure school burnout levels in secondary school students. Seçer, Halmatov, Veyis, and Ateş (2013) made the adaptation of the scale to Turkish culture. The scale consists of 10 items and three sub-dimensions in a 5-point likert type. These dimensions are Emotional Burnout, Depersonalization, and Low Personal Accomplishment. The Cronbach Alpha value for the whole scale is .87.

2.4. Statistical Analysis of the Data

The research data were analyzed with SPSS 22 program. The Kolmogorov-Smirnov Test was performed to determine whether the data showed a normal distribution and the skewness and kurtosis values of the data were examined. According to the results obtained, it was determined that the data showed a normal distribution. Accordingly, parametric tests were used in the analysis of the data. Independent Sample T-Test, One Way Anova Test, Tukey Post Hoc Tests were used in the analysis of data about independent variables. Pearson Correlation Test was applied to determine the relationship between self-regulation and school burnout. The level of significance in the analyzes was accepted as $p < 0.05$.

3. Findings

In this part of the research, the findings are presented in tables as a result of the statistical analysis made to examine the relationship between doing sports, self-regulation and school burnout in high school students.

Table 1: Distribution of responses to personal information questions

Variables	Groups	n	%
Gender	Female	187	48,3
	Male	200	51,7
	Total	387	100,0
Age	14-15-16 Age	188	48,6
	17-18-19 Age	199	51,4
	Total	387	100,0
Sportsperson ship status	Yes	189	48,8
	No	198	51,2
	Total	387	100,0
Annual Training Time (Athlete Group)	1-4 Month	64	16,5
	5-8 Month	73	18,9
	9-12 Month	52	13,4
	Non-athlete	198	51,2
	Total	387	100,0

According to Table 1, the participants of the study consist of 187 females (48.3%) and 200 males (51.7) students. While the average age of the participants was 15.9, it is observed that 48.6% of the participants were in the 14-15-16 age group and 51.4% were in the 17-18-19 age group. 48.8% of the participants are athletes. 16.5% of the athlete participants workout between 1-4 months a year, while 13.4% workout for 9-12 months.

An independent sample t-Test was used to evaluate the participants' self-regulation and school burnout levels according to gender (Table 2).

Table 2: T-test findings regarding the genders of the participants

Scale	Sub-Dimensions	Gender	n	Mean	S.d.	t	df	p
School Burnout	Emotional Exhaustion	Female	187	3,36	,83	1,282	385	,20
		Male	200	3,24	1,02			
	Depersonalization	Female	187	3,31	1,09	,161	385	,87
		Male	200	3,29	1,17			
	Low Sense of Personal Success	Female	187	3,20	1,16	,233	385	,81
		Male	200	3,17	1,19			
	Total	Female	187	3,31	,88	,688	385	,49
		Male	200	3,24	1,01			
Self Regulation	Being Open	Female	187	3,85	,74	2,719	385	,00*
		Male	199	3,65	,71			
	Search	Female	185	3,57	,87	1,051	385	,29
		Male	197	3,48	,77			
	Total	Female	185	3,71	,73	2,074	385	,03*
		Male	196	3,56	,67			

*p<0,05

When Table 2 was examined, it was determined that the gender differences in the self-regulation openness dimension (t=2,719 p= ,007, p< 0.05) and in total (t=2,074 p=,039, p< 0.05) were statistically significant at the 95% confidence level. It was found that the openness level of female students (Mean =3.85) was higher than that of male students (Mean =3.65). On the other hand, it was determined that the participants' school burnout did not

have statistically significant differences according to gender in the sub-dimensions of emotional exhaustion, depersonalization, low sense of personal achievement and self-regulation of self-regulation (p>0.05).

An independent sample t-Test was used to evaluate the participants' self-regulation and school burnout levels according to age (Table 3).

Table 3: T-test findings regarding the age of the participants

Scale	Sub-Dimensions	Age	n	Mean	S.d.	t	df	p
School Burnout	Emotional Exhaustion	14-15-16	188	3,30	,99	,112	385	,91
		17-18-19	199	3,29	,89			
	Depersonalization	14-15-16	188	3,31	1,17	,223	385	,82
		17-18-19	199	3,28	1,10			
	Low Sense of Personal Success	14-15-16	188	3,21	1,23	,518	385	,60
		17-18-19	199	3,15	1,12			
	Total	14-15-16	188	3,29	1,00	,280	385	,78
		17-18-19	199	3,26	,90			
Self Regulation	Being Open	14-15-16	187	3,77	,69	,462	385	,64
		17-18-19	199	3,73	,77			
	Search	14-15-16	186	3,51	,76	-,193	385	,84
		17-18-19	196	3,53	,87			
	Total	14-15-16	185	3,64	,65	,175	385	,86
		17-18-19	196	3,63	,75			

*p<0,05

According to Table 3, it was determined that the participants' school burnout and self-regulation levels did not have significant differences according to age (p>0.05).

An independent sample t-Test was used to evaluate the participants' self-regulation and school burnout levels according to their sports status (Table 4).

Table 4: T-test findings regarding participants' athletic status

Scale	Sub-Dimensions	Sportspersonship Status	n	Mean	S.d.	t	df	p
School Burnout	Emotional Exhaustion	Yes	189	3,19	,95	-2,20	385	,02*
		No	198	3,40	,91			
	Depersonalization	Yes	189	3,19	1,15	-1,74	385	,08
		No	198	3,40	1,11			
	Low Sense of Personal Success	Yes	189	3,04	1,19	-2,30	385	,02*
		No	198	3,32	1,15			
	Total	Yes	189	3,16	,97	-2,29	385	,02*
		No	198	3,38	,92			
Self Regulation	Being Open	Yes	188	3,78	,70	,66	385	,50
		No	198	3,73	,75			
	Search	Yes	186	3,60	,83	1,89	385	,05
		No	196	3,44	,80			
	Total	Yes	185	3,69	,71	1,43	385	,15
		No	196	3,58	,70			

*p<0,05

When Table 4 is examined, it was determined that among the sub-dimensions of school burnout, emotional exhaustion (t=-2.20 p=.028 p<0.05), low sense of personal accomplishment (t=-2.30 p=.022 p<0.05) and the total of the scale (t =-2.29 p=.022 p<0.05) the burnout levels of non-athlete students were higher. On the other hand, it was determined that there was no significant difference in the sum and sub-dimensions of depersonalization and self-regulation of school burnout of the participants (p>0.05).

One Way Anova test was used to evaluate the self-regulation and school burnout levels of the athlete group according to the training time throughout the year (Table 5).

Table 5: One Way Anova test findings regarding the annual training time of the athlete group

Scale	Sub-Dimensions	Annual training Time (month)	n	Mean	S.d.	Sum of Squares	df	Mean Square	p	Tukey
School Burnout	Emotional Exhaustion-	1-4	64	3,49	,94	3,991	2	1,996	,12	
		5-8	73	3,15	,96					
		9-12	52	3,32	,98					
	Depersonalization	1-4	64	3,52	1,05	6,768	2	3,384	,07	
		5-8	73	3,10	1,15					
		9-12	52	3,41	1,16					
	Low Sense of Personal Success	1-4	64	3,60	1,14	18,792	2	9,396	,00*	1>3>2
		5-8	73	2,86	1,23					
		9-12	52	3,26	1,21					
	Exhaustion Total	1-4	64	3,52	,90	7,233	2	3,616	,02*	1>3>2
		5-8	73	3,07	,97					
		9-12	52	3,33	1,00					
Self Regulation	Being Open	1-4	64	3,78	,72	,015	2	,007	,98	
		5-8	73	3,76	,72					
		9-12	52	3,78	,72					
	Search	1-4	64	3,44	,85	1,601	2	,801	,33	
		5-8	73	3,55	,84					
		9-12	52	3,64	,86					
	Self Regulation Total	1-4	64	3,60	,71	,483	2	,241	,62	
		5-8	73	3,66	,72					
		9-12	52	3,71	,71					

*p<0,05

When Table 5 was examined, it was determined that there was a statistically significant difference in the dimension of low personal achievement feeling (df=2, p=,002) and school burnout in total (df=2, p=0.23) according to the workout time during the year. According to the Tukey Post hoc test, which was conducted to determine which group the difference originated from, it was determined that those who trained for 1-4 months experienced lower personal accomplishment and overall school burnout more than those who trained for 5-8 months and 9-12 months.

Pearson Correlation test was used to evaluate the relationship between self-regulation and school burnout in the participants (Table 6).

Table 6: Evaluation of the relationship between self-regulation and school burnout in participants

Scale		School Burnout Total	Emotional Exhaustion	Depersonalization	Low Sense of Personal Success	Self-Regulation Total	Being Open	Search
School Burnout Total	r		,914**	,918**	,858**	-,027	,042	-,084

	p	1	,000	,000	,000	,605	,410	,103
Emotional Exhaustion	r	,914**		,734**	,675**	-,002	,059	-,055
	p	,000	1	,000	,000	,973	,248	,280
Depersonalization	r	,918**	,734**		,727**	-,019	,055	-,082
	p	,000	,000	1	,000	,710	,277	,109
Low Sense of Personal Success	r	,858**	,675**	,727**		-,067	-,021	-,098
	p	,000	,000	,000	1	,193	,685	,057
Self Regulation Total	r	-,027	-,002	-,019	-,067		,894**	,916**
	p	,605	,973	,710	,193	1	,000	,000
Being Open	r	,042	,059	,055	-,021	,894**		,640**
	p	,410	,248	,277	,685	,000	1	,000
Search	r	-,084	-,055	-,082	-,098	,916**	,640**	
	p	,103	,280	,109	,057	,000	,000	1

** p<0,01 (2-tailed)
* p<0,05

According to Table 6, it was determined that there was no significant difference between the school burnout and self-regulation levels of the participants (p>0.01).

4. Discussion

In this study, it has been determined that the self-regulation levels of female students are higher than male students. While there are studies in the literature that support these findings (Aktan,2012; Bidjenaro, 2005; Hargittai & Shafer 2006), contradictory research (Üredi & Üredi, 2005) has also been reached.

On the other hand, it is observed that the participants' school burnout levels do not have a statistically significant difference according to gender. Contrary to the research findings, there are studies in the literature stating that school burnout is higher in male students (Çapulcuoğlu & Gündüz, 2013; Nolen-Hoeksema & Girgus, 1994) and studies indicating that it is higher in female students (Ge et al., 2001; Özdemir, 2015).

In this study, it was found that the levels of self-regulation and school burnout did not show a significant difference according to age. While there are studies in the literature that support this research (Koçak & Çakır, 2020; Seçer & Gençdoğan, 2012), another study conducted on high school students found that male students' burnout scores were higher than female students (Kutsal & Bilge, 2012).

In the research, it was determined that the level of school burnout of non-athlete students is higher than that of those who are athletes. When the research carried out on this subject is examined, it is seen that there are studies in which the school burnout levels of athlete students are high (Koçak & Çakır, 2020; Pilkauskaite-Valickiene et al., 2011). On the other hand, it has been determined that the self-regulation levels of the students do not constitute a significant difference according to the state of athletes.

In the study, it was determined that there was no significant relationship between the annual training period and the self-regulation level of the students. However, it has been observed that the school burnout levels of athletes who workout for 1-4 months and 9-12 months a year are higher than those who workout for 5-8 months a year. In parallel with these findings, there are studies (Özcoşan, 2018; Raedeke & Smith, 2001) that indicate that the level of burnout increases as the intensity and duration of workout increase.

In this research sampling, there was no significant relationship between school burnout and self-regulation. However, there are studies in the literature that report that students with low levels of self-regulation skills experience school burnout (Duru et al., 2014; Kapıkıran et al., 2016).

According to the results of this research, there is a significant relationship between sports and school burnout. The school burnout levels of non-athlete students are higher than those of athlete students. There is no significant relationship between athletes and self-regulation. The level of school burnout in athletes varies according to the workout time per year. In this sample, the school burnout levels of athlete students who workout for 1-4 months and 9-12 months are higher than those who workout for 5-8 months. On the other hand, female students' self-regulation levels are higher than men. When the findings obtained in this research and the literature information are evaluated, it can be said that the self-regulation levels of female students are high. Self-regulation and school burnout do not show a significant difference according to age.

5. Conclusion

The sample and independent variables of this research significantly limited the research. Therefore, the research results may not be generalizable to the population. This research can be repeated in different samples using different limitations and different variables.

Considering these research results, it may be suggested to investigate the reasons why non-athlete students experience school burnout. Practices that reduce the school burnout levels of non-athlete students should be developed and students should be protected from the negative effects of burnout.

The reasons for the school burnout experience of athletes who do not workout more throughout the year should be investigated and measures should be taken to prevent school burnout.

Based on the reality that athletic students do not experience school burnout compared to non-athletes, high school students should be encouraged to become competitive athletes.

Personal development direction trainings can be given to male students to investigate the reasons for their own thought formation, and to develop their own ways of thinking.

Conflict of interest

There was no conflict of interest.

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An Examination of the Core Values in Fifth Grade Mathematics Textbooks

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Abstract
A textbook is of a proper medium for conveying curricular values to students. The aim of this study is to examine how math textbooks reflect the core values stated in the curriculum. Selected by homogeneous sampling technique, the data sources of this qualitative study consisted of two (one official and one private) fifth-grade math textbooks. All elements (e.g., text, visuals, exercises, questions) in the textbooks were analyzed through content analysis technique, employing the core values as a preliminary outline. Findings revealed that the both textbooks included all the core values in the curriculum with varying frequencies across values. The most frequently reflected values were patriotism and responsibility while the least was honesty. The values of friendship, patience, justice, love, helpfulness, and respect were represented in moderate frequencies in both textbooks. The frequencies of representations regarding values were mostly parallel in official and private publications. Teachers must play a complementary role for the underrepresented values during teaching.

Keywords: Textbook, Curriculum, Core Values, Mathematics, Teaching

1. Introduction

Value is a concept with a wide range of meanings depending on the context in which it is used. Commonly, it is defined as an abstract measure that helps to determine the importance of something (TDK, 1998). As the general executive of the human attitude and movement (Dönmezer, 1982), values become explicit through common views of people on what is good, right, or desirable (Dilmaç et al., 2009; Güngör, 2010). As a criterion, it includes the distinction between what something "is" and what something "should be" (Cevizci, 1999, p. 201). Likewise, the field of education has completely been surrounded by moral questions, concerns, and practices since ancient ages. Especially before the modernity, educational practice was mainly on character and moral formation of the learner. As Cevizci (2014) emphasized, all the great educators of antiquity, starting with Socrates and Confucius, were also moral teachers. In modern times, Cevizci added, this situation has changed to a certain extent with the fact that many have received a purely vocational education instead of moral education. Yet moral education and character formation still continue to occupy an important place in education today through the practice of value education. As a crucial component of a curriculum design and implementation, values are the essential affective

qualities aimed to foster through the school subjects and practices. In short, values are viewed as the curriculum of moral education (Tomlinson, 1997) relating to the affective domain of curricular aims. The integration of values education in curricula has been viewed as an integral step toward the aim of shaping the holistic development of learners (Gabatbat & Santander, 2021).

Values are delivered to students through various school subjects, interpersonal activities, and curricular materials. The presumption that mathematics is of the same objective knowledge everywhere in the world, and the fact that mathematical knowledge is indeed context-free both foster the commonly-held belief that mathematics is culture- and value-free (Seah & Bishop, 2000). Despite this perception, attempts have been made to establish a link between values and math in the past few decades (*e.g*., Bishop, 1996; Bishop et al., 1999; Dede, 2006; Seah & Bishop, 2003). For instance, Bishop (1996) attempted to classify values into three categories: mathematical, mathematics educational, and general educational. Mathematical values were about the worth and importance attributed to the qualities of the discipline of mathematics, including complementary pairs such as rationalism and objectivism, control and progress, and mystery and openness. Mathematics educational values are the ones related to the institutional norms by which math is formally taught, namely the norms and practices (*e.g*., clarity, accuracy, consistency, flexibility) in the classrooms of mathematics. The general educational values (*e.g*., responsibility, communication) were associated with the general educational and socializing demands of society (Bishop, 1996). Not mathematical in nature, general educational values are described as qualities that teachers, schools and/or the society/culture attempt to inculcate in their students. Crucial for the maintenance and enhancement of the social fabric, these values often reflect a moral character (Bishop et al., 1999).

A general educational value becomes explicit when a mathematics teacher uses, for instance, the context of a global warming issue to discuss the graphs pertaining to the increasing temperature over the years along with the social responsibilities to deal with it (value of responsibility) or when pupils are engaged in solving a problem about equally (or fairly) sharing the harvested grains among shareholders (value of justice). General educational values are indeed the core values, guiding light routing people's behavior and attitude towards others. In the statement published by the Board of Training and Education of Turkish Educational Ministry on July 18, 2017, ten core values were explicitly stated for the purpose of values education. Named as *root values*, these values were "justice, friendship, honesty, self-control, patience, respect, love, responsibility, patriotism, and helpfulness" (Topal, 2019, s. 248). Those are the basic values that are of primary importance among the values and taught jointly with other disciplines including math.

Many studies have recently been conducted to examine values education from a different perspective. Some of those perspectives are the values in children's literature (Kurtdede Fidan & Ulu, 2021), fostering values through authentic storytelling (Gunawardena & Brown, 2021), teachers' views on values education (Thornberg & Oğuz, 2013), and postgraduate students' views on values education (Dinçer & Aksoy, 2021). Several studies have been conducted on the representation of values in textbooks from different disciplines. For instance, after investigating Turkish (namely, Language Arts) textbooks, Deniz and Karagöl (2018) found the lack of a balanced representation in the distribution of values in the examined course and activity books. Upon conducting a study to compare social studies textbooks in Türkiye, the United States, and France (Kafadar et al., 2021), it was found that there are both similarities and differences from one country to another in terms of value representations and instructional approaches adopted. Ersoy and Şahin (2012) examined social studies textbooks in terms of approaches to values education and revealed that *value analysis* and *suggestion* took place in the examined books but *moral reasoning*, *explanation of value*, *observation/learning through modeling* did not.

Math textbooks constitute an important medium for inculcating the core values in students. Even though the mathematical knowledge is supposed to be value-free (Seah & Bishop, 2000), the textbooks might still represent mathematical content with value-laden ways (Dede, 2006). The textbooks of math were often studied from a mathematical values perspective. Upon analyzing lower secondary mathematics textbooks in Singapore and Australia, Seah and Bishop (2000) revealed an unbalanced portrayal of each of the eight identified pairs of complementary values. After analyzing 6th and 7th grade mathematics textbooks, Dede (2006) found that rationalism, control, and openness values among mathematical values were emphasized more often than complementary pairs of formalistic view, theoretical knowledge, instrumental understanding, accessibility, and

evaluation in both textbooks. Özkaya and Duru (2020) studied middle school mathematics textbooks (5th, 6th, 7th, 8th grades) for the representations of the justice and sharing, scientificity, flexibility, aesthetics, equality, and savings values, as determined by National Education Ministry (NEM). Their study demonstrated that the values of justice and sharing, savings, and aesthetics were represented the least while the equality value was the most in all textbooks. After examining the values in middle-school level math textbooks, Yıldız (2019) discovered that the most repeating value at the fifth-grade level was patriotism while mathematical values were not addressed. The most repeating value at the sixth-grade level was connecting as a mathematical value. At the seventh-grade level; honesty, responsibility, and helpfulness values came forefront while mathematical values were not represented. At the eighth-grade level, the most repeating values were connection, equality, and helpfulness.

As in other disciplines, core values were given place in the mathematics curriculum too. Mathematics textbooks are written in line with the guidelines in the curriculum. Although the extent to which core values are included in the mathematics textbook has a special importance, this subject is not well-explained by previous studies. In the 2020-2021 academic year at Turkish schools, two types of mathematics textbooks were used for the fifth-grade of middle schools, one of which was published by the National Educational Publications and the other one was printed by a private publishing house. The aim of this study is to investigate the core values represented in the 5th-grade mathematics textbooks used in Turkish middle schools and to compare the frequencies of the representations based on the publishing house (official and private). To this end, following specific questions were answered: (1) How often are the core values included in the fifth-grade mathematics textbook of National Education Publications? (2) How often are the core values represented in the fifth-grade mathematics textbook of the private publishing house? (3) What are the frequency relations of the core values in the representations between the fifth-grade mathematics textbook belonging to the official publishing house and the private publications?

2. Method

2.1 Research Design

This qualitative study involves an analysis of math textbooks in terms of whether the content of the books reflects the representations of 10 core values identified by Turkish Educational Ministry. Therefore, the study is based on document analysis, which is a form of qualitative research in which the researcher interprets the identified documents to give voice and meaning depending on an assessment topic (Bowen, 2009). Analysis of documents includes coding the studied content into themes, which is similar to how interview transcripts are analyzed. Like all the qualitative studies, the study seems to be descriptive in nature, yet the design of the study actually falls into *basic qualitative research* category. In conducting a basic qualitative research, according to Merriam (2002), a researcher seeks to uncover and understand a process, a phenomenon, the perspectives and worldviews of the individuals involved, or a combination of these. Gathered through observations, interviews, or documents, the data are analyzed to reveal the repeating patterns or common themes emerging from the data. A rich, descriptive account of the findings is presented and discussed through referring to the literature framing the study.

2.2 Data Sources

Data source of the study was comprised of two (one official and one private publications) fifth-grade mathematics textbooks. The Ministry of National Education offers more than one choice of textbooks, including private publications prepared in line with the math curriculum. In qualitative studies purposeful sampling techniques are given place in order to select the best data sources for a study (Patton, 1990). Since merely the fifth-grade math textbooks were investigated, the used sampling technique is *homogeneous sampling*. In fact, homogeneous sampling is preferred when the goal of the study is to provide an in-depth understanding and description of a particular sample. The sample was also kept focused due to the fact that the fifth-grade math textbooks were ignored in previous studies on values education. Upon investigating the previous studies analyzing values in textbooks, Kandemir and Yıldız (2019) revealed that the least studied level was the fifth-grade textbooks. Therefore, two textbooks were selected: the fifth-grade mathematics textbook published by the National Education Publications (NEP) and the fifth-grade mathematics textbook published by private Tuna Printing Press (TPP). Both textbooks were approved by the Ministry of National Education, Board of Training and Education, dated

April 18, 2019, for the use for next five years from 2019-2020 academic year. The images of those textbooks were given below in Figure 1.

Figure 1: The Cover Images of the Selected Textbooks

The both textbooks contained six units as the following:
Unit 1. Numbers and Operations (Naturel numbers, operations with naturel numbers)
Unit 2: Numbers and Operations (Fractions, operations with fractions)
Unit 3: Numbers and Operations (Decimal notation, percentages)
Unit 4: Geometry and Measurement (Basic concepts of geometry, Triangles-rectangles)
Unit 5: Data processing and Measurement (Data collection and evaluation, length and time measurement)
Unit 6: Geometry and Measurement (Measuring area, geometric objects)

2.3 Data Collection Procedures

Documents are divided into two categories: official and personal documents. Johnson and Christensen (2014) define official documents as data written, photographed, or recorded by an organization. Journals, newspapers, research reports, books, annual study reports, advertisements, news, surveys and many more records can be regarded as examples of official documents. Since the selected textbooks, even though one is produced by a private publishing company, are officially approved and used by the National Education Ministry, they might be viewed in the category of official documents. Since the contents of two fifth-grade mathematics textbooks were taken as the data of the study, the printed copies as well as the digital version (as PDF file) of the books were obtained. The digital versions of the books were received from the Education Information Network (called EBA) of the Ministry of National Education, to easily transfer the visual data in the process of writing the findings. The official publication textbook (NEP) contains 320 pages with six units, each including activities, exercises, visuals, assessment questions and so on. Private publication textbook (TPP) contains 304 pages with six units, each including activities, exercises, visuals, assessment questions and so on.

2.4 Data Analysis

Document analysis studies include the collection and analysis of written and visual materials. According to Yıldırım and Şimşek (2018), the content analysis might also be conducted deductively through having some predetermined themes as the guiding frame for analysis, and the data are interpreted in line with these themes. To this end, the core values formed the predetermined themes for analysis. In particular, behaviors characterizing each core value have been tabulated by using the behavior list by NEM (2017) in order to have a detailed analysis of the data. Presented in Table 1, those behaviors are used as a frame to assign each particular content to a specific value.

Table 1: Behaviors characterizing each core value

Core Values	Behaviors characterizing the related value
Justice	being fair, equal treatment, sharing something fairly
Friendship	altruism, trust, loyalty, solidarity
Honesty	being clear and understandable, being truthful, ethical behavior, being reliable, keeping the promises
Self-control	controlling the behavior of their own, taking responsibility for their behavior, self-confidence
Patience	to endure, to be persistent, to be in tolerance
Respect	being humble, treating others the way you would like to be treated, valuing other people's personalities
Love	giving importance to family unity, devotion
Responsibility	being responsible to oneself, to one's environment, to one's country, to one's family
Patriotism	hardworking, solidarity, compliance with rules and laws, being sensitive to historical and natural heritage, caring about society
Helpfulness	being generous, being altruistic, being cooperative, being merciful, being hospitable, sharing

The contents of the textbooks—comprised of textual information, activities, exercises, graphs, tables, images, assessment questions etc.—were initially coded based on the above behavior list, and then, the frequencies were obtained by separating the coded representations depending on the core values. Both textbooks were examined by four more experts in the field and their coding experiences revealed a consensus that some of the representations included more than one value. Hence, all the values included in a single representation were taken into consideration as separate values. However, the images were not considered as a separate representation if they were used as a supporting element to the textual information. Finally, the qualitative data were quantified and presented in tables with frequencies and percentages in order to allow comparisons among core values and between two textbooks. Additionally, the qualitative findings were presented in order to support the quantitative data. For the validity and reliability of the results, the textbooks belonging to two different publishing houses were examined, and 10 core values along with the behaviors revealing those values were identified as criteria in the analysis process. In the analysis process, the agreement rate between independent coders was found to be 92 percent, which is well above the accepted minimum value of 70 percent (Miles & Huberman, 1994).

2.5 Ethical Considerations

Since the data sources were printed documents, ethical concerns about individuals did not apply in this study. As analyzing the data and writing the final report, still, a particular attention was given to focus on the studied concepts rather than the persons or institutions. Statements that accuse individuals or institutions were avoided. Since values are abstract concepts, a scale and more than one coder were given place in order to reach objective findings.

3. Results

Findings were presented under three major headings: the representations of the core values in the official publication textbook (NEP), the representations of the core values in the private publication textbook (TPP), and the comparison of the values in official and private textbooks. Firstly, the findings about the values in the official publication textbook were presented below.

3.1 Core Values in the Official Publication Textbook

The analysis of the official fifth-grade mathematics textbook (National Education Publications, 320 pages with six units) revealed that a total of 189 core-value representations took place in the book, though the frequencies varied from one value to another. A summary of the distribution of 189 representations in the official textbook to ten core values is shown in Table 2 below.

Table 2: *Core Values in the Official Publication Math Textbook*

	Core Values	***f***	***%***
1	Justice	12	6,35
2	Friendship	14	7,41
3	Honesty	5	2,65
4	Self-control	21	11,11
5	Patience	17	8,99
6	Respect	7	3,70
7	Love	9	4,76
8	Responsibility	38	20,11
9	Patriotism	57	30,16
10	Helpfulness	9	4,76
	Total	**189**	**100**

As seen in Table 2, an examination of core values in the official textbook by *National Education Publications* revealed that all of the core values were represented at least once, though the representations were not distributed equally or nearly equally among ten core values. Findings in the table demonstrated that the most represented value in the book was patriotism (n=57; 30,16%). After patriotism comes the values of responsibility (n=38; 20,11%) and self-control (n=21; 11,11%). The values of patience (n=17; 8,99%), friendship (n=14; 7,41%), justice (n=12; 6,35%), love (n=9; 4,76%), helpfulness (n=9; 4,76%), and respect (n=7; 3,70%) were represented with moderate frequencies in the examined textbook. The least represented value among all others was honesty (n=5, 2,65%). The average of the representations is 18.9. In the following section, findings from the private publishing textbook (Tuna Printing Press) were presented.

3.2 Core Values in the Private Publication Textbook

The analysis procedures of the private publication fifth-grade mathematics textbook (Tuna Printing Press, 304 pages with six units) demonstrated that a total of 224 core-values were given place, though the frequencies of the representations varied from one value to another. A summary of the distribution of 224 representations in the private publication textbook to ten core values is shown in Table 3 below.

Table 3: Core Values in the Private Publication Math Textbook

	Core Values	***f***	***%***
1	Justice	9	4,02
2	Friendship	8	3,57
3	Honesty	2	0,89
4	Self-control	22	9,82
5	Patience	35	15,63
6	Respect	10	4,46
7	Love	12	5,36
8	Responsibility	41	18,31
9	Patriotism	66	29,46
10	Helpfulness	19	8,48
	Total	**224**	**100**

As presented in Table 3, an analysis of core values in the private publication textbook by Tuna Printing Press uncovered that all of the core values proposed in the curriculum were represented at least once, though the representations were not distributed equally or nearly equally among ten core values. Findings in Table 2 demonstrated that the most represented two values in the textbook were patriotism (n=66; 29,46%) and responsibility (n=41; 18,31%), as in the official textbook by the National Education Publications. After those comes the value of patience (n=35; 15,63%). The values of self-control (n=22; 9,82%), helpfulness (n=19; 8,48%),

love (n=12; 5,36%), respect (n=10; 4,46%), justice (n=9; 4,02%), and friendship (n=8; 3,57%) were represented with moderate frequencies in the examined textbook. As in the official textbook by the National Education Publications, the least represented value among all others was honesty (n=2, 0,89%). The average of the representations is 22.4.

Examples associating with the core values from both textbooks were presented and explained below. The first representation is an example associating to the *justice, friendship,* and *helpfulness* values.
"*EXAMPLE-1 Bekir will share 312 walnuts equally to 11 of his friends. How many walnuts will fall for each?*" (TPP, p. 45).

There are three joint values in Example-1 above. Bekir's equal distribution of nuts involves *justice* value, sharing with his friends involves *friendship* value, and sharing behavior alone includes *helpfulness* value. It must, however, be noted that sharing equally does not always mean justice, particularly for the cases that have preexisting inequalities. Special adverse cases might then be discussed by students to widen their perspective about the contradictions between equality and justice (namely, equity). The next example is an exercise question reflecting *friendship* value.
"6) *Murat lent 3/11 of his salary to his friend. If the amount he lent is 900 liras, how much is Murat's salary?*" (NEP, p. 110)

The sixth question in the "Your Turn" section of the textbook includes a person named Murat who helps his friend by lending a portion of his salary. Murat's behavior indeed reflects trust and loyalty, as the behaviors characterizing the value of *friendship*.


ÖRNEK-5

Lütfiye Hanım yaptığı aşurelerin $\frac{4}{5}$'ünü komşularına dağıtmıştır. $\frac{4}{5}$ kesrini ondalık gösterim ve yüzdelik olarak ifade edelim.

ÇÖZÜM

Figure 2: A representation about friendship value

In Figure 2 (TPP, p. 151) there is a problem supported by a visual. It stated that Ms. Lütfiye distributed 4/5 of the ashura, a traditional dessert, she made to her neighbors. Then students were asked to express the fraction 4/5 as decimal notation and as a percentage. It is seen that Ms. Lütfiye distributes a significant amount of Ashura to her neighbors while keeping a small portion for herself. Her altruistic behavior involves the value of *friendship*. The next is a representation involving the value of *honesty*.


Üzüm üreticisi olan Ahmet Bey, çevresinde dürüstlüğü ile tanınan ve çok sevilen biridir. Ahmet Bey her yıl olduğu gibi öncelikle bağından topladığı üzümlerin çürük ve eziklerini ayırıyor. Daha sonra üzümleri her birinde 11 salkım olacak şekilde 29 kasaya dolduruyor. Buna göre Ahmet Bey'in toplam kaç salkım üzümü kasalara koyduğunu nasıl tahmin edebilirsiniz?

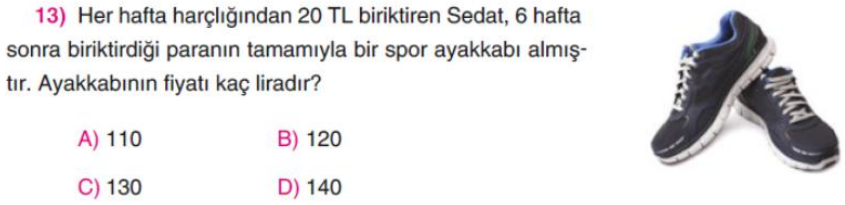
Ahmet Bey, topladığı üzümleri her birinde 18 salkım olacak şekilde 102 kasaya doldursaydı Ahmet Bey'in toplam kaç salkım üzümü kasalara koyduğunu nasıl tahmin edebilirsiniz? Tartışınız.

Figure 3: Representation about honesty value

"Mr. Ahmet, a grape producer, is known for his honesty and loved by many. As every year, Mr. Ahmet first separates the rotten and smashed ones he collects from his vineyard from the good ones. He then packs the grapes into 29 crates with 11 bunches in each.

According to this, how can you estimate how many bunches of grapes Mr. Ahmet put in the crates? If Mr. Ahmet had packed the grapes he collected into 102 crates with 18 bunches in each, how can you estimate how many bunches of grapes Mr. Ahmet put in the crates? Please discuss." (TPP, p. 48).

In the example in Figure 3, the *honesty* of Mr. Ahmet is stated overtly and praised by the statement that he is "loved by many". This example involves learning values through models, through social learning principles. Since Mr. Ahmet is indeed reliable and truthful, the example involves the value of *honesty*. The next example involves *patience* and *self-control* values.


13) Her hafta harçlığından 20 TL biriktiren Sedat, 6 hafta sonra biriktirdiği paranın tamamıyla bir spor ayakkabı almıştır. Ayakkabının fiyatı kaç liradır?

A) 110 B) 120

C) 130 D) 140

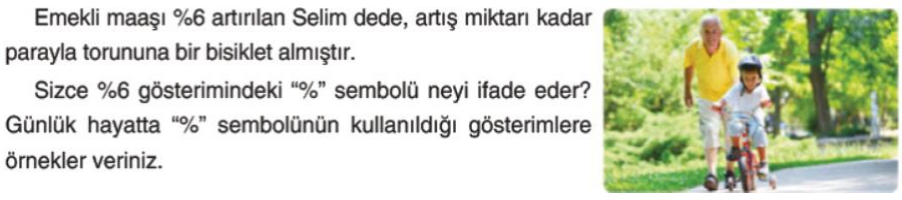
Figure 4: Representation about patience and self-control values

The question states, "*Sedat, who saved 20 TL from his pocket money every week, bought a sneaker at the end of the sixth week with all the money he saved. How much is the price of the shoes?*"

In Figure 4 (TPP, p. 83), it is stated that a boy named Sedat saves money in order to buy the shoes he wants. In this problem, an individual who saves money determinedly to buy the shoes and who can control his own behavior are presented. Behavior of being determined relates to the value of patience while controlling his behavior links to the value of self-control. Considering that consumption is on the rise and spending is encouraged by many instruments, the importance of those values is better understood. Sedat presents a self-controlled, and frugal character rather than a consumption-oriented personality as capitalism encourages. He aimed to postpone the instant access to shoes, save money with determination and get what he wants. The coming example is about the value of *respect*.

"*EXAMPLE-2 Kadir wants to do a research to determine what hobbies his classmates spend most of their time on. Let's write a research question for Kadir's research. Let's prepare a survey where Kadir can collect data for research*."

In Example-2 (TPP, p. 226), a student named Kadir is trying to learn what his friends do as hobbies. Kadir's valuing the personalities and preferences of other people reflects the value of respect. The next example is about *love* and *helpfulness* values.


Emekli maaşı %6 artırılan Selim dede, artış miktarı kadar parayla torununa bir bisiklet almıştır.

Sizce %6 gösterimindeki "%" sembolü neyi ifade eder? Günlük hayatta "%" sembolünün kullanıldığı gösterimlere örnekler veriniz.

Figure 5: Representation about the value of love and helpfulness

"Grandfather Selim, whose retired pay was increased by 6%, bought a bicycle for his grandson with the same amount of money as the increase. What do you think the "%" symbol in %6 represents? Give examples of representations in which the "%" symbol is used in daily life."

As seen in Figure 6 (TPP, p. 147) in this section, a happy grandfather and a bicycle-riding grandchild are portrayed. Here, the grandfather was generous and bought a bicycle for his grandson with a certain part of his salary and aimed to express his love for him/her. Helpfulness value was presented through the behaviors of being generous and sharing, and the love values was represented by the behaviors of giving importance to family unity and making sacrifices for others. The next example is about the value of *responsibility*.

"*Brushing his teeth 3 times a day, Ali saves 30% of the amount of water he consumes in a week because he does not keep the faucet open till he finishes. How many liters of water does Ali, who consumes 700 liters of water a week, save in a week?*"

In the 9th question (NEP, p. 188) in the "Unit Evaluation" section, brushing teeth, as a health care activity, and saving water themes are attached to the problem. Taking care of one's health is an indication of his *responsibility* towards himself. In addition, performing mathematical operations linked to prevent water waste also instills a sense of *responsibility towards the environment*. The rapid decrease in water resources, which is one of the global problems, and the fact that scientists have scenarios such as "water wars" in the future also increase the importance of this example. The next one is about *patriotism* and *responsibility* values.

Figure 6: Representation about patriotism and responsibility values

"*In our country, we lose 743 million tons of soil annually as a result of erosion. In a tree planting project to prevent soil loss, a total of 52468 trees were planted in 1 year. Since 37,893 trees were planted in the first 7 months, let's find out how many trees were planted in the remaining time.*"

In the activity "Let's Do It Together: 7" (NEP, p. 37), the damage of erosion and the importance of planting trees to prevent erosion are mentioned. In this example, which is also supported by a visual, protecting the natural heritage and fulfilling responsibilities towards the environment were emphasized, therefore, the values of *patriotism* and *responsibility* were identified. The next example reflects the values of *helpfulness* and *responsibility*.

Figure 7: Representation about the value of helpfulness and responsibility

"*Problem: Fifth and sixth graders donated 5/12 of the books collected in a school participating in a book collection campaign, seventh graders donated one-fourth of the books, and 8th graders donated the remaining books. According to this, how many of the collected books did the 8th graders donate?*"

In Figure 7 (TPP, p. 118), there is a problem situation supported by a visual. In this problem, the value of *helpfulness* is overtly represented through the emphasis on "book collection campaign" and "donating books for the campaign." It also includes the value of *responsibility* as the students participating in the campaign will show responsibility towards their social environment.

3.3 Comparison of the Official and Private Publications

The findings revealed no remarkable difference between two textbooks in terms of the frequency and distribution of the core values. In fact, the frequencies for core values in two separate textbooks demonstrated a similar trend: value representations with low frequencies in one book were often with low frequencies in the other, moderate ones were moderate in the other, and those with high frequencies were with high frequencies in the other (Figure 8).

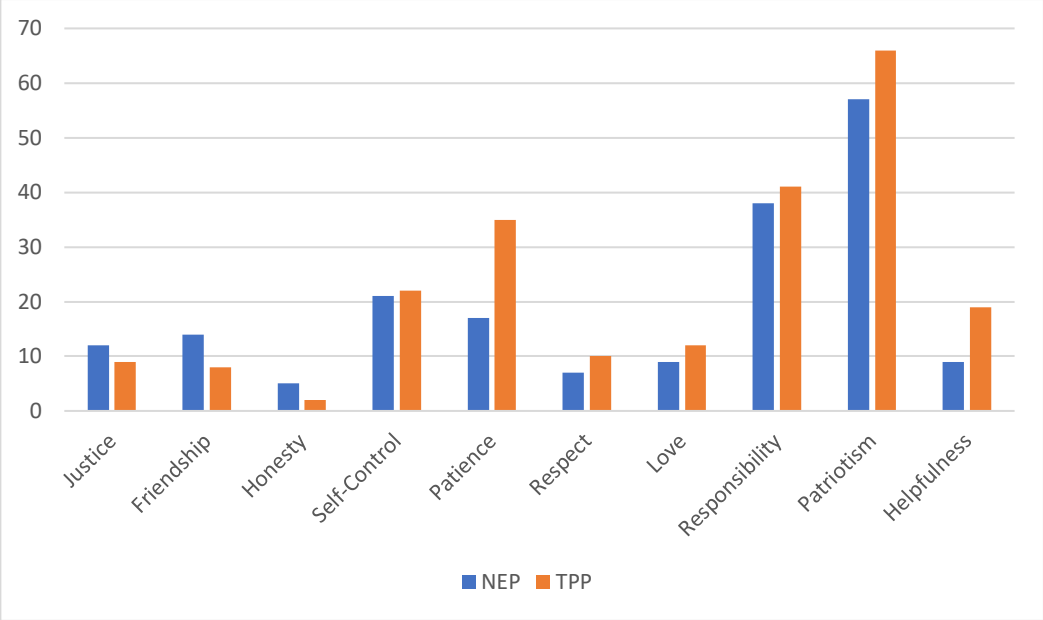


Figure 8: Comparison of Official and Private Publications

Figure 8 demonstrated that the values of *patriotism* and *responsibility* stood out while the value of *honesty* was portrayed the least in both textbooks. The private publication textbook had relatively more representation of the values of *patience*, *helpfulness*, and *patriotism* than that of official publication. Despite those, both textbooks were alike in terms of representation of core values. Since the textbooks are written based on the curriculum, the main reason for this similarity may be the guiding effect of the curriculum in the process in which textbooks are written. The distribution of values to the units in both textbooks were presented in Figure 9.

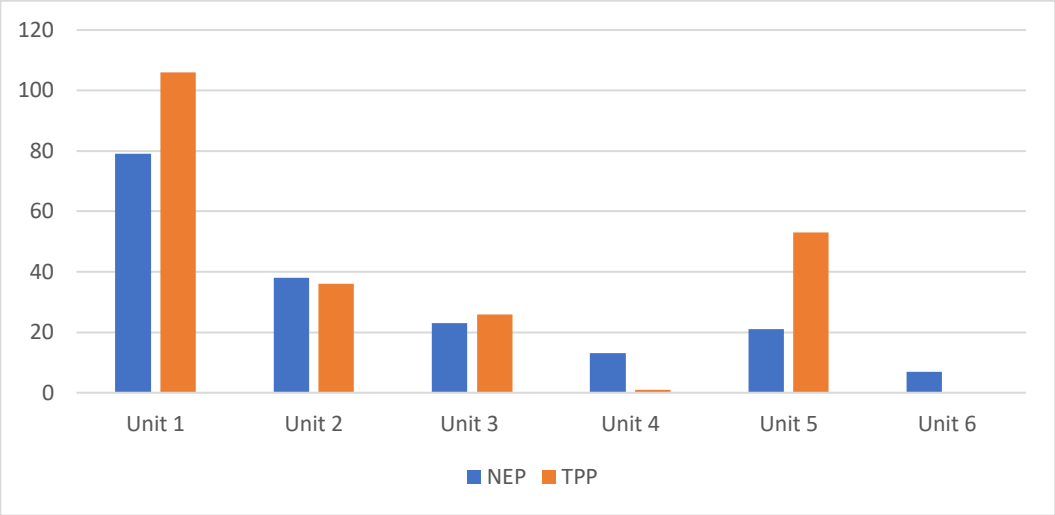


Figure 9: Distribution of Values to the Units

The investigation of the textbooks for the distribution of values to the units revealed that units other than geometry reflected the most of the values. The geometry units in private publication textbook (TPP) hardly reflected any value while the official publication (NEP) demonstrated a better distribution of values among six units.

4. Discussion and Recommendations

This study aimed to reveal whether the core values were represented in one officially- and one privately-published mathematics textbooks for fifth-grade. Findings overall revealed that all the core values were included in the content of the both textbooks, even though with varying frequencies among values. The findings presented above might be discussed in three different points: (1) the distribution of representations to ten core values, (2) relating the values to the topics in mathematics, and (3) the comparison of state-private publications in terms of value integration. The first is about how the value-laden representations are distributed to ten core values stated in the curricula.

The study revealed that all the stated core values were linked to math topics and eventually represented in both textbooks. The good news with this is that learners, as reading the textbook, will encounter sometimes explicitly but often implicitly reflected core values, namely value-laden math contents. That is to say that both textbooks secured the representation and thus the contact of readers to each of ten identified values attached to math topics. Based on those findings, it might be said that values, as Cevizci (2014) noted, still comprise of the intrinsic part of educational practices as well as learning materials. The issue, however, is that the representations regarding values, as previous studies (Deniz & Karagöl, 2018; Seah & Bishop, 2000) similarly demonstrated the unbalanced portrayal of values in textbooks, were not distributed equally or nearly equally among ten core values. For example, representations of the values of *patriotism* and *responsibility* were well above the representations of other eight values in both textbooks. In the same way, the value of *honesty,* represented with the lowest frequency among all other values, was well below the representations of most values in the both textbooks. This rises the questions of how values are portrayed in similar textbooks and why some of the values are valued (or devalued) more than others. The findings indeed are in line with those of previous studies of Turkish context (Şahin & Başgül, 2019; Yıldız, 2019) reporting that *patriotism* and *responsibility* values stood out in other math textbooks of middle school level while, similarly, *honesty* value fell to the bottom. Correspondingly, Topal's (2019) study affirmed that teachers perceive *patriotism* as the most taught value in lessons at middle schools. One possible reason for this imbalanced distribution of values is that the social touchpoints of some values might be wider than of others. Another reason might be the emphasis on educational aims to the concepts (independence, homeland, freedom, etc.) relating to the leading values in the textbooks. Still another possible reason is the context in which the public perception is shaped. In fact, the people living in Turkish context often witness incidents (*e.g.,* long-term wars in neighboring countries, unending proxy terrorism, coup attempts to overthrow legitimate governments, influx of immigrants, economic sanctions, etc.) stimulating the need to promote some particular core values over others. It

should, however, be noted that problems shaping the public mind cannot be disconnected from the values of *honesty, respect, love* or *justice* either. Therefore, it might be reasonable to increase the least represented values (*e.g*., *honesty*, *respect*, *justice*) in order to have a better balance among all core values and to have its resulting social outcomes.

Secondly, the findings might be discussed in relation to whether the core values can be integrated to math topics as writing textbooks. Researchers of previous studies (Bishop et al., 2000; Dede, 2006) often enunciated a prevalent perception among teachers, parents, university mathematicians, and employers that mathematics is the most value-free subject at schools. Opponents of this perception (Bishop et al., 2000; Clarkson et al., 2000, Seah, 2003) advocate that values might be integrated to mathematics topics implicitly. Findings, with an average of approximately 20 representation per each core value, demonstrated the possibility to integrate those values to math content through examples, problems, exercises, images, or other ways. In fact, linking the math topics to values was made possible by themes such as, health, water saving, erosion, book collection campaign, saving money, harvesting, packing products, etc. Difficulty, however, lay in geometry units, because few representations took place in geometry units as compared to, for instance, algebra units holding the most representations. Despite some weaknesses, such textbooks, as Gabatbat and Santander (2021) emphasized, might still enhance the holistic development of the learners. It is, however, important to note that the representations in the textbooks are often implicit. Therefore, teachers must pay a particular attention to elaborate on those values in classroom interactions in order for students to recognize and to internalize the linked value.

Thirdly, the comparison of the official and private publications in terms of value integration revealed that, despite the minimal differences, both of the textbooks are congruent for integrating core values. Previous studies did not make a comparative analysis of the official and private publication textbooks, even if several studies (*e.g.*, Özkaya & Duru, 2020; Yıldız, 2019) examined books that are the products of private publishing companies. There might be several sound reasons for making such comparisons. One is the lack of evidence about the similarities and differences of the both. Most importantly, it is known from other media that commercial motivations are likely to influence the media content in a great deal (Şahin, 2021). The results, however, did not yield a vast gap between two types of publications. That is, when teachers choose one or the other, they will not encounter a great difference in the representation of values. The main reasons for this similarity might be the guiding influence of curricular standards along with the control procedures by the educational ministry before the books are published. Despite the similarities, the official publication demonstrated a stronger balance of both the distribution of values to the units and of the distribution of representations to ten root values. The private publishing textbook, however, gave place to the representation of core values more often than the official publication did.

While this research points to the necessity for textbook writers to better balance the representations of core values across the units in the book, it also points to the needs for a poised representation of core values as well as for a complimentary role of teachers towards the underrepresented values. Studying the representations of core values in math textbook helps practitioners understand how often core values take place in textbooks, how values are integrated to math topics, which themes are used in linking them, which values are ignored in textbooks, and the things that should be changed in the textbooks of tomorrow. The study also gives ways to further and deeper discussion of textbook quality in integrating core values. Would there be a different result if the same investigation was conducted in a different context? Would similar trends emerge in other countries, other cultures, and other teaching areas? And more importantly, how students change upon reading those books? Studies in the future might focus on the questions stated above as well as a meta-synthesis of the previous studies investigating the values in math textbooks.

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What Has Changed in Teaching Environments After Distance Education? Student and Teacher Opinions

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Abstract
The effects of the changes experienced with the Covid-19 pandemic on the education-teaching process have been the subject of many studies. It is seen that researches generally focus on distance education. On the other hand, with the decrease of the effect of the pandemic, face-to-face education started. In this process, teachers are expected to transfer their distance education experiences to face-to-face education environments. In this study, the effects of distance education on face-to-face education environment were investigated. Within the scope of the qualitative case study, the opinions of students and teachers who shared the same teaching environment during face-to-face education before distance education, face-to-face education after distance education and distance education were taken. The study group consists of twelve students who study in a high school affiliated to the Ministry of National Education in Türkiye/Ordu and are selected on a voluntary basis, in accordance with the purposeful sampling qualifications, and the teachers who attend the classes of these students. From the analysis of the interview data, findings such as the opinions of students and teachers about the face-to-face education environment, in-class communication, and materials used in teaching environments were obtained. It was concluded that the content used by the teachers on the smart board became richer after the distance education. However, it was determined that the teachers did not use a new application in the process. It has been determined that some students have different expectations about education life as a result of their distance education experiences.

Keywords: Distance Education, Face-To-Face Education, Teaching Environment

1. Introduction

Distance education (DE) is defined as the physical absence of the learner and the learning resource (Carswell & Venkatesh, 2002). DE, which was enforced due to the Covid-19 pandemic, has become a new teaching environment for many teachers and students. This process has allowed teachers and students to experience new and different experiences.

Looking at the history of DE in Türkiye, it can be said that it started to be discussed as a concept in 1923. DE, which experienced change and development with various approaches in the process, was applied systematically in the 1980s and 1990s. Since the end of the 1990s, information and communication technologies have been included

in the DE system. Today, DE can be run synchronously and asynchronously over the internet (Kırık, 2014; Bozkurt, 2017).

When we look at the studies in the field of DE, it is seen that there are mostly studies with university students. In these studies, university students' views, perceptions and attitudes towards DE were investigated. Along with these, there are studies on learning on DE. When we look at the studies on DE with secondary school, high school students and teachers, it is seen that it intensifies in 2020 and 2021. It can be said that the studies on DE at the secondary and high school level were mostly carried out after the pandemic.

Tuncer and Bahadır (2017) concluded in their study that about half of the students could not learn with DE. In a study in which students' opinions on DE were taken, it was revealed that nearly half of the participants thought that achieving course achievements in DE depended on the infrastructure and effort of the student (Öztaş & Kılıç, 2017).

Many studies have revealed the advantages and disadvantages of DE. In the study of Sadeghi (2019), the advantages are stated as the absence of space and time constraints, saving time and money, and flexibility in choosing courses. In the literature, it has been presented as an advantage that the student can repeat unlimited lessons whenever he wants, ease in accessing the materials, and providing a flexible and comfortable environment without teacher pressure (Paydar & Doğan, 2019; İmamoğlu & İmamoğlu, 2020; Arık et al., 2021). Disadvantages are expressed as distraction, technological deficiencies or malfunctions, poor social interaction and communication (Sadeghi, 2019). In some studies, negative opinions of students about DE were reported. These can be summarized as hardware or internet connection problems, not being motivated to the lesson, being used to rote and laziness, failure due to weakening of their duties and responsibilities, insincere learning environment, indifference and insincerity of the lecturers. In these studies, it has been reported that some students prefer face-to-face learning to DE (Birişçi, 2013; Tuncer & Bahadır, 2017; Bali & Liu, 2018; Karatepe, Küçükgençay & Peker, 2020). With its advantages and disadvantages, DE offers teaching environments independent of time and space, with flexible conditions. DE has emerged as an alternative method for those who have difficulty in accessing education opportunities due to various reasons in the past. Within the time, printed materials, television and radio channels etc. have been used to reach the students in DE processes. Communication channels established with students at DE have changed depending on the developments in technology. Today, DE can be given over digital media thanks to internet access. The opportunities offered by digital environments contribute to the enrichment of teaching environments.

Giving lessons remotely during the pandemic process has forced all teachers to use digital environments. It is thought that this obligation increases teachers' dominance in digital environments. Teachers used teaching technologies that they did not use before during the pandemic process. It is thought that these experiences of the teachers will cause a difference between the face-to-face education (FFE) before DE and the FFE environments after DE.

After the Covid-19 pandemic was declared in Türkiye, a new process has started for students who received FFE in the whole of the 9th grade and in the fall semester of the 10th grade. These students took DE in the 10th grade spring semester and in the entire 11th grade, and they took FFE in the 12th grade. In summary, these students took all their courses face-to-face at the beginning of high school, then distance, then face-to-face again. This process is a new situation that is rarely seen in our education history. Addressing and examining this situation is necessary for the development of our education system. In this study; “What are the effects of DE given in the pandemic on the FFE process?”; “What are the differences between the pre-DE FFE and post-DE FFE environments?” answers to the questions were sought.

2. Method

Qualitative case study investigates the phenomenon in its context integrating and in-depth to gain a better understanding of an application or topic. It summarizes the limited system studied in accordance with its nature. In this way, it supports and facilitates informed decision making (Patton, 2002; McMillan & Schumacher, 2001).

DE is a dedicated workspace. When the studies on DE are examined, it is seen that research is generally done in a limited time and mostly in the context of a course. DE implemented with the pandemic is mandatory in most countries and covers all components of the system. The results of DE given in this way and its effects on teaching environments are a special case that needs to be investigated. In order to examine this special case, our research was conducted as a qualitative case study.

2.1 Participant Characteristics

A single case or small sample does not allow for generalization but opens up new areas for further research. However, thanks to purposive sampling, deep and rich information about the particular situation can be accessed (Patton, 2002). The ones who will best describe the effects of DE in the pandemic on the next FFE process are the teachers and students who experience this process together. In this context, the student qualifications in the purposive sample are to have received an FFE in the 9th grade and the fall term of the 10th grade in a public school in Türkiye, to have received DE in the spring semester of the 10th grade and in the entire 11th grade, and then to have received an FFE in the 12th grade. The purpose of teacher qualifications is to have attended the classes of the students in the sample during all these processes.

2.2 Sampling Procedures

In the DE process, the course was taught through technological devices. Teachers can transfer these experiences to FFE through smart boards. According to the statistics of the Ministry of National Education (MEB), the most students in secondary education institutions in Türkiye are in General Secondary Education institutions (MEB, 2021). For this reason, in order to reach the study group, those with smart boards in their classrooms were identified from the General Secondary Education institutions in Ordu. The researcher went to these institutions and made preliminary interviews with the school administrators. The Ministry of National Education requests a School/Institution Approval Letter from the school administration for the research permit. A School/Institution Approval Letter was received from the school administration, which accepted the conduct of this research in their schools. The school is an Imam Hatip High School designated as a project school. It is an institution that accepts students with points within the scope of the High School Transition System (LGS). Most classrooms in the school have smart boards and internet connection. At the same time, there is a computer laboratory in the school where the devices are new and in working condition. The study group was determined on a voluntary basis in this school.

2.2.1 Sample Size

The participants consisted of twelve students, six girls and six boys, and four teachers, studying in the 12th grade, who had the qualifications of purposeful sampling. Since the students mainly take courses in mathematics, physics, chemistry and biology, the teachers of these courses were chosen for the study group. During the DE process, the working group taught all the lessons live in an online environment where the cameras were turned off and only the sounds were turned on demand.

2.3 Data Collection Tools and Procedure

Qualitative data were collected through the semi-structured Student Interview Form and Teacher Interview Form. The Student Interview Form consists of thirteen open-ended questions, and the Teacher Interview Form consists of nine open-ended questions. In order to investigate the change experienced in teaching environments after DE, it is necessary to define teaching environments before and after DE. For this reason, the first questions in the data collection tools were created for the DE process and previous FFE environments. The last questions of the tools were created to identify the post-DE teaching environments and to reveal the data that will enable them to compare with the previous processes. Data collection tools were developed by the researcher. Necessary corrections were made in the forms examined by two field experts and a Turkish language expert. The re-examined forms were applied after receiving feedback that they were ready to apply.

Parent Consent Form was signed by the parents of the students in the study group and the Participation Acceptance Form was signed by the teachers in order to confirm voluntary participation in our research and to allow the recording of the interviews. Focus group discussions were held with students and teachers. A focus group interview is an interview with a purposeful sample group that has had similar experiences. In this way, more qualified and richer data can be collected than interviews with a single person (McMillan & Schumacher, 2001). A total of four focus group interviews were conducted throughout the research process. Two student groups were formed to form a group of six students studying in the same class. Biology and chemistry teachers formed a group, and physics and mathematics teachers formed a group, taking into account the harmony of the teachers with free lesson hours. Each interview lasted approximately one hour. In order to protect the data and to carry out the analysis process properly, the interviews were audio recorded.

2.4 Data Analysis

The collection, organization and analysis of data in case studies represent the analysis process as a special method designed for the purpose (Patton, 2002). In our study, it can be said that the analysis process begins with the collection of data. In the data collection process, the attention paid to and the contexts established were noted by the researcher. The analysis process was carried out within the framework of the results of the literature review and the notes taken during the interviews. In order to make a good start in inductive analysis, terms and practices specific to the interviewees are defined (Patton, 2002). For this reason, the analysis started by defining the meanings given by the participants to some terms used during the interview. These definitions are presented at the beginning of the findings section. All audio recordings were transcribed and the raw data were brought together. In order to make a healthy comparison of the processes before and after the DE, the DE process was defined first. Afterwards, the FFE environment after DE was defined and compared with previous processes. Interview data of students and teachers were first analyzed among themselves. The data turned into findings were handled together and the result was reached.

2.5 Validity and Reliability

Thanks to the interaction in focus group interviews, better quality data can be collected. In addition to the emergence of various points of view, participants avoid expressing false and excessive views. This situation positively affects the validity of the interview (Krueger & Casey, 2000). In the interviews, a friendly atmosphere was created so that the participants could convey their thoughts as they were. In order to get everyone's opinion, the participants were given the right to speak in turn after each question. The researcher avoided directive expressions, gestures and attitudes while managing the chat environment. The researcher received confirmation from the participants by reading the notes he took about the answers. After the written data were analyzed, the audio recordings were listened to again and the findings were reviewed.

3. Results

In this part, the findings obtained from the analysis of the data are presented in two parts as student opinions and teacher opinions. First of all, the education-teaching environments shared by the teachers and students who make up our participant group during the DE process were defined. Afterwards, the descriptions of the post-DE FFE environments were introduced.

During the interviews, students and teachers used some words or phrases such as "field lessons." It is important to know the meaning that the participants attribute to these words in order to carry out the process of transforming the data into findings and interpreting them properly. During the interview, the researcher asked the participants about the meanings they attributed to these words. Based on the answers received, the following definitions were made.

Field courses: Mathematics, physics, chemistry and biology courses for the field in which students prepare for the university entrance exam.
Science courses: Mathematics, physics, chemistry, biology.

Verbal courses: Literature, history, geography, philosophy.
Vocational courses: The Qur'an, fiqh, tafsir, akaid, etc. lessons.

3.1 Students' Opinions

All of the students stated that they could not attend all the courses during the DE process or they did not participate voluntarily. The students explained the reasons for not attending the classes by saying, "I couldn't wake up for the early morning classes, I was busy, I couldn't attend the class, I needed to help with some chores at home, the house was crowded, there was a connection problem when we were in the village, sometimes there was problem with the teachers' connection." Three students stated that they sometimes have internet connection problems. One of them stated that this problem existed when they went to the village. A student stated that he had a hardware problem at first, and then the problem was solved. The other eight students stated that they did not experience any hardware or connection problems.

One of the students, İrem, made a statement on the subject: "I could not attend all of them and sometimes I did not participate of my own accord. Because, again, as Büşra said, I was trying to take more time to study for myself after taking my field courses, so I did not attend all of them. I was also sleeping. It was difficult to wake up early in the morning so I didn't get a chance to attend all of them." As seen in the statement, students stated that they did not attend some classes voluntarily. They said that these courses are mostly music, visual arts, physical, verbal and vocational courses. Students mentioned that they do not prefer to take these courses because they are outside the field where they are preparing for the university exam.
Students stated that they mostly attended mathematics, physics, chemistry, biology and literature courses during the DE process. The students stated that they preferred to attend these classes because they were productive. The frequencies of the findings are presented in Figure 1.

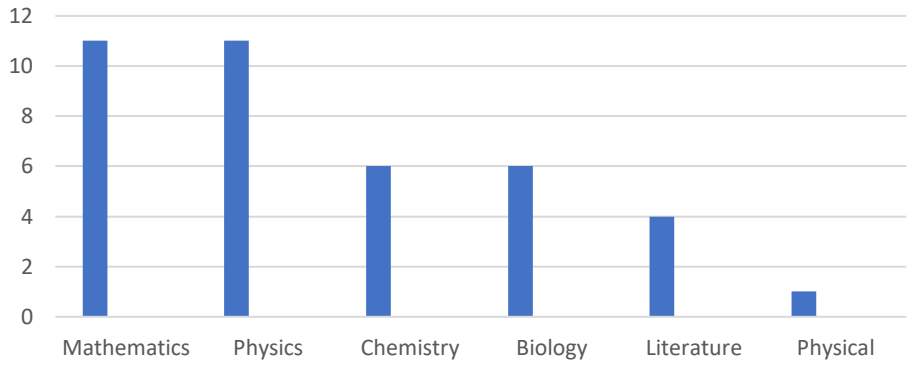

Figure 1: The courses most attended by students in the distance education process

The students said that the courses they attended the most were mathematics and physics. In these courses, the question-solving methods and techniques for the university exam are given in the courses, which is expressed as the reason for the students to attend the courses. Zehra said, "When I first started, I actually attended all of them, then courses such as literature and history started to be inefficient. I mean, like Kübra, I was also distracted, I had difficulty in understanding, but other than that, I tried to attend science courses completely because they were productive. Even if there was some difficulty, our teachers explained it very well." Eren, on the other hand, explained, "My reasons for joining were mathematics, as my friend said, method and tactics, and my teacher provided a suitable environment there. But for example, biology or chemistry, for me, they are not lessons that can be understood without looking into the eyes of the teacher. I mean, we normally hardly understand those lessons anyway. It also gets harder when you're online. Even though we joined after missing a certain part of it, we didn't understand it after there was a gap in between..."

Students who stated that they did not attend biology and chemistry classes said that they did not attend the lesson because they could not understand it online. In this regard, some students pointed out the problem in the connection

of their teachers. The students who attended the literature class stated that their teachers explained the lesson well and that they liked to listen to the lesson.

Some students detailed that they would like to receive some of their education online and some face-to-face if given the opportunity. Four students mentioned that they should be FFE throughout the learning process, and one student stated that they should be DE. Students' DE and FFE requests are presented in Table 1.

Table 1: Students' distance education and face-to-face education demands

Opinions	Students	f
Science courses should be face-to-face, verbal courses should be online.	Büşra, Hatice, Kübra, Mustafa, Yusuf	5
All lessons should be face-to-face	Zehra, Ali, Eren, Ömer	4
All lessons should be online	Faruk	1
9., 10., 11. Grades face-to-face, 12. Grade distant	Rabia	1
9 and 10. Grades face-to-face, 11 and 12. Grades distant	İrem	1

Hatice said, “I think science courses should definitely be face-to-face because it doesn't seem to be very efficient in distant education. However, even if we listen to it in distance education in terms of verbal courses, it is forgotten when it is not repeated for a while. That is, we need to work again on verbal lessons. In that respect, I think the verbal courses can be from afar.” Omer said, “Online education had its pros as we got rid of things like commuting from home to school, but the cons were definitely more, the environment was not good there, there were many distractions. That's why I said face to face."

Yusuf said, “I would prefer that the important lessons are face-to-face and the rest are either not held or online.” When the researcher got the answer, she posed additional questions “What do you mean by important lessons?”. Yusuf gave the answer to this question, "Predominantly science courses." Students who want all or some of the courses to be online stated that they can spend more time on their own studies in this way.

The students mostly used the concepts of communication, time, social life, classroom management and motivation while expressing the differences between DE and FFE. These findings are presented collectively in Figure 2.

Figure 2: Differences between distance education and face-to-face education according to students

Students stated that they found DE more advantageous in terms of time. On the other hand, students stated that FFE was better in communication. Kübra expressed her opinions on communication, “There is both a time

difference in distance education and a huge difference in the communication between the teacher and the student. In distance education, for example, I did not meet with any teacher properly. Here, we do not say anything, whether we understand or not. We do not ask questions, so even if we do, we will not understand when he explains." Students explained that in-class communication in DE was very weak, sometimes not even at all. It has been said that very few people speak in the lessons and respond to the teacher. İrem complained, "The people in the class talk when face-to-face, but I especially had a hard time in distance education. (Laughter) Sometimes I felt like I was in tuition with the teacher." Other students stated that they did not speak because they were disturbed by the fact that their voices were mixed with each other in the online environment, their voices were interrupted and the lesson was interrupted. In the continuation of this topic, the students stated that class discussion is not possible in such an environment. A student commented, "If the class is 30 people in half an hour distance education, 1 minute per person is not enough."

Some students explained that they had problems with focusing and motivation in DE. Ali said, "I can't explain it fully in distance education, but there seemed to be no feeling. I could not feel that classroom atmosphere, I could not get that mentality. You know, it felt like I was watching something rather than listening to a lecture. At school, it became more disciplined and more coordinated." It has been stated that DE limits the teacher in terms of classroom management. Ömer expressed this as "…The teacher cannot control the classroom much in distance education because he cannot be sure whether they listen to or not? After a while, it is good for those who listen. Lessons are not disrupted. It goes smoothly."

Students expressed that social life is restricted in DE, but this situation is not a great loss for them, that is, for those who are preparing for the university exam. Some students stated that the social environment in FFE encouraged them to study. On this topic, Hatice said, "… (DE) I think it had a great impact on the questions that we couldn't do differently. At least there is a friendly atmosphere in the school environment. In other words, we see that each other is working, it is a great advantage in terms of asking our friends or teachers the questions that you cannot ask. It was very important for it to be so and to understand the issues." On the other hand, the students also mentioned that the social life would increase the contagion of epidemics in FFE. Students mentioned that they could devote more time to social life in a UE environment where there is no pandemic.

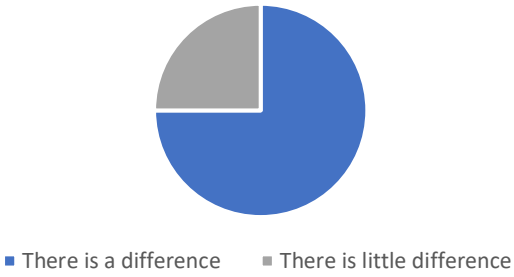

Figure 3: Comparison of Face-to-face Education Before Distance Education and Face-to-face Education After Distance Education

As seen in Figure 3, nine students stated that there was a difference between pre-DE FFE and post-DE FFE, while three students stated that there was not much difference. All students said that their teachers' use of smart boards increased in FFE environments after DE. Even teachers who never used smart boards in lessons before DE now use smart boards. İrem said, "I think the biggest difference is the materials that teachers use at school. For example, the only digital book I have observed at the moment is PDF. It was already present in some courses in face-to-face education before the pandemic, but now, for example, our teachers, who have never used it, have started to use the smart board." The students indicated that after the DE, their teachers used applications such as textbooks on the smart board, resource books in different publications, PDF files, learning outcomes tests, videos, animations, slides and writing in FFE environments. Students reported that some of their teachers used these applications on the smart board in the processes before DE.

The researcher asked whether interactive applications such as simulation were used in FFE environments after DE. All of the students stated that they do not currently use simulation or any other interactive application in their classes.

The students identified that the Kahoot application was used only in philosophy courses in the DE process. One of the students stated that he used simulation during his personal studies in the DE process, but his teachers did not use simulation in the lessons.

It was said that many projects were carried out in their schools before DE, these projects were not continued after DE and new projects were not started. The students stated that although they switched to FFE after DE, teachers and students were worried about interrupting FFE again.

The students answered the questions asked about in-class communication and class discussion in conjunction with each other. Four of the students mentioned that there is a difference in classroom communication in the FFE after DE compared to before. While Ali expressed it "… (teachers) seem to have weakened their communication with students. The distance seems to have widened a little more", Mustafa said, "I think the chat environment has also decreased." Students Büşra and Zehra stated that after DE, in-class communication and classroom discussions decreased compared to before. Other students said that this situation is related to the continuation of the pandemic. Ömer and Kübra stated that they were in the twelfth grade as an influence on this issue, and Yusuf stated that the calmness brought about by their age. In this regard, some students specified that when the pandemic is over, teacher-student, student-student communication will be the same as before. However, Büşra, one of the students, objected to this and said that it is difficult to go back to the past.

Rabia explained that the subject of classroom communication and participation in the discussion is related to the personality of the student and his interest in the lesson in every semester, "The student who had a communication breakdown before the pandemic is having the same problem again. During the pandemic period, for example, I know İrem, she was one of our friends who participated most actively in distance education, her communication with the teachers was very good. For example, while I did not prefer to open my microphone, İrem was opening the microphone in every lesson and speaking. İrem is the same as she is , I was a person who did not attend the class much before the pandemic, I behave in the same way again." Some students stated that they were worried that their voices would go bad during the DE process or that their voices would be confused because several people were speaking at the same time. In the continuation of the speech, the students stated that having their cameras turned on during the DE process would affect the in-class communication positively. Rabia said, "I want to talk about the camera. When we first started distance education, nobody wanted to open their camera. There were reservations, including me, because we were a little hesitant. Never in a home environment. Because we are in a different environment. But if I had distance education right now and our teachers asked us to turn on our cameras, I would happily do so. Because I believe now that it will be more efficient with the camera. At that time I was hesitant, but now I can open it, there is no problem." while other students stated that they agreed with this idea with expressions such as "I agree, definitely." The researcher said, "Then, can we get something like this out of here.. Can we say that if the cameras were open during the DE process, we could have a better communication?" posed additional questions to the students. All of the students answered "Yes" to this question.

3.2 Teachers' Opinions

Physics teacher Kemal DE divided the process into two parts. He defined the first part as the period of inexperience, when the pandemic had just started, and the second part as the period of gaining experience. Other teachers did not make such a distinction and definition. However, it was observed that teachers talked about the period when they gained experience rather than the first period of DE.

Teachers stated that most of the students attended their classes during the DE process. However, the teachers stated that it is not possible for all students to attend classes in such a process. However, teachers emphasized the discomfort they felt because they could not reach all their students.

Teachers stated that students who were successful in DE and interested in the course were generally good at FFE before DE. Mathematics teacher Mehmet mentioned, “Class differences in distance education, differences between children have become very clear. In other words, we have seen that good students have almost the same learning potential, whether they are from afar or not.” Although there were students whose success level decreased in this period, it was emphasized that generally successful students turned DE into an advantage in terms of time. Teachers stated that successful students can learn in DE, but for students with average or low success level, it is absolutely necessary to have FFE. Kemal teacher explained the situation as “There is a student profile, a student profile trying to disrupt the class, and a student profile trying to listen to the lesson all the time. This was very good for the student profile trying to disrupt the class. They didn’t join in the lesson,and when they joined they opened Zoom and left. I got the following feedback from students who want to listen to the lecture all the time. Teacher, we don't really need to come to school, we learn everything in this way. In this way, we don’t waste time for commuting.” Chemistry teacher Ahmet said, “At first, I was thinking if this work can be accomplished remotely. Of course it succeeds. You can teach any student who wants, learning takes place, but education is interrupted in this process. In other words, emotional development, especially in terms of socialization.” Teachers stated that it is not possible to provide education in DE, only teaching can be done. On this subject, Mehmet teacher said, “Distance education is just about giving information and the education part is gone, and the teaching part is left.”

All teachers emphasized that the inability to use body language, gestures and facial expressions in DE is an important deficiency. They stated that this situation had a negative effect on in-class communication. Ahmet teacher stated “… (at DE) you can't make eye contact, you don't have facial expressions. You don't know what mood the student is in at that moment. He doesn't know what mood you are in. When I raise my voice a little, when I raise my voice only to make my voice heard better, not to get angry, he may think he is angry. However, when he looks at me in the classroom environment, he can perceive that I am not angry, that I raise my voice to attract attention.” In order to overcome this disadvantage of DE, the teachers suggested that the cameras should be turned on. Teacher Kemal said, “If we had a good infrastructure, it would have been more productive. I definitely think that attendance should have been taken, the cameras should have been opened.”

Some teachers stated that after DE, the mask negatively affected in-class communication in FFE. Biology teacher Hasan said, “I can't even tolerate a mask. Because I really care about children's facial expressions, this is the mood of the person, it is the body language. In order to understand the mood of the child, we need to come face to face and even remove the masks.” Teachers stated that classroom discussion is not possible in DE. Mathematics teacher Mehmet stated that the course is not suitable for creating a discussion environment in DE. Teacher Hasan said, “Even though the child's voice can be heard while sitting at home, he does not bring himself to the fore by thinking that his friends are not with him. Even if he wants to argue, he does not argue there. Therefore, I saw that no matter how hard we tried to continue the in-class discussions on the screen, it did not work well.”

Ahmet teacher stated that they had a class discussion before DE about the class discussion in FFE after DE and said, “Right now, we missed a little more, I guess we are increasing it. Now, while the child is listening to the lesson, I try to make them argue, I try hard. Because I want them to talk, I want them to talk. We talked a lot because we were in front of the computer for eight months.” Teachers pointed out that students were willing to participate in class discussions in FFE after DE. Hasan teacher mentioned that during this period, the in-class discussions were prolonged and sometimes even the subject dispersed.

Teachers stated that they missed and appreciated FFE during the DE process. Two teachers in particular reported that they were very tired in DE. Teacher Kemal said, “I realized what a beautiful place the school is. I look at it as a positive influence. In other words, we missed the school, we missed the students, we missed the class atmosphere.” Ahmet teacher, on the subject of DE, said, “He actually created a solution for us to see that we can all do something without coming together or we can do something without coming together with the student.” Hasan teacher said, “We can evaluate this (DE) in various seminars and so on. But I firmly believe that we do not have the luxury of doing this formal education remotely.” All the teachers stated that they preferred FFE to DE. Ahmet teacher expressed his thoughts “Face-to-face education is an important and absolutely indispensable situation.” Ahmet teacher stated that DE can be preferred as an assistant for reinforcement purposes.

Teachers also stated the positive effects of DE. Mathematics teacher Mehmet DE emphasized that the topics are handled faster, the writing load of the students is reduced, and thus they can solve more questions. Kemal teacher expressed "The biggest positive effect is that technology is now used by everyone, and teachers who do not know how to use the phone have to learn technology." All teachers stated that DE contributed to the use of technological equipment. Hasan teacher "It gave us the opportunity to transfer our documents on paper to digital media, out of necessity." Ahmet teacher stated that they increased the number of digital resources during this period. Teacher Mehmet, on the other hand, stated that they realized that the devices in their hands were insufficient in terms of equipment.

Teachers detailed the materials they used in DE as pdf files (textbook, resource book, question book), videos, animations. For Kemal teacher DE, "The biggest advantage is that the teacher learned about EBA (Educational Information Network). He saw how adequate or insufficient the materials in the EBA were." Teacher Kemal stated that after DE, he used EBA resources more in FFE than before.

When the teachers compared their use of smart boards before and after DE, they stated that there was no big difference. Teacher Mehmet said, "We used the smart board in the same way. In other words, I reflect on the board from different sources, be it the school's books, and show less writing, more questions, and more examples."

However, the teachers stated that the content they used on the smart board became richer after DE. Teachers stated the applications they use on the smart board as pdf files (textbook, resource book, question book), videos, animations. Hasan teacher said, "I use the smart board more in terms of visuals. I use it in PDFs, I use it in solutions to questions, there are animations … I used animations a lot. There are also those short videos prepared by the National Education. I used them from time to time without using the sound in order to benefit from the visuals there. This process has already brought along the wealth of documents." The researcher asked the teachers whether they used simulation, exam applications with instant feedback such as Kahoot, and different web 2.0 tools in their lessons. Teachers reported that they did not use these tools during and after DE. In the interviews, some situations that were reflected in FFE with the effect of the DE, although not before the DE, were also expressed. In DE, it was stated that students reached teachers by phone and via social media. Hasan teacher compared the situation, "Before, the student did not even feel the need to get a phone number from us because he knew that he could find us at school. Therefore, he was not sending any questions … Now we work in a way that we can express as 7-24. We are constantly getting questions, we are constantly interacting with questions. Just like I said, we evaluate videos and PDFs both on smart boards and on social media."

4. Discussion and Conclusion

In all interviews, it was stated that students did not attend all classes during the DE process. Most of the students stated that they did not experience hardware and internet connection problems in DE. In this process, it can be said that the share of technical problems among the reasons why students do not attend classes is low. When we look at the reasons why students do not attend classes, it can be said that it is usually due to themselves, and for some students, it is due to the environment they are in. From the findings, it is understood that the students do not attend some classes in particular and devote this time to their own studies. It is seen that these students describe the DE period as productive. Students think that they can allocate more time to study for the university exam in this period compared to FFE. For this reason, it is understood that students want to take some courses online, even if there is no pandemic. Teachers reported that successful students can learn at DE, and that some students even turn this period into an opportunity to prepare for the university exam. However, teachers also said that some students were negatively affected by the process and DE was not very productive for students with medium and low success levels. In a study conducted with 12th grade students, it was concluded that the efficiency of the students from DE may be related to their academic self-efficacy levels (Çetinkaya & Asıcı, 2021). In this context, it may be beneficial to provide a teaching environment where students can choose their courses as DE or FFE under the supervision of a teacher, depending on their competencies.

In the DE process, it was determined that the students preferred to attend the mathematics, physics, chemistry and biology courses that they prepared for the university exam. The teachers of these courses also stated that the

students mostly attend their classes. It is understood from the findings that the courses most attended by the students are mathematics and physics. When the reasons for this were questioned, it was revealed that students' expectations for the lesson, such as learning a question-solving technique, were the determining factor. It can be said that students in DE prefer the courses that meet their expectations more.

Teachers indicated that they missed FFE during the DE process and said that they preferred FFE to DE. Nearly all of the students especially want the courses related to the field in which they are preparing for the university exam to be held face-to-face. These findings are in agreement with many research results (Birişçi, 2013; Tuncer & Bahadır, 2017; Bali & Liu, 2018; Karatepe, Küçükgençay & Peker, 2020). Ebner and Gegenfurtner (2019) concluded that student satisfaction in synchronous webinars is lower than in traditional FFE. It is understood from the findings that the teachers transferred the contents they used in FFE to the DE environment as they were. In their study, Stevens et al. (2021) stated that instead of transferring the FFE content of teachers to the DE environment as it is, this content should be restructured in accordance with DE. In this context, one of the reasons for students to prefer FFE to DE may be that educators cannot create a suitable teaching environment for DE.

Although the teachers had some difficulties in the DE process, they stated that this process contributed to all teachers professionally. It has been understood that teachers generally think that their colleagues benefit from the use of technology. In particular, they stated that this process gave them the opportunity to transfer their paper documents and materials to digital media and they used the smart board actively before DE. Result of the study that with teachers at different levels by Başaran et al. (2021) is similar to this finding. Participating teachers explained that their use of smart boards did not change much after DE. Students, on the other hand, stated that teachers who did not use the smart board before started to use it, and teachers who use it now use it more often in the FFE after DE. Although this finding is expected, it does not fully coincide with the discourses of the participating teachers on this issue. It can be said that this finding may be more relevant to the teachers who attend the other courses of the students.

It was found out that teachers mostly used textbooks, question books and source book PDF files, videos, animations on the smart board after DE. From the findings, it is understood that there is not much change in the applications used by the teachers on the smart board before and after the DE. However, it is understood that teachers enriched the contents of the applications they used before in DE. It was concluded that the teachers did not use different web 2.0 tools before and after the DE. In the literature, it has been determined that the number of teachers who can use web 2.0 tools in DE is low (Basaran et al., 2021). One teacher emphasized that there was an awareness about EBA during the DE period. He stated that he started to use the resources in EBA more after DE. Looking at the literature, it is understood that more than half of the teachers did not use EBA in their lessons before DE (Türker & Güven, 2016; Tutar, 2015). EBA contents were enriched in DE and teachers had to use EBA. This situation may have affected the teachers' use of EBA in their lessons after DE. It can be said that DE contributes to the enrichment of the content used by the teachers on the smart board, but it does not have much effect on using different applications.

One of the effects of DE on FFE is that students communicate with teachers outside of school hours. In DE, teachers and students used their phones to communicate (Güvercin, Kesici & Akbaşlı, 2021). Students who do not know their teachers' phone numbers before DE can reach their teachers by phone at any time after DE.

Teachers and students think that there is definitely a difference between DE and FFE in terms of classroom communication. Teachers and students stated that FFE is more advantageous in terms of classroom communication.

Teachers stated that communication was weak due to the inability to use body language, gestures and mimics in the DE. Students also agree with this opinion. Similar findings have been found in studies conducted with students in the literature (Arık et al., 2021; Kocaman & Ersoy, 2021). Participating students and teachers recommend that everyone in DE have their cameras turned on. In addition to these, a teacher is of the opinion that attendance should be taken in DE. It has been stated that it would be beneficial to use multiple communication channels in audio, video and written form in order to create an efficient learning environment in online courses (Dixson, 2010;

Vlachopoulos & Makri, 2019). In this context, it can be said that the open cameras in DE will positively affect the interaction and teaching in the educational environment.

Some differences of opinion have been identified about in-class communication in FFE post-DE. Some students argue that after DE, in-class communication weakened compared to the period before DE. Some students who object to these thoughts of their friends claim that this is related to the fact that the pandemic is not over yet. In this regard, two participating teachers stated that communication was negatively affected due to the use of masks. On the other hand, two other teachers reported that there was no difference in classroom communication due to the pandemic, and that they continued their education from where they left off. One of these teachers stated that there might be a difference due to the grade level. This view is similar to the views of some students. In this study, it was assumed that there might be differences due to the developmental levels of the students. However, these findings are insufficient to reveal that the changes perceived by some students and teachers regarding in-class communication are due to the developmental levels of the students. However, when we look at the interviews in general, it can be said that the majority of the participants believe that when the pandemic is completely over and the mask is not used, the in-class communication will be similar to FFE before the DE.

Teachers stated that they opened a class discussion in their classes at FFE after DE. Some teachers declared that they increased the discussions during this period and that the students were willing to talk. The students discussed the subject of class discussion in connection with in-class communication. Contrary to the teachers, it is understood that the students have different opinions on this issue. Some students do not notice a difference in class discussion when compared to before DE, while others state that it has decreased. Despite the fact that students share the same teaching environment, the difference in their perceptions about in-class communication and discussion is remarkable.

5. Recommendations

It can be researched why the difference in students' perceptions of classroom communication and discussion in FFE after DE arises. It is believed that an in-depth examination of the subject of classroom communication after DE will be beneficial.

Recently, hybrid approach has come to the fore in which FFE and DE are combined. When the results of the research are examined, it is seen that the students want to take some courses with FFE and some courses with DE. Teachers also think that DE is advantageous for some students. It is thought that it would be beneficial to conduct research on the efficiency and economy of hybrid education-teaching environments.

Considering that DE will take place in the next education processes, it is thought that it will be beneficial to inform teachers about preparing content suitable for DE environments and classroom management in DE. In this context, it is recommended that the Ministry of National Education provide in-service training on these contents.

6. Limitation

This research is limited to the data obtained from interviews with twelve students studying at a General Secondary Education institution in Türkiye/Ordu and their mathematics, physics, chemistry and biology teachers.

In this study, FFE experiences of the participating students in the 9th and 10th grades were compared with their experiences in the 12th grade. In this process, it is assumed that there may be differences due to the developmental levels of the students.

The focus of this research is post-DE FFE environments. However, in the interviews, it was observed that the participants tended to talk more about their DE experiences. Although the researcher asked questions about post-DE, it was determined that the DE experiences were included more in the answers given. There could be several reasons for this situation. One of the reasons may be that the subject was discussed in the context of the effects of DE on FFE in the study. On the other hand, the fact that the participants' DE experiences are still very new and

very different from the ones they have experienced in the training process may have increased their desire to talk about this issue. Another reason may be the desire of the participants to share their suggestions with the thought that DE will take place in the education-teaching processes from now on.

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Conduct a Collaborative Effort of Teachers to Strengthen Students' Creative Thinking Skills

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Abstract
This research aimed at developing the creative thinking skills of students by using Participative Action Research methodology. The research was done in two cycles, one semester each in the Academic Year of 2021. The expected results of the study should result in changes in learning and the knowledge gained from action in the specific context of the Faculty of Education of Mahamakut Buddhist University (MBU). The research participants were 15 professors, who were responsible for bachelor's degree programs in the fields of teaching the Thai language, the English language, and Social Studies. In addition, 258 students were the group targeted for development. The results showed the following expected changes. Firstly, a comparison of the mean of the participants' performance assessment and the assessment of the creative thinking skills of the students was conducted in 3 phases (before and after the first cycle and after the second cycle). For both cases, the means were higher. Secondly, the research team, co-researchers, and educational institutions learned by taking an action, especially with regard to the benefits of using participatory principles and teamwork principles, both of which make work more efficient than when individuals take an action alone. Thirdly, knowledge was gained by utilizing the conceptual framework of Force-Field Analysis, which is a model called the Driving Forces that Affect the Success of the Project entitled 'Conduct a Collaborative Effort of Teachers to Strengthen Students' Creative Thinking Skills at MBU.'

Keywords: Creative Thinking Skills, Participatory Action Research, Action-Based Learning, Knowledge Gained from Practice

1. Introduction

Mehta (2022) noted that creative thinking is a way of looking at situations, problems, or any condition from a new perspective. It **suggests unusual, unique, and unorthodox solutions.** The solutions might look unsettling in the beginning. However, they prove to be one of the most fruitful in the end. As well as, Skills You Need (n.d.) conformed that creative thinking is the ability to look at things differently, and find new ways of solving problems. Creative thinking skills are definitely not just for 'creative types' like artists and musicians. Everyone can benefit from creative thinking from time to time. This harmonizes with the definition which The Scientific World (2021), a Scientific and Technical Information Network, mentioned that creative thinking is known as thinking outside the box, as it includes lateral thinking or the ability to perceive unclear patterns in something, and creative people have the ability to devise new ways to solve problems and face challenges.

Creative thinking is very crucial as the saying goes "Everybody has a creative potential and from the moment you can express this creative potential, you can start changing the world." *—Paulo Coelho, author and lyricist*. In addition, College Success (n.d.) insisted that creative thinking (a companion to critical thinking) is an invaluable skill for college students. It's important because it helps you look at problems and situations from a fresh perspective. Creating thinking is a way to develop novel or unorthodox solutions that do not depend wholly on past or current solutions. It's a way of employing strategies to clear your mind so that your thoughts and ideas can transcend what appear to be the limitations of a problem. Creative thinking is a way of moving beyond barriers. Likewise, The Scientific World (2021) noted that creative thinking is also important for other reasons, including: providing self-awareness, provides tremendous freedom, provides courage, provides stress relief, provides improved productivity, provides bonding and teamwork, and eliminates surrender.

Naiman (2014) was founder of creativity at work and had illustrated the assumption "Can Creativity be Taught?" Yes, creativity skills can be learned; not from sitting in a lecture, but by learning and applying creative thinking processes." as well as having represented various research references over the course of the last half century, numerous training programs intended to develop creativity capacities have been proposed. In conclusion, creativity is a skill that can be developed and a process that can be managed. Creativity begins with a foundation of knowledge, learning a discipline, and mastering a way of thinking. We learn to be creative by experimenting, exploring, questioning assumptions, using imagination and synthesizing information.

Consequently, creative thinking skills are not the inherent attributes, but they are the attributes which can be improved in accordance with the five ways to improve creative thinking by Abazov (2022) as followed; 1) create your own "Three Ifs" ((a) what would happen if I change it (the object/ system/ social relationship, etc)?; (b) what would I change or improve about this object if I wanted to use it in 10 years?; and (c) what would I do if I had a one-million-dollar investment to improve it?) 2) practice dreaming, 3) make time for cohesive creative thinking, 4) learn to pitch ideas, and 5) bounce ideas off others. There, moreover, are five steps to develop creative-thinking skills by Indeed Editorial Team (2021); 1) gather what information you already have 2) consider the obvious solution or process, 3) brainstorm additional solutions., 4) consider how the topics connect, and apply the solutions. From the importance of creative thinking skills and the reasons for accepting that creative thinking is the skills which can be improved, including the attitudes and suggestions proposed by many scholars and experts in order to develop creative thinking skills in terms of principles, concepts, methods, strategies, techniques, or activities as well as the developing procedures above, the researchers aim to study creative thinking extensively and profoundly. Especially, according to the articles that the scholars, developers, researchers or notables interested in creative thinking and publishing on the internet from many countries around the world. The researchers realized that these articles were beneficial to propose and develop creative thinking variously and purposefully. In the other hand, there are some interesting aspects which should be applied in challenging development for thinking and leading to practice, using the simplicity of language for comprehensive explanation, including pictures and examples for concrete illustration. This is different from the contents in the textbooks or from the research focusing on non-variety, using difficult technical terms and not motivating learners' thinking and practice. Therefore, the researchers aim to study the literature emphasized on creative thinking with various aspects and attitudes on internet so that the researchers can apply in the project *"Conduct a Collaborative Effort of Teachers to Strengthen Students' Creative Thinking Skills"* for the undergraduate students majoring in Teaching Thai, Teaching English, and Teaching Social Studies in Faculty of Education, Mahamakut Buddhist University by employing Participatory Action Research (PAR). This methodology emphasizes on the participation and democracy to cause the changes, the learning, the body of knowledge from practice. This is bottom-up research that the researchers and the research participants work with collaboration and equal status. It is the process of planning, acting, observing, and reflecting (PAOR) in terms of a spiral cycle which has been continuously operated and it aims to changes that are expected to be sustainable developments due to the commitment to what has been done from the participatory roles at all stages (Sanrattana, 2018).

2. Research Objectives

This research aims to enhance undergraduate students' creative thinking skills who majoring in Teaching Thai, Teaching English, and Teaching Social Studies at the Faculty of Education, Mahamakut Buddhist University. PAR

method is essentially emphasized in this research in order to attain theoretical knowledge involved with creative thinking in various perspectives and attitudes. The researchers will let the research participants perceive and understand this methodology so that they can integrate it into their perspective and background knowledge. As a result, this can develop and strengthen creative thinking skills as the principle "Theory and practice should be interwoven, and for this reason it is useful to think of the process as braiding a rope where the two aspects are continually connected together" (Flinders University, 2022). In this research, there are two groups of participants; the first group is 15 instructors in charge of courses in three majors, the second is 258 students. The expectations in this research are to 1) increase the research participants' changes in the level of performance and the students' creative thinking skills by considering the comparative evaluation in three phases; pre-cycle performance 1, post-cycle performance 1, and post-cycle performance 2, 2) provide learning from the researchers' self-performance, the research participants, and the self-performance of educational institute and 3) procure the body of knowledge form performance in term of grounded theory in the specific context for the Faculty of Education, Mahamakut Buddhist University.

3. Literature Review

Due to the perspectives which the focus of this research was to scrutinize the literature review in order to achieve theoretical knowledge involved with creative thinking in various points and perspectives, the researchers had studied six theoretical perspectives about creative thinking as followed;

1. The definition of creative thinking skills from the view of Abazov (2022), College Success (n.d.), Indeed Editorial Team (2021), Mehta (2022), Naiman (2014), Skills You Need (n.d.), and The Scientific World (2021).
2. The importance of creative thinking skills from the view of Brainstorming (n.d.), Childs (2019), College Success (n.d.), Doyle (2020), Inkbot Design (2020), Mcnamara (2022), The Peak Performance Center (n.d.), and The Study Space (n.d.).
3. The characteristics of creative thinking skills from the view of Alisha (n.d.), Carson (n.d.), Delex (2018), Ho (n.d.), and Mossing (2013).
4. The development of creative thinking skills from the view of Abazov (2022), Cherry (2019), Cherry (2022), Gellerman (2016), Jacqelinerl (2013), Mckinney (2016), Pontefract (2018), Tracy (n.d.), Tutorials Point (2019), Weareholst (2017), and Wilson (n.d.),
5. The developmental procedures of creative thinking skills from the view of Kirst. (2017), Davis (2018), Gorfien (2020), Indeed Editorial Team (2021), and The Master Class staff (2021).
6. The evaluation of creative thinking skills from the view of Creativity Questionnaire (n.d.), Survey Monkey (2020), and Test My Creativity (n.d.).

According to studying six perspectives in literature review, it likely seems that the developmental perspectives (principles, concepts, techniques, methods, and activities) are the essential body of knowledge because they can reveal various developmental directions to make the project *"Conduct a Collaborative Effort of Teachers to Strengthen Students' Creative Thinking Skills" more effective.* Therefore, the developmental directions (principles, concepts, techniques, methods, and activities) can be concluded into 34 points; 1) establishing creative rituals, 2) changing mindset, 3) deliberate thinking, 4) asking better questions, 5) build a network, 6) take risks, 7) build confidence, 8) overcome negative attitudes that block creativity, 9) travel to other places, 10) need inspirational rituals, 11) be open to new things, 12) creative confidence, 13) explore media outside comfort zone, 14) create something small every day, 15) figure out peak hours, 16) keep a journal, 17) seek out inspiration, 18) commit to developing creativity, 19) seeking outside help, 20) reach out to likeminded people, 21) ask for feedback, 22) create a mind map and flow chart, 23) reward curiosity, 24) have fun with colleagues or friends, 25) try the "six hats" technique, 26) try to create something every day, 27) make a list and select ideas, 28) try the snowball technique, 29) socialize regularly, 30) listen to music while work, 31) unwind by watching funny content, 32) start with a morning free write, 33) brainstorm to inspire new ideas, and 34) ask the right questions.

4. Research Methodology

4.1. Types of Action Research

Carr and Kemmis (1992) classified action research into three types as followed; (1) Technical Action Research which a researcher seems to be an outside expert having the research participants practice his or her concepts, roadmap, or projects, (2) Practical Action Research which a researcher will have more participation with the research participants in research, he or she will not have the research participants practice his or her concepts, roadmap, or projects but tends to be an advisor, or a stimulator to raise an issue or facilitate in terms of collaboration, practice, observation, and reflection, (3) Emancipatory Action Research / Participatory Action Research which a researcher will equally participate and collaborate with the research participants in doing research.

In this research, Participatory Action Research (PAR) method was employed. As can be seen in a study of Sanrattana (2018) cited in a considerable amount of literature of Arhar, Holly and Kasten (2001), Carr and Kemmis (1992), Coghlan and Brannick (2007), Creswell (2008), James, Milenkiewicz and Bucknam (2008), Kemmis and McTaggart (1992), McTaggart (1991), McTaggart (2010), and Mills (2007), it founds that the concept of PAR methodology is identical to Critical Social Theory and Theories of Postmodernism which emphasize on participation and democratization in the actions and consequences that cause change, learning, and knowledge from the action. It consists of bottom-up, collaboration, and equally planning, acting, observing, and reflecting in a spiral cycle manner that operates endless moves.

4.2. Cycles Steps and Ethics of the Study

As mentioned above, PAR methodology was conducted in the manner of a spiral cycle that is carried out in an endless sequence of planning, acting, observing, and reflecting results. Due to a limit on the course duration, the researchers had to establish two cycles for this study, one semester each in the academic year 2021. The details of each cycle are as follows.

4.2.1. Cycle 1

Step 1 Preparation. It included three activities as follows: 1) clarify research methods for the research participants so that they can decide to participate voluntarily according to the followings code of conduct, "(1)The researcher must initially demonstrate the nature of the research process and its interests to the research participants, and " (2) those who do not wish to participate must be respected for their rights.", 2) design ethical collaboration: "(1) engage participants in the design of the research process, and (2) create joint consultation and common approval between all parties" and 3) conduct an after-action review "(1) analyze, critique, and assess oneself; and (2) learn from action both successful and unsuccessful under the systematic joint learning process."

Step 2 Planning. It included four activities: 1) conduct brainstorming among research participants to find out what and how to improve the students' creative thinking skills in accordance with the research participants' prior knowledge and experience considering the potential expertise and being a stakeholder from within the community, 2) the researchers present the theoretical development guidelines from the results of the relevant literature studies to the research participants so that they can equally access various information, 3) make an action plan by brainstorming to integrate the co-designated development approaches and theoretical developmental directions from the relevant literature studies based on all parties' opinions and create joint consultation and formal approval between all parties (Note: the action plan resulted in 44 joint development guidelines between the researchers and the research participants as shown in Table 1, and 4) conduct an after-action review.

Step 3 Acting. It included four activities: 1) create the evaluation form for implementation of alternative proposals by research participants and the evaluation form for the development of the students' creative thinking skills in order to evaluate three phases; pre-action and post-action in Cycle 1 and post-action in Cycle 2 based on the concept of research direction and expected outcomes resulted by joint decisions, 2) evaluate the current condition of pre-action in Cycle 1 by using the evaluation form for implementation of alternative proposals by research participants and the evaluation form for the development of creative thinking skills, and 3) follow the joint action plan considering "(1) in a specific context, (2) diversified skills, (3) change-oriented, (4) action-oriented, and (5)

sustainable development." and based on the concept "each research participant influences work," and 4) conduct an after-action review.

Step 4 Observing. It was a phase of data collection from every activity and action by using an observation form, an in-depth interview, and group interview, examining or record such as journal, maps, audiotapes and videotapes, artefacts, and field notes based on the concept of "There is a record of all research participants' activities and actions," and ethical considerations "(1) any observation or review of documents for any other purpose must be authorized, and (2) no copyright infringement of the writings is required or the views of others without negotiating before publication"

Step 5 Reflecting. It included three activities: 1) evaluate the current condition of post-action in Cycle 1 by using the evaluation form for implementation of alternative proposals by research participants and the evaluation form for the development of the students' creative thinking skills, 2) reflect on performance by brainstorming to reflect on the results of every step of Cycle 1 using the concepts of "(1) listen to all research participants' opinions (2) analyze, critique, and assess oneself and (3) learn from action both successful and unsuccessful under the systematic joint learning process." and the concept "the results will remain visible and allow others to give feedback.", and 3) conduct an after-action review.

Kurt Lewin's Force-Field Analysis (Lunenburg & Ornstein, 2000) was applied in this step. The analysis covered the following aspects: a) What is the force for change?; b) To what extent has the force changed the expectation?; c) What are the resistances to change?; and d) What are suggestions to effectively increase the force and reduce the resistance to change?. The findings were used for making an action plan in step 6. The plan might either improve the original force's efficacy or replace it with a more effective force, or both.

4.2.2. Cycle 2

Step 6 Planning. It included two activities: 1) action plan and 2) conducting after-action review.
Step 7 Acting. It included two activities: 1) follow the joint action plan made in step 6, and 2) conduct after-action review.
Step 8 Observing. It included data collection from activities using an observation form, an in-depth interview or group discussion, examining/record as used in Cycle 1.
Step 9 Reflecting. It included three activities: 1) evaluate the current condition of post-action in Cycle 2 using the evaluation form for the co-designated development approaches implementation and the evaluation form for the students' development of creative thinking skills, 2) reflect on performance by brainstorming to reflect on the results of every step of Cycle 2, and 3) conduct an after-action review.
Step 10 Research result conclusion. The researchers and research participants attended the workshop to summarize the data collected from the above steps. The conclusion was drawn upon the principles of "(1) specific context, (2) recognize every research participant's opinion, (3) analyze, critique, and assess oneself; and (4) learn from action both successful and unsuccessful under the systematic joint learning process", and "(1) create joint consultation and common approval between all parties and (2) the results will remain visible and allow others to give feedback."

4.3. Research site and research participants

The Faculty of Education at Mahamakut Buddhist University was the research site. It was selected explicitly considering its convenience, the potential of the researchers and the possibility of obtaining cooperation from the research participants. It is an educational institution under the Ministry of Higher Education, Science, Research and Innovation, located in Salaya Subdistrict, Phutthamonthon District, Nakhon Pathom Province, Thailand. 15 teachers who voluntarily participated after hearing the research method and 258 students were the targets for development.

4.4 Research tools

1) The data collection form was selected according to the circumstances of the activities and actions as suggested in the concept of Mills (2007) as follows: 1) an observation form, 2) an in-depth interview and group discussion, and 3) examining/record or journal, maps, audiotapes and videotapes, artifacts, field notes, etc.
2) The evaluation form for the co-designated development approaches implementation was used to evaluate the 3-phase current condition (pre-action, post-action in Cycle 1 and post-action in Cycle 2). The research participants' self-assessment with a 5-rating scale: the most, very, neutral, a little and the least. Because the questions in the form were related to the co-designated development approaches and theoretical developments from relevant literature studies synthesized by the researchers and research participants in Cycle 1 (Action Plan), this assessment was not examined by experts for content validity and item-objective congruence indexes, nor was it used in a try-out with the sample group for its alpha coefficient of reliability.
3) The evaluation form for the students' creative thinking skills created by the researchers and research participants was the self-assessment for the target group from the findings in the creative thinking skills studies of Alisha (n.d.), Carson (n.d.), Delex (2018), Ho (n.d.), and Mossing (2013) as well as the result of evaluating approach studies involved with creative thinking skills due to Creativity Questionnaire (n.d.), Survey Monkey (2020), and Test My Creativity (n.d.). it was characterized by a rating scale of 5 levels: the most, very, neutral, a little and the least, with a total of 30 questions.

This assessment was reviewed for the Indexes of Item-Objective Congruence (IOC) based on Rovinelli and Hambleton (1977) by five educational administration and educational measurement and assessment experts. The results showed that all questions have an IOC value above the 0.50 threshold. Therefore, all items indicated that this assessment had content validity (Chaichanawirote & Vantum, 2017). The findings, in a try-out with 30 students in the Faculty of Education, Mahamakut Buddhist University, Isan Campus, showed an alpha coefficient of reliability value of .95. When classified by aspects, it was found that the asking creative questions was .86, the creative idea generation was .89, and the flexibility in thinking and practice was .85, which was higher than the specified threshold (equal to or higher than 0.70) (UCLA: Statistical Consulting Group, 2016).

4.5. Data Collection and Analysis

The researchers and research participants played a role in collecting data at every step by using the tools mentioned above, following the principles "There is a record of all research participants of their activities and actions."

Quantitative data from both forms of self-assessment were analyzed using descriptive statistics, i.e. mean and standard deviation. Qualitative data, which was actual data obtained through observations, interviews and recordings, were analyzed in the followings process: 1) Checking the integrity of the data to determine whether it is entirely objective or not, 2) Checking the reliability of the data to see if it meets the actual conditions by comparing each one's recording and comparing the recording based on using the different data collection forms, and 3) Presenting information in a thick and critical description regarding the story telling factually and neutrally with evidence of subtitles such as numbers, statistics, table, graphic, photograph, and direct quotes/verbatim or the informant's unadjusted dialogue pointing to a wide range of thoughts on the same issue that may support or contradict each other.

5. Research Results

5.1. Changes in expected outcomes

1) increase the research participants' changes in the level of performance and the students' creative thinking skills by considering the comparative evaluation in three phases; pre-cycle performance 1, post-cycle performance 1, and post-cycle performance 2, 2) provide learning from the researchers' self-performance, the research participants, and the self-performance of educational institute and 3) procure the body of knowledge form performance in term of grounded theory in the specific context for the Faculty of Education, Mahamakut Buddhist University.

As mentioned above, the objectives of the project *"Conduct a Collaborative Effort of Teachers to Strengthen Students' Creative Thinking Skills"* for the undergraduate students within three majors (Teaching Thai, Teaching English, and Teaching Social Studies) is to increase the research participants' changes in the level of performance and to increase the undergraduate students' level of creative thinking skills by considering the results of comparative evaluation in three phases i.e. pre-action and post-action in Cycle 1, and post-action in Cycle 2.
In expectation case 1, due to the results of evaluating the level of the development approaches involved with principles, concepts, techniques, methodologies, and activities that the research participants had implemented in three phases, it found that the mean was increasingly of $3.08, 3.29$, and 3.37 respectively; it indicated that the research participants had increasingly and respectively implemented the development approaches. In addition, the results showed that standard deviations were decreasingly and respectively of 1.00, 0.85 and 0.84. this indicated that the expression of the research participants' opinions in each phase was lowly fluctuating as the data analysis shown in the table 1 below.

Table 1: Changes in the Implementation of the Development Approaches Comparing mean and Standard Deviations Derived from the Research Participants' Evaluation in Three Phases: Pre-Action and Post-Action in Cycle 1 and Post-Action in Cycle 2

The Lists of Principles, Concepts, Techniques, Methodologies, and Activities in Expectation of the Research Participants' Implementation with the Undergraduate Students	**Assessment Results from pre-action in Cycle 1**		**Assessment Results from post-action in Cycle 1**		**Assessment Results from post-action in Cycle 2**	
	$\bar{\chi}$	**S.D.**	$\bar{\chi}$	**S.D.**	$\bar{\chi}$	**S.D.**
1. Practice Thinking Outside the Box	3.07	0.92	3.36	0.84	3.07	0.92
2. Practice Making Mistake	3.07	1.14	3.07	1.14	3.07	1.14
3. Practice Having a Sense of Humor	3.21	0.58	3.21	0.58	3.21	0.58
4. Practice Paying Attention to Surroundings	3.29	1.07	3.50	1.09	3.29	1.07
5. Encourage Participation in Work	3.21	0.89	3.21	0.89	3.21	0.89
6. Encourage Curiosity	3.57	1.50	4.21	0.89	3.57	1.50
7. Build Good Habits at Work	3.57	0.85	3.64	0.84	3.57	0.85
8. Make Imagination Become True	3.36	0.84	3.71	0.73	3.36	0.84
9. Practice Being Open-Minded for Change	3.86	0.77	3.86	0.77	3.86	0.77
10. Have Courage to Face the Truth	3.64	1.01	3.64	1.01	5.00	0.00
11. Establish Creative Rituals	4.36	1.01	3.64	1.01	3.64	1.01
12. Change Mindset	3.64	0.74	4.36	0.74	4.36	0.74
13. Deliberate Thinking	3.86	0.74	3.71	0.61	3.64	0.74
14. Asking Better Questions	3.50	1.29	4.07	1.00	3.86	1.29
15. Build a Network	3.43	0.65	3.50	0.65	4.43	0.85
16. Take Risks	3.29	1.09	3.71	0.91	3.43	1.09
17. Build Confidence	3.29	1.20	3.64	0.93	3.29	1.20
18. Overcome Negative Attitudes that Block Creativity	2.57	0.83	3.29	0.83	3.29	0.83
19. Travel to Other Places	3.00	1.02	3.14	0.77	3.00	0.55
20. Need Inspirational Rituals	2.71	1.11	3.29	0.73	4.36	0.74
21. Be Open to New Things	2.79	1.20	3.29	0.91	3.29	0.83
22. Creative Confidence	2.79	0.80	3.07	0.83	2.93	0.62
23. Explore Media Outside Comfort Zone	2.71	1.25	3.36	1.22	3.07	0.92
24. Create Something Small Every Day	2.57	1.07	3.21	0.89	2.86	0.86
25. Figure Out Peak Hours	2.29	0.94	3.14	1.03	2.79	0.70
26. Keep a Journal	2.86	1.14	2.86	1.10	2.64	0.93
27. Seek out Inspiration	2.79	1.17	3.14	0.86	3.14	0.95
28. Commit to Developing Creativity	2.86	1.05	3.07	0.73	3.29	0.91
29. Seeking Outside Help	2.64	1.03	3.00	0.88	2.93	0.92

The Lists of Principles, Concepts, Techniques, Methodologies, and Activities in Expectation of the Research Participants' Implementation with the Undergraduate Students	Assessment Results from pre-action in Cycle 1		Assessment Results from post-action in Cycle 1		Assessment Results from post-action in Cycle 2	
	$\bar{\chi}$	S.D.	$\bar{\chi}$	S.D.	$\bar{\chi}$	S.D.
30. Reach out to Likeminded People	2.71	1.01	2.86	0.66	3.14	0.66
31. Ask for Feedback	2.86	1.20	2.86	1.03	3.07	1.00
32. Create a Mind Map and Flow Chart	2.64	1.03	3.00	0.88	3.00	0.88
33. Reward Curiosity	2.71	0.84	2.71	0.73	2.79	0.70
34. Have Fun with Colleagues or Friends	3.00	0.61	2.79	0.43	2.86	0.36
35. Try the "Six Hats" Technique	3.29	0.88	3.07	0.73	3.14	0.66
36. Try to Create Something Every Day	2.93	1.14	3.43	0.85	3.71	0.73
37. Make a List and Select Ideas	2.86	1.14	3.07	0.92	3.21	0.80
38. Try the Snowball Technique	3.14	0.86	2.86	0.86	4.11	0.77
39. Socialize Regularly	3.14	0.95	3.14	0.95	3.14	0.95
40. Listen to Music While Work	2.29	1.10	3.36	0.74	4.21	0.89
41. Unwind by Watching Funny Content	2.64	0.91	2.36	0.74	2.86	0.95
42. Start with a Morning Free Write	2.86	1.01	2.93	0.73	3.00	0.68
43. Brainstorm to Inspire New Ideas	3.00	1.29	3.00	1.11	3.07	1.07
44. Ask the Right Questions	3.07	1.04	3.36	0.63	3.36	0.63
Total	**3.08**	**1.00**	**3.29**	**0.85**	**3.37**	**0.84**

In expectation case 2, due to the evaluation of 258 students' creative thinking skills in the three phases, it showed that the mean was respectively higher; the overall mean was 2.97 from pre-action in Cycle 1; 3.90 form post-action in Cycle 1; and 4.09 from post-action in Cycle 2. It represents a gradual improvement of the students' creative thinking skills. Furthermore, considering the low overall standard deviation of 0.96, 0.65 and 0.53, respectively. This represents that the students' opinion expression are lowly fluctuating as the data analysis shown in the table 2 below.

Table 2: Comparing the Evaluation Results of the Students' Creative Thinking Skills in Three Phases: Pre-Action and Post-Action in Cycle 1 and Post-Action in Cycle 2

Expected Characters/Attributes of Creative Thinking Skills Which Happen to the Students	Assessment Results from pre-action in Cycle 1		Assessment Results from post-action in Cycle 1		Assessment Results from post-action in Cycle 2	
	$\bar{\chi}$	S.D.	$\bar{\chi}$	S.D.	$\bar{\chi}$	S.D.
Asking Creative Questions	3.00	0.90	4.00	0.58	4.00	0.71
1. I ask a question to enhance creativity.	2.93	0.73	4.43	0.51	4.50	0.52
2. I practice my thinking skills without limitations.	2.86	1.03	4.14	0.53	4.57	0.51
3. I practice mind modification.	3.07	0.47	4.29	0.47	4.14	0.77
4. I admit my mistakes.	2.71	0.83	3.86	0.77	3.93	0.62
5. I learn all the time.	3.14	0.86	3.86	0.53	3.57	0.65
6. I have a goal to be a creative thinker.	3.43	1.45	4.29	0.47	4.29	0.83
7. I learn to get rid of my ego (self-attachment).	3.43	0.76	4.43	0.51	4.64	0.50
8. I firmly believe that creativity can be developed.	3.29	0.73	4.14	0.66	4.21	0.43
9. I have enough classrooms to learn different styles.	3.50	0.76	4.14	0.36	3.71	0.61
10. Setting up the atmosphere in my faculty promotes creative behaviors.	3.36	1.01	3.86	0.66	3.71	0.83
Creative Idea Generation	3.01	1.01	3.74	0.66	3.98	0.69

Expected Characters/Attributes of Creative Thinking Skills Which Happen to the Students	Assessment Results from pre-action in Cycle 1		Assessment Results from post-action in Cycle 1		Assessment Results from post-action in Cycle 2	
	$\bar{\chi}$	S.D.	$\bar{\chi}$	S.D.	$\bar{\chi}$	S.D.
11. I create ideas or solutions to various problems and questions.	3.43	1.02	4.14	0.77	4.57	0.76
12. I am often judged as out of order.	3.36	1.01	3.71	0.91	4.36	0.50
13. I'm curious about things.	3.29	0.73	3.71	0.61	4.86	0.36
14. I have the correct workflow for troubleshooting.	3.43	1.28	4.00	0.68	4.21	0.43
15. I will not ask a question if the question has no answer.	3.21	0.80	3.36	0.50	4.14	0.36
16. I sometimes express my opinion.	3.00	1.04	4.07	0.73	3.93	0.47
17. I have a new presentation.	2.71	1.27	3.86	0.53	4.00	0.00
18. I am enthusiastic about things.	2.79	0.70	4.00	0.39	3.50	0.52
19. I enjoy coming up with new ideas, even without pay.	2.57	1.02	3.43	0.51	3.00	0.55
20. I can change my attention to get the job I want.	2.86	0.95	3.57	0.51	3.29	0.61
21. I enjoy being aware of others.	2.57	1.02	3.36	0.50	3.93	0.27
Flexibility in Thinking and Practice	2.69	1.02	3.83	0.87	4.14	0.36
22. I am creative and playful but self-disciplined.	2.71	0.71	4.07	0.83	4.14	0.36
23. I am creative and proud-hearted, but simple.	2.79	1.25	4.14	0.77	4.21	0.53
24. I am creative and heedful to the outside world as well as my own feelings.	2.71	1.07	3.57	0.65	4.14	0.58
25. I am creative and heedful and have my own purpose in working.	2.57	0.94	3.64	0.63	4.14	0.66
26. I'm a conservative in some ways.	2.29	1.14	4.29	1.27	4.14	0.66
27. There is always someone asking my suggestion.	2.86	1.17	3.64	0.63	4.14	0.66
28. I was urged to respond with contradicting messages.	2.79	1.05	3.43	0.76	4.07	4.07
29. I'm not satisfied when my work doesn't go as expected.	2.86	1.03	3.36	0.84	4.64	0.50
30. I am a prudent person.	2.64	1.01	4.36	0.84	4.07	0.27
Total	**2.97**	**0.96**	**3.90**	**0.65**	**4.09**	**0.53**

However, in accordance with the reflection activities in Cycle 1 and Cycle 2, it reveals that this research positively breeds the unexpected change i.e., 15 research participants have been interested and enthusiastic in activity participation before because this research challenges their ability and encourage them to work friendly as well as applying Buddhist Dhamma in research. Moreover, the research participants have learned that collaboration increases efficacy more than individual work. Additionally, the students increasing show their habits of daring to express thinking, action, opinion properly and creatively. They express more shared responsibilities as well as they can present their work confidently; accordingly, these proficiently create an atmosphere that is conducive to teaching and learning.

5.2 Action-based Learning

According to the findings, the researchers, research participants, and educational institutions all benefited in various ways from this participatory action research. However, an essential lesson that we shared was understanding the benefits of collaboration. In addition, the PAR methodology used in this study permits all parties to perceive the inefficiencies of the uncoordinated work we had conducted in the past.

According to the findings, the researchers realized that collaboration can increase learning exchange and success more effective than working individually because it encourages all the participants to collaborate in analyzing and planning to solve problems. Additionally, Buddhist Dhamma integration at work has improved collaboration because Buddhist Dhamma affects human beings' righteous behaviors. It helps people collaborate happily, promote unity among the group, develop working styles, and support the researchers' success and progress.

On the other hand, the research participants had learned the mindset change from the development approaches based on principles, concepts, techniques, methods, and activities depending on what one has learned and experienced to be the study of body of knowledge which is new and theoretical in order to break free from former limitations and to improve thinking outside the box.

In case of the faculty of education, the research participants have recognized the importance of administration based on the collaboration or the democratic principles, applied in developing or learning and teaching management, which result in the effectiveness more than the command and interpersonal work that has been done before.

5.3. Knowledge from Action

A body of knowledge gained from practice is based on Kurt Lewin's Force-Field Analysis in order to show what the driving force used for causing changes is, to what extent the driving force causes the expected changes, what change resistance occurs, what guideline from the change resistance is the suggestions to effectively increase the driving force and to decrease those change resistance as mentioned below.

In case of what the driving force used for causing changes is, it can be considered form what the researchers and the research participants have done as followed; 1) the application of principles, concepts, and research ethics in PAR methodology, especially the emphasis on bringing out the potential of research participants to the best, and then supplemented by principles and theoretical concepts the researchers have already studied; 2) determining "the pre-cooperation principles" encourage the research participants to cooperate in harmony and right direction. Those principles consist of open communication, persuasion and influencing, facilitation, encouraging free thinking and speaking, don't forget the fun factor, and having feedback; 3) determining "pre-working collaboration strategies" allows the research participants to work together in the same direction. The strategies comprise (a) clearly defined goals (b) relaxation leads to the implementation of ideas (c) formal and informal communication with the team as a leader (d) creating a productive work environment (e) be creative, and (f) meet outside the workplace. 4) determining "the procedures for bringing jointly determined alternative proposals to action" allows the research participants to systematically work as followed; (a) deep insights into the wide variety of proposing alternatives (b) bringing the chosen alternatives to action in the course taught or the work performed (c) bringing the results of individual action to group discussion periodically and (d) doing a workshop to present the results of individual development at the end of each cycle and 5) applying "the Buddha's teachings" allow the research participants to realize the quality and success in working. In this paper, the researchers emphasize on the following Buddha's teachings; Sangahavatthu (bases of social solidarity) is to support and enhance human unity, Iddhipàda (path of accomplishment) is to encourage one to have will, effort, and dedication in working with wisdom, Brahmavihàra (sublime states of mind) consists of loving-kindness, compassion, sympathetic joy, and equanimity, as well as Sappurisa-dhamma (qualities of a good man) is the Buddha's teaching which raises awareness of truth, purpose, selfness, sufficiency, time, community, and individual differences.

In addition, to what extent the driving force causes the expected changes can be seen from; 1) the results of evaluating the level of the development approaches involved with principles, concepts, techniques, methodologies, and activities that the research participants had implemented in three phases revealed that the mean was increasingly of 3.08, 3.29, and 3.37 respectively. It indicates that the research participants had increasingly and respectively implemented the development approaches; and 2) the students' results of evaluating the creative thinking skills in three phases indicates higher mean respectively i.e. the mean arises at 2.97 on pre-action in Cycle 1, and increases at 3.90 on post-action in Cycle 1, and then expands to 4.09 on post-action in Cycle 2. This represents that the development has respectively improved the changes.

The following are the primary change resistance factors and ways to overcome them. It can be considered from the conduct of after-action review and the reflection activities which reveals the factors of important change resistance are; 1) both the researchers and the research participants occasionally had misunderstandings from the principles, concepts and ethics of the PAR methodology. This requires periodic revisions to ensure consistent understanding. 2) the research participants had inconsistent free time, causing delays in the lesson transcription

and reflection activities. This led to bringing online meetings to be used in conjunction with onsite meeting. 3) The researchers still lacked skills in applying the action results of each stage to write a research report in a story telling style; consequently, the delays had occurred and the researchers had to study more samples from previous research of other researchers.

6. Discussion

As mentioned above, Carr and Kemmis (1992) classified action research into three levels: (1) Technical Action Research, the main concept is that a researcher pretends to be an outside expert who brings concepts, plans, or projects initiated or created by him or her to a research participant to act. (2) Practical Action Research, the main concept is that a researcher is more involved with a research participant; do not have a research participant act on his or her concepts, plans, or projects as the first level. The researcher will act as an advisor who motivates, raises issues, and directs the research participant to collaboratively think, act, observe the results, and make a reflection. (3) Emancipatory Action Research / Participatory Action Research, the main concept is the collaboration between a researcher and research participant in doing research. They are both equal in status to brainstorm, to act, to observe, and to reflect.

Sanrattana (2018) argued that Technical Action Research is critically Top-Down research which a research participant seems to be a passive follower. It can be compared to the organization administration used Theory X or Immaturity Organization or System 1. If considering the leadership styles, it can be compared to boss-centered leadership (telling, directing, controlling or job-centered). The Technical Action Research, furthermore, is also characterized as a research method on them that aims to understand or to seek knowledge in existing phenomena. The researcher's role is an expert doing research with participants. When having received the expected results, he or she will abandon participants and troublesomeness. There has been no benefit or change of any kind from the research. On the contrary, the researcher will receive benefits such as career advancement, payoff, reputation and so on. If compared with the management style in government agencies, such research appears to be very similar to the management style that has been used in the past. Especially, on issues where executives show themselves to be experts or knowledgeable, playing a role as a person who determines the problem or needs and how to manage it with staff, such habit can cause the lack of creativity, enthusiasm, seriousness in work. Due to having to wait for orders or always to rely on the opinions of those who are superior, this results in the lack of sustainability in administration as can be seen from many projects disrupted when changing a new executive.

From negative viewpoints towards Technical Action Research, researchers are more interested in PAR methodology because it is Bottom-Up research in which both researchers and research participants are equal in expressing opinions and practices. Therefore, it is highly democratic. Both of them can play roles as an actor or a leader. If compared with the management theory, this methodology can be compared with Theory Y or Maturity Organization or System 4. If considering the leadership styles, it can be compared to practitioner-centered leadership (participating, delegating, colleague, or employee-centered).

In conclusion, the implementation of PAR methodology shifts all subjects from being passive to active as participants. In other words. It changes from research on them to research by them or for them; that is the subjects will participate in every section as decision makers, actors, and beneficiary. Besides, researchers' role will be changed from outside experts to be equal research participants. The research purpose is not only to understand or perceive phenomena but also to take action in order to bring about the change in the desired direction. It is also expected that this change will be sustainable regarding the commitment made by the participatory roles in all sections. This concept is not only associated with organizational Theory and leadership Style but also several theories applied in educational administration. For example, *"School-based management"* is the systematic decentralization to the school level of authority and responsibility to make decisions on significant matters related to school operations within a centrally determined framework of goals, policies, curriculum, standards, and accountability (Caldwell, 2005), **"***Democratic leadership"*, also known as participative leadership or shared leadership, is a leadership style in which members of the group participate in the decision-making process. This type of leadership can apply to any organization, from private businesses to schools to the government. (Cherry, 2022), and *"Change management"* is a systematic approach to dealing with the transition or transformation of an organization's goals, processes or technologies (Lawton & Pratt, 2022). Accordingly, research, development, or

administration in the present day is the initial phase in the 21st century emphasizing on democratic working principles more than in the past. If expecting the change in the desired direction and the sustainability, researchers should employ PAR methodology as much as possible because it seems to be the co-implementation of organizational management theory, educational administration theory, and leadership theory.

7. Recommendations

Similarly to " Participatory Practice "Teach Less, Learn More": A Case of Srikranuanwittayakom School" (Roobtam & Sanrattana, 2021), "Development of Learning by E-Learning System: A Case of Mahamakut Buddhist University, Mahavajiralongkorn Rajaviyalaya Campus" (Uttamadhammo & Sutheejariyawattana, 2021), " Cooperative practices to enhance the quality of work integrated learning at Nong Khai Technical College" (Sarapoom & Dhammapissamai, 2021) and "Teachers and participatory action research for developing learning environments" (Thawinwong & Sanrattana, 2022), all these papers had revealed the new body of knowledge from action based on the concept of Force-Field Analysis, being the prototype model for development, as well as being the spiral cycle or a case study model so that other agencies can adapt or apply. Therefore, this research recommendation is to present the model elements that result in the successful collaboration of teachers to enhance students' creative skills in the case of the faculty of education, Mahamakut Buddhist University as illustrated below.

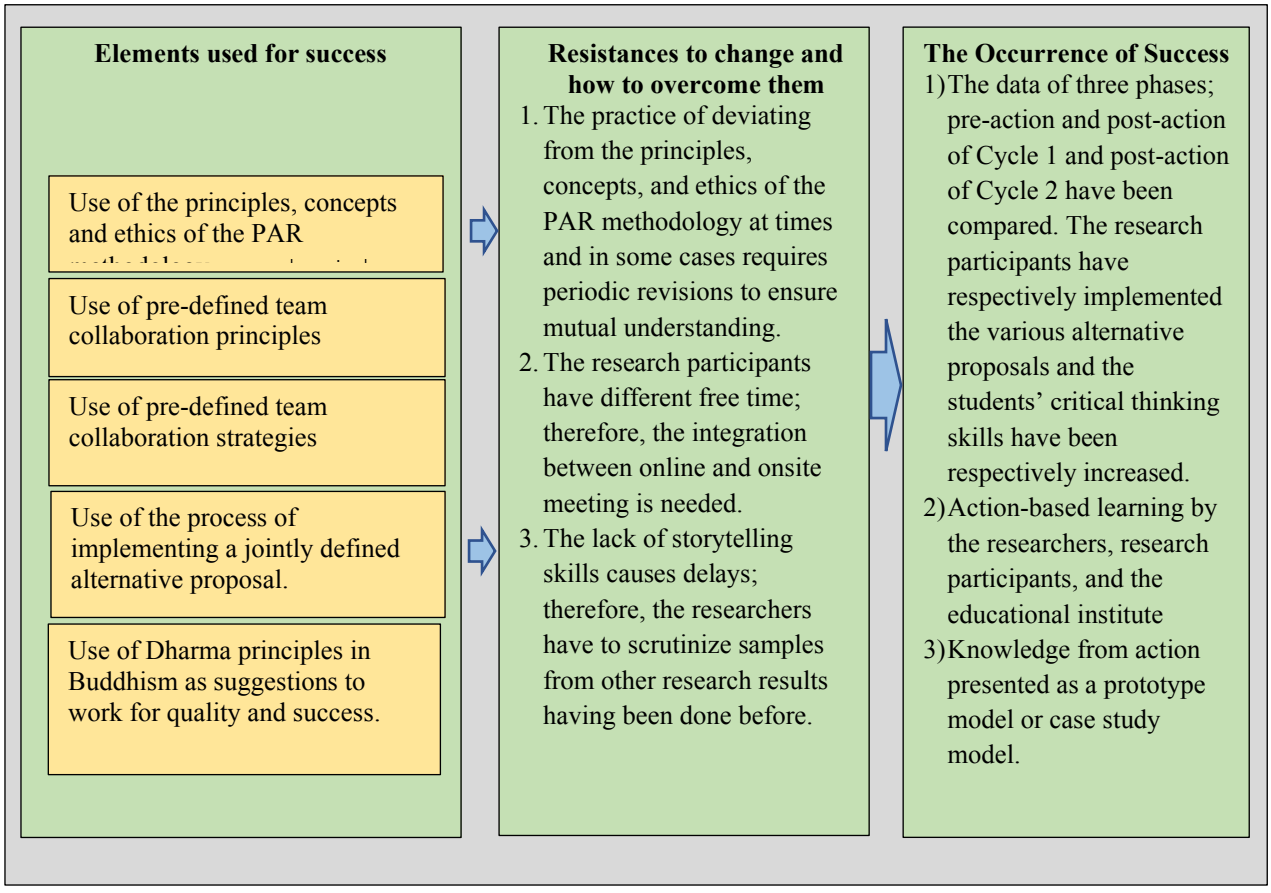

Figure 1: The Driving Forces that Affect the Success of the Project entitled 'Conduct a Collaborative Effort of Teachers to Strengthen Students' Creative Thinking Skills at MBU.'

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Analysis of Turkish Middle School Mathematics Textbooks in Terms of Opportunities to Learn "Area Measurement"

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Abstract
This study aims to examine the 5th- and 6th-grade mathematics textbooks approved by the Turkish Ministry of National Education for the 2021–2022 academic year in terms of the opportunities to learn provided in the sub-learning domain of "Area Measurement." A document analysis was performed as a part of this study. Consistent with the aim of the study, educational content (instructions, worked examples, exercises, activities, and unit evaluation) related to the area measurement sub-learning domain in five different 5th- and 6th-grade mathematics textbooks were examined in terms of the learning opportunities they offered. Dedoose, a web-based program, was used in the data collection phase of the study. The data analysis revealed that in the examined textbooks, the tasks on the topic of area measurement have an emphasis on procedural knowledge. It was determined that the activities and worked examples in the examined textbooks on the said topic had only one outcome and one solution method. In terms of contextual features, textbook tasks on the topic of area measurement were found to be mostly intra-mathematical. In light of the findings, certain recommendations were made.

Keywords: Area Measurement, Math Textbooks Opportunities to Learn

1. Introduction

Measurement is the process of assigning a numerical value to a continuous quantity (Van De Walle et al., 2014). One of the fundamental topics of mathematics education, measurement is taught to students starting from the first years of school and continues until middle (5^{th}-8^{th} Grades) school. Measurement has a wide range of applications in various mathematical subjects as well as in daily life situations and problems (Lehrer, 2003). Area measurement is frequently used particularly in daily life and utilized at all levels of mathematics from basic to advanced. Therefore, the importance of teaching the topics of area and area measurement in all grades is undeniable (Smith et al., 2016). When the Turkish curriculum for middle school mathematics is examined, the learning outcomes of area and area measurement are addressed within the context of the area measurement sub-learning domain of Geometry and Measurement strand, in 5^{th}- and 6^{th}-grade levels (Ministry of National Education [MoNE], 2018). In addition to the mentioned area measurement sub-learning domain, target learning outcomes related to area measurement in other grade levels as well. Within the context of the area measurement sub-learning domain, in

the 5th grade, students are taught how to calculate the area of rectangles, whereas, in the 6th grade, they learn about measuring the areas of triangles, parallelograms, and lands.

Findings of some studies on the instruction of the concept of area show that students have several misconceptions on the concept of area and area measurement and that they have challenges in solving relevant problems (Chappell & Thompson, 1999; Hirstein et al., 1978; Lin & Tsai, 2003; Moreira & Contente, 1997; Moyer, 2001). One of the reasons why students have difficulty in learning area measurement is that teachers mostly use procedural methods instead of conceptual ideas when teaching this topic (Hong et al., 2018; Murphy, 2012). The failure of primary school students in area measurement is known to be because of the rote learning practices used in teaching geometry formulas (Barrantes & Blanco, 2006). Mere recall of the formula to calculate the area of a rectangle, that is, finding the length and width and then multiplying them together is an example of rote teaching practices. With such an approach, students experience difficulty when making sense of why they have to multiply the length of the rectangle by its width to calculate the area (Stephan & Clements, 2003). The basic concepts of area measurement are related to the number of units of equal size needed to cover an area without gaps or overlaps, dividing a region into units of equal size, counting unit squares, understanding repeating units, rows, and columns, and associating the number of unit squares with length and width (Battista, 2007; Sarama & Clements, 2009). By teaching area measurement at the appropriate sequence and by particularly drawing on these concepts, student misconceptions can be prevented. However, some Turkish studies revealed that students were trying to reach the outcome through rote methods, without making sense of the formulas used for area measurement. Therefore, area measurement is among the topics that students have difficulty making sense of and wherein students make the most mistakes (Dağlı, 2010; Tan-Şişman & Aksu, 2009).

Another reason for the difficulties in learning area measurement is that the content related to Geometry and Measurement in textbooks is conceptually limited (Hong et al., 2018; Smith et al., 2016). Thus, employing teaching methods that will eliminate students' misconceptions about area measurement and utilizing various supporting materials (e.g., textbook and dynamic mathematics software) in teaching the topic are crucial. In mathematics courses, textbooks, which are crucial in determining and organizing the course content (e.g., activities and questions.), also serve as the core instructional materials used by teachers (Keitel et al., 1980; Valverde et al., 2002). Textbooks that are considered a potential tool in achieving the learning outcomes formulated when designing course content must have effective educational content (e.g., instructions, questions, activities, and solved examples) (Bergwall, 2019; Haggarty & Pepin, 2002; Kilpatrick et al., 2001; Newton & Newton, 2007; Peterson et al., 2020; Son & Diletti, 2017; Vicente et al., 2019). Playing a key role in teaching, textbooks can contribute to designing high-quality learning activities only if their content is consistent with the intended learning outcomes and principles (Swan, 2007; Valverde et al., 2002). Therefore, an important approach of identifying students' opportunities to learn mathematics is by examining textbooks. The learning opportunities provided to students by textbooks, which are crucial to teaching, can be identified (Hong et al., 2018; Remillard & Heck, 2014). If textbooks limit students' ability to understand various mathematics topics, it may negatively affect their learning outcomes and cause them to experience difficulties in learning these topics (Smith et al., 2013). Considering the importance of textbooks in designing learning activities and identifying the target learning outcomes, examining the opportunities to learn offered by the mathematics textbooks on a given topic is crucial. Accordingly, this study aims to examine the 5th- and 6th-grade mathematics textbooks approved by the Turkish Ministry of National Education for the 2021–2022 academic year in terms of the learning opportunities they provide on the sub-learning domain of "Area Measurement." The study sought to answer the following questions:

1) What is the place of the area measurement sub-learning domain in the middle school mathematics curriculum?
2) What are the order and timing of the tasks in mathematics textbooks related to the sub-learning domain of area measurement?
3) What is the distribution of tasks related to the sub-learning domain of area measurement in mathematics textbooks by types of knowledge?
4) What is the distribution of tasks related to the sub-learning domain of area measurement in mathematics textbooks by contextual features?
5) What is the distribution of tasks related to the sub-learning domain of area measurement in mathematics textbooks by the number of solution methods and outcomes?

2. Method

2.1. Research Model

This study aims to examine the 5th- and 6th-grade mathematics textbooks approved by the Turkish Ministry of National Education for the 2021–2022 academic year in terms of the learning opportunities they provide on the sub-learning domain of "Area Measurement," the document analysis, a qualitative research method, was used. The document analysis refers to the analysis of written materials containing information about investigated case or cases (Yıldırım & Şimşek, 2018). As in other qualitative research methods, the document analysis requires examining and interpreting data to reveal the meaning and obtain empirical knowledge (Corbin & Strauss, 2008; Rapley, 2007).

2.2. Data Sources

Consistent with the aim of the study, a total of five mathematics textbooks, two of which are for the 5th grade and three for the 6th grade, were examined. Table 1 presents the information regarding the textbooks examined as a part of the study and the codes assigned to the said textbooks.

Table 1: Textbooks Examined in the Study

Textbook	Code
Cırıtcı, H., Gönen, İ., Araç, D., Özarslan, M., Pekcan, N., & Şahin, M. (2021). Ortaokul ve imam hatip ortaokulu 5.sınıf matematik ders kitabı [*Middle and imam hatip secondary school 5th grade mathematics textbook*]. Ankara: MEB yayınları.	5G1
Erenkuş, M. A., & Savaşkan, D.E. (2018). Ortaokul ve imam hatip ortaokulu 5.sınıf matematik ders kitabı [*Middle and imam hatip secondary school 5th grade mathematics textbook*]. Ankara: Koza Yayınları	5G2
Çağlayan, N., Dağıstan, A., & Korkmaz, B. (2021). Ortaokul ve imam hatip ortaokulu 6.sınıf matematik ders kitabı [*Middle and imam hatip secondary school 6th grade mathematics textbook*]. Ankara: MEB yayınları.	6G1
Bektaş,M., Kahraman, S., & Temel, Y. (2021). Ortaokul ve imam hatip ortaokulu 6.sınıf matematik ders kitabı [*Middle and imam hatip secondary school 6th grade mathematics textbook*]. Ankara: MEB yayınları.	6G2
Şahin, M., & Doğan, S. (2019). Ortaokul ve imam hatip ortaokulu 6.sınıf matematik ders kitabı [*Middle and imam hatip secondary school 6th grade mathematics textbook*]. Ankara: Engürü Yayınları	6G3

(5G1: 5thGrade 1, 5G2:5th Grade 2, 6G1:6th Grade 1, 6G2: 6th Grade 2, 6G3: 6th Grade 3)

2.3. Framework for Data Analysis

In the textbooks, sections with similar content were given under several different titles ("Information box;" "Note;" "Let's remember;" "Mine of information;" "For those who wonder;" "Let's do it together;" "Let's learn together;" "Now it's your turn;" "Exercises;" "Let's put to use;" "Topic evaluation;" "Let's try out;" "Activity;" "Build, live, learn;" and "Unit evaluation"). Therefore, these sections were classified by their content under five different categories, namely "Instructions," "Worked Examples," "Exercises," "Activities," and "Unit Evaluation," and examined accordingly. Figure 1 presents this classification.

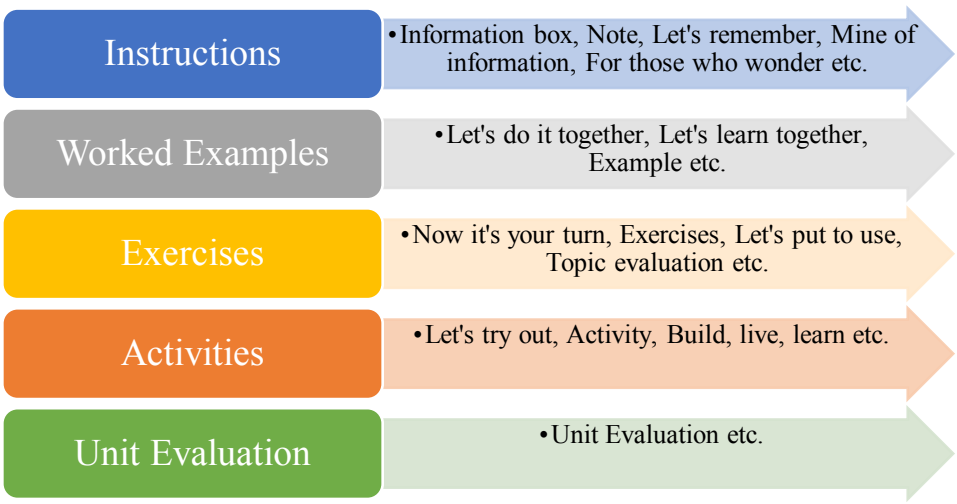


Figure 1: Classification of the Contents in the Textbook

For the analysis of the data, a framework developed based on the findings of studies conducted by Hong et al. (2018), Glasnovic-Gracin (2018), Bingölbali (2020), and Smith et al. (2016) was used Table 2 presents the sub-dimensions of the said framework.

Table 2: Framework Used in Textbooks to Analyze Learning Opportunities

Analysis framework of area measurement contents
Learning outcomes/number of lessons related to area measurement
Timing and topic sequence
Types of knowledge (conceptual, procedural)
Response types (a single correct outcome, multiple correct outcomes, a single solution method, multiple solution methods)
Contextual features (intra-mathematical, realistic, authentic)

This framework is based on the framework used by Hong et al. (2018) to compare textbooks in terms of learning opportunities related to area measurement. However, the information types, response types and contextual features dimensions of the framework have been reshaped. The types of the knowledge dimension of the framework were based on the study conducted by Smith et al. (2016), wherein they examined conceptual and procedural knowledge in detail. The number of solution methods and outcome dimension was based on Bingölbali (2020), and the contextual features dimension was based on Glasnovic-Gracin (2018).

2.3.1. Timing and Topic Sequence

For students in the 4th, 5th, and 6th grades, the primary learning outcome in terms of the area measurement sub-learning domain is developing and using formulas to calculate area (MoNE, 2018; National Council of Teachers of Mathematics [NCTM], 2000). In Turkey the concept of area was first introduced in the 3rd grade; the target learning outcomes are determining the area of two geometric shapes of the same type and different sizes by calculating the number of unit squares required to cover them, estimating area using nonstandard units of measurement, and checking the correctness of the estimation. In the 4th grade, the relevant learning outcomes are determining that the area comprises square units and associating the area of squares and rectangles with multiplication and addition. After achieving these learning outcomes, middle school students are expected to be capable of calculating the area of and the number of unit squares needed to cover planar shapes using appropriate nonstandard units, estimating an area with nonstandard area measurement units, and checking the correctness of the estimation by counting the unit squares, concluding that the areas of the shapes are equal to the number of unit squares occupying that area, and associating the area of squares and rectangles with addition and multiplication operations (MoNE, 2018).

2.3.2. Types of Knowledge

In the previous decade, procedural and conceptual knowledge, which are essential for teaching and learning, have become much more important (Ball et al., 2008; Lin et al., 2013; Shulman, 1987). Conceptual knowledge can be defined in a nutshell as a conceptual understanding that encompasses the relationships, principles, and meanings of mathematical symbols and algorithms or as a "holistic and functional understanding of the mathematical idea" (Kilpatrick et al., 2001; Lin et al., 2013; Rittle-Johnson & Schneider, 2014). In their study, Smith et al. (2016) addressed conceptual and procedural knowledge related to area measurement. There are three subtypes of conceptual knowledge, namely, general properties of quantities and their measures, measurement of area specifically and measurement of area of specific shapes. General properties of quantities and their measures; expressions such as that the area can receive include only a positive and single value, that the area has not changed under changes in the position and orientation of the region, that the two merged areas form another area in total. Principles specific to area measurement are related to aspects, such as the definition of area, the meaning of area measure, and tools to measure area. The principles of area measurement for specific shapes are related to aspects, such as the spatial attributes of the rectangle, the array structure of the rectangle (rows and columns), and the fact that all triangles with the same base length and height have the same area (Smith et al., 2016).

Figures 2 and 3 show an analysis by Hong et al. (2018) of the types of knowledge and relevant examples. Figure 3 is an example of conceptual knowledge in a mathematics textbook used in the USA. This example, which also comprises instructions, is related to the use of conceptual knowledge because it explains in stages the process of covering an entire shape with repeating unit squares to measure area. In the example, first, the concept of unit is introduced, and then, it is emphasized that the area of the shape can be expressed in terms of units needed to cover the shape without gaps. Particularly the part of the example wherein the area is expressed in units needed to cover the shape is indicative of conceptual knowledge.

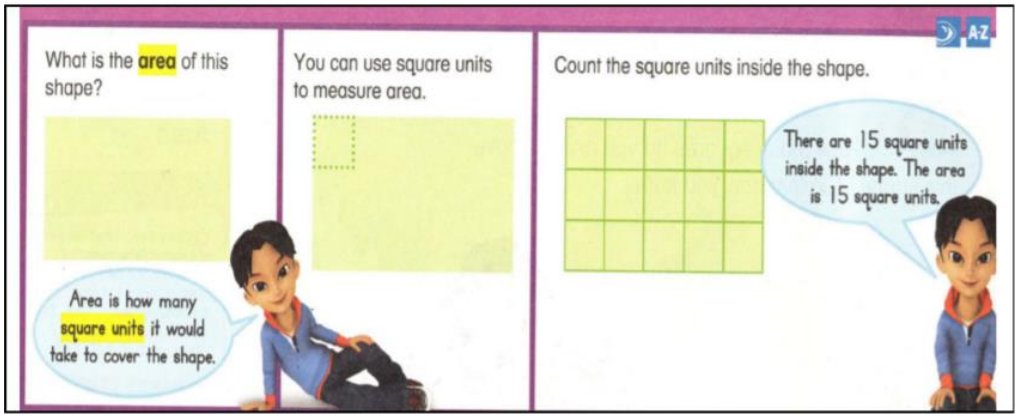


Figure 2: Conceptual Knowledge Example (Hong et al., 2018, s.13)

Pre-measurement, which includes qualitative processes for judging the relative size of two-dimensional objects and shapes, numerical measurement procedures for generating area measures of two-dimensional shapes, and reasoning with area measures that encompasses procedures for generating areas of more complex shapes or reasoning with two or more area measures are indicative of procedural knowledge. Actions such as making visual comparative judgment about two or more regions, determining the total number of unit squares in a row-and-column structure (array) either by counting all the units in it or multiplying the number of units in individual rows and columns, and calculating the area of a region by dividing, moving, and recomposing it are carried out by making use of procedural information (Smith et al., 2016).

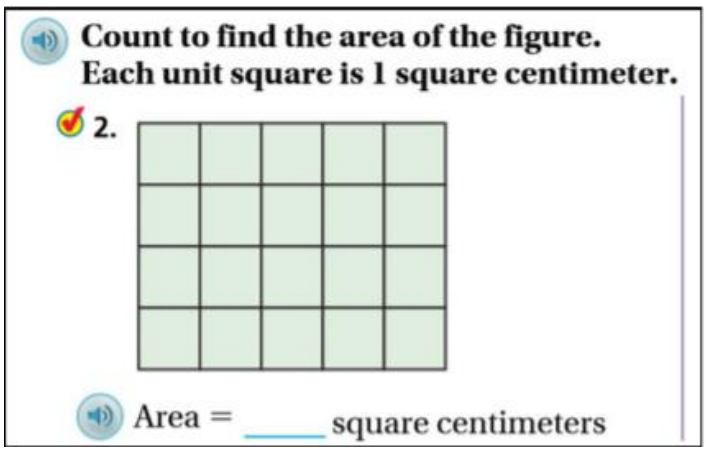


Figure 3: Procedural Knowledge Example (Hong et al., 2018, s.13)

Figure 3 is an example of procedural knowledge in a mathematics textbook used in the USA. This example is related to procedural knowledge because it points to the determination of area by counting square units in a given region. In this example, the aspect of determining area of the region by counting the square units and expressing the area in terms of units points to procedural knowledge.

2.3.4. Response Types

Bingölbali (2020) examined the extent to which middle school mathematics textbooks provide tasks with multiple correct outcomes and multiple solution methods. Accordingly, the tasks in the examined textbooks were analyzed in terms of whether they have multiple correct outcomes, a single correct outcome, multiple solution methods, and a single solution method. Tasks with multiple correct outcomes indicate tasks with at least two correct outcomes and tasks with single correct outcome mean tasks with one correct outcome; whereas tasks with multiple solution methods mean tasks with at least two solution methods, and tasks with single solution methods mean tasks with one solution method.

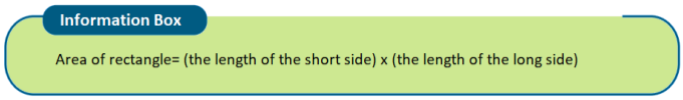
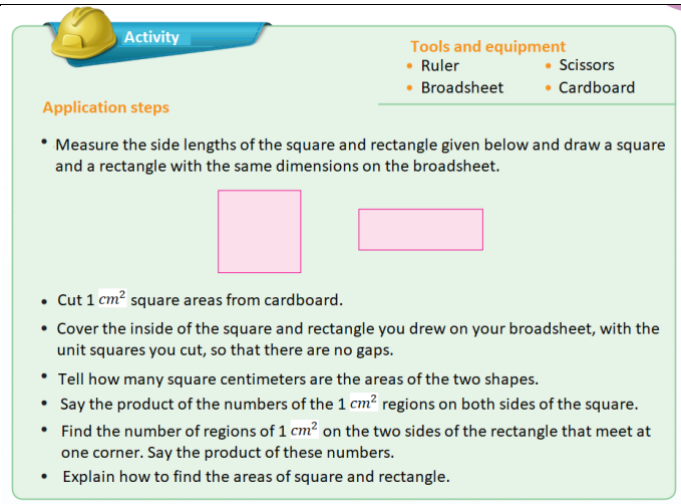
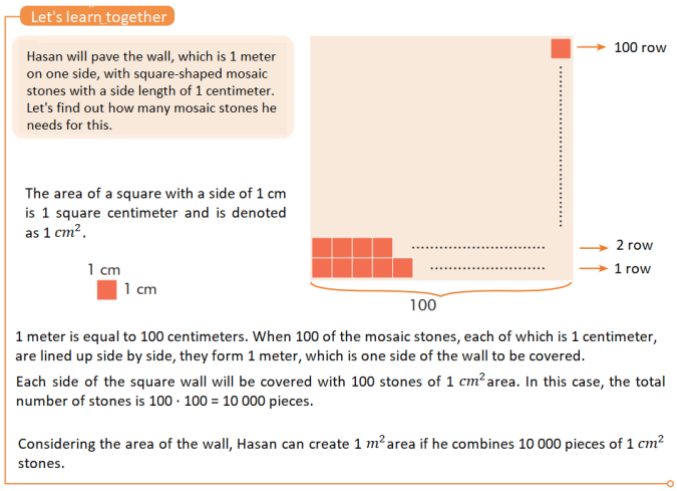
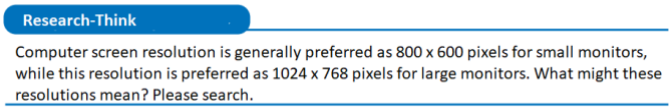
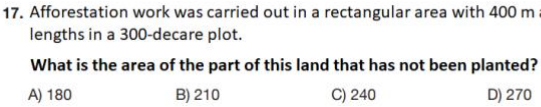
2.3.5. Contextual Features

Contextual features refer to the extent and approaches to which real-world experiences are included in the textbook content. Zhu and Fan (2006) distinguish between application and non-application problems in mathematics. While non-application problems (intra-mathematical) refer to situations that are irrelevant to real-life situations, application problems are related to the context of a real-life situation. Furthermore, the two subtypes of application problems are realistic and authentic application problems; the former refers to data made by the textbook author, whereas the latter refers to data from real-life situations or from students' daily lives.

2.4. Data Analysis

Dedoose software was used for data analysis. Dedoose is a cross-platform application used for the analysis of qualitative and mixed methods research with text, photos, audio, videos, spreadsheet data, and more. For data analysis, the textbook chapters to be examined and the dimensions of the developed framework were uploaded to the Dedoose system along with their assigned codes. All contents of the examined textbooks, except for instructions, were analyzed in terms of the number of solution methods and outcomes and contextual features dimensions of the developed framework. Only 'worked example' and 'activities' tasks were analyzed in terms of whether they had single or multiple solution methods. The instructions in the textbooks were only analyzed in terms of types of information. Table 3 shows examples from the tasks (tasks were translated from Turkish to English and presented) in the textbooks, which were examined within the created framework.

Table 3: Examples of Textbook Content Analyzed According to the Framework

Content	Example	Codes
Instruction	 (5G1, p.291)	Procedural
Activity	 (5G2, p.240)	Procedural Intra-mathematical Multiple solution methods A single correct outcome
Worked example	 (6G1, p.182)	Conceptual Realistic A single solution method A single correct outcome
Exercise	 (5G1, p.293)	Conceptual Authentic A single correct outcome
Unit Evaluation	 (6G3, p.206)	Procedural Realistic A single correct outcome

In the "instruction" task example given in Table 3, there is an expression for calculating the area of a rectangle directly with a formula. This task points to the use of procedural knowledge because it guides students to use a formula, that is, the multiplication of width to the length to calculate the area of the rectangle. The "activity" task further provided instructions on how to calculate the area of rectangles and squares by determining the number of

unit squares needed to cover them. Thus, it is a procedural knowledge task aimed at generating a formula to calculate the area of rectangles and squares. Because this task does not address a real-life situation, it is intra-mathematical in terms of its contextual feature. Because the task comprises instructions on determining area by covering the shapes with unit squares and using a formula, it has multiple solution methods. Because the instructions of both solution methods lead to one correct answer, the activity has one outcome. In the analyzed "worked example" task, the conversion between the types of units are emphasized. This example, which focuses on finding the number of square units needed to cover the area instead of using quantitative operations involving units of measurement, indicates the use of conceptual knowledge. Because the problem in the task is related to a real-life situation and data was given by the textbook, it is a realistic application problem. Because the task could be solved in only one way and had only one correct answer, it was found to have one solution method and one outcome. The analyzed "exercise" task draws on the definition of area and the size of a given area; therefore, it necessitates the use of conceptual knowledge. Because this task is related to a real-life situation and data was drawn from the real life, it is an authentic application problem. Further, because the task has only one correct answer, it has one outcome. The analyzed "unit evaluation" task is one that necessitates conducting mathematical operations and measurement units conversion. This task, wherein students are required to use the formula to determine the area of the rectangle, is procedural. This example includes a realistic application problem, that is, a problem on the real-life data. Because there is only one correct answer to the question, the task has only one outcome.

2.5. Validity and Reliability

Lincoln and Guba (1985) used the terms credibility, transferability, dependability and confirmability to elaborate on validity and reliability. The concept of credibility, which is presented as an alternative concept to the concept of internal validity, considering that it may be suitable for the nature of qualitative research, is a concept related to the robustness of the reasoning that leads to the conclusion and the quality of the data (Lincoln & Guba, 1985). In order to ensure credibility in the study, the researcher had a long-term interaction with the documents that are the data source and an expert review was applied to the study. The concept of consistency, which is used for internal reliability in qualitative research, refers to the state of being able to consistently give the same result if the study is repeated in line with the regularity of the researcher's interpretations (Batdı & Oral, 2020). In order to ensure consistency in the research, coding was repeated by two different researchers after a certain period of time. With the formula proposed by Miles and Huberman (1994), the percentage of intercoder reliability was calculated for two different researchers and the percentages were determined as 80% and 82%.

3. Findings

In this section, the findings were obtained by examining of the 5th- and 6th-grade mathematics textbooks, which were approved by the Turkish Ministry of National Education for the 2021–2022 academic year in terms of the learning opportunities provided on the sub-learning domain of "Area Measurement" by using the framework developed based on the literature.

3.1. Timing and Topic Sequence

The order and timing of the tasks on the sub-learning domain of area measurement in the examined textbooks are given in Table 4.

Table 4: Timing and Subject Order of 5th and 6th Grade Mathematics Textbooks Related to Area Measurement

Textbook	Timing and topic sequence
5G1	Area of Rectangle Estimating the Area Creating Different Rectangles with the Same Area
5G2	Area of Rectangle Estimating the Area Different Rectangles with Same Area

	Height and Area of Parallelogram
	Height and Area in Triangle
6G1	Area Measurement Units
	Land Measurement Units
	Area Problems
	Area of Triangle
	Area of a Parallelogram
6G2	Area Measurement Units
	Land Measurement Units
	Relationship Between Land Measurement Units and Area Measurement Units
	Area Measurement Problems
	Area of Triangle
6G3	Area of a Parallelogram
	Area and Land Measurement Units

On the area measurement sub-learning domain, 5th-grade tasks include calculating the area of a rectangle in square centimeters and square meters, estimating area, and creating different rectangles with the same area; while 6th-grade tasks are related to calculating the areas of parallelograms and triangles, as well as units of area and land measurement, and area problems. As is seen in Table 4, tasks in the examined mathematics textbooks were found to be compatible with the identified learning outcomes.

3.2. Distribution of Tasks in Mathematics Textbooks by Types of Knowledge

The distribution of tasks in the five textbooks examined as a part of this study by types of knowledge, that is, whether they necessitate conceptual or procedural information, is given in Figure 4.

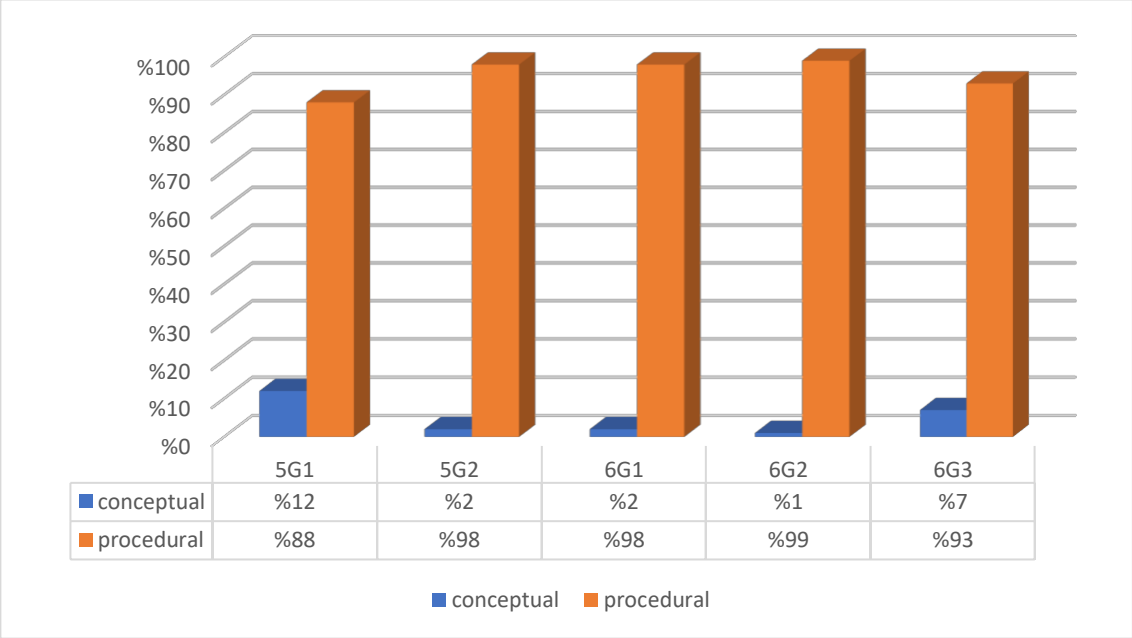
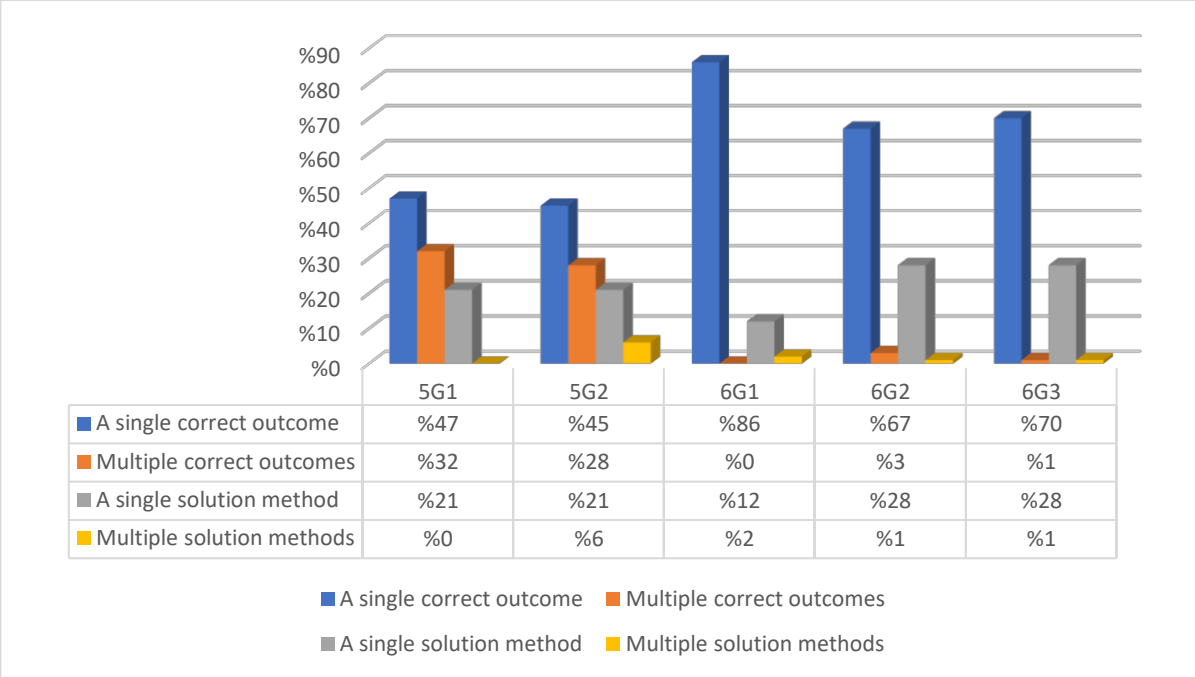


Figure 4: Distribution of Tasks in Mathematics Textbooks by Types of Knowledge

It was seen that in the examined textbooks, the tasks related to area measurement mostly necessitated procedural knowledge. It was found as a result of the examination of the textbooks that 88% of the tasks in the 5th-grade textbook with the code "5G1," 98% in the 5th-grade textbook with the code "5G2" and the 6th-grade textbook with the code "6G1," 99% in the 6th-grade textbook with the code "6G2," and 93% in the 6th-grade textbook with the code "6G3" require procedural knowledge.

3.3. Distribution of Tasks in Mathematics Textbooks by the Number of Solution Methods and Outcomes

The distribution of tasks in the five textbooks examined as a part of this study by their number of solution methods and outcomes, that is, whether they have multiple correct outcomes, a single correct outcome, multiple solution methods, and a single solution method, is given in Figure 5.



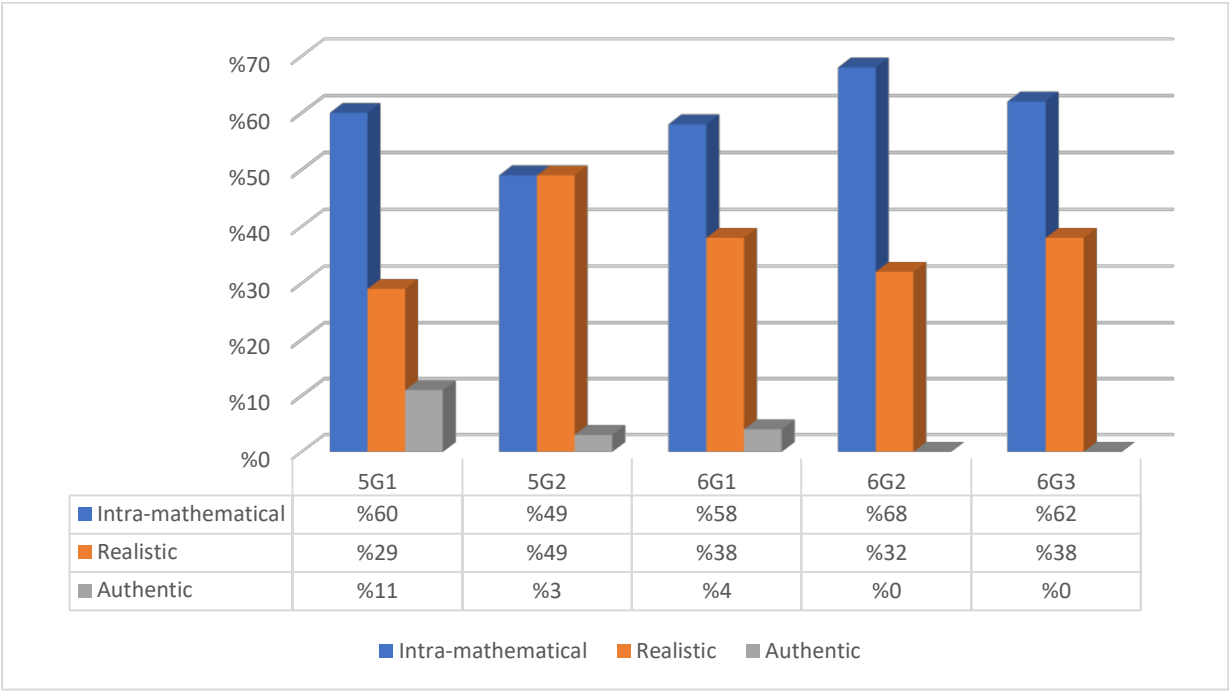
	5G1	5G2	6G1	6G2	6G3
A single correct outcome	%47	%45	%86	%67	%70
Multiple correct outcomes	%32	%28	%0	%3	%1
A single solution method	%21	%21	%12	%28	%28
Multiple solution methods	%0	%6	%2	%1	%1

Figure 5: Distribution of Tasks in Mathematics Textbooks by the Number of Solution Methods and Outcomes

It was seen that in the examined textbooks, the worked examples and activities related to area measurement mostly had a single solution method. It was also found that the worked example, activity, exercise, and unit evaluation tasks in mathematics textbooks mostly had a single outcome. It was found as a result of the examination of the textbooks that 21% of the worked example and activity tasks in the 5th-grade textbooks with the codes "5G1" and "5G2," 12% in the 6th-grade textbook with the code "6G1," and 28% in the 6th-grade textbooks with the codes "6G2" and "6G3" have one solution method. By and large, in the examined mathematics textbooks, there are very few worked tasks and activities with multiple solution methods; in fact, in the 5th-grade textbook with the code "5G1," no worked example or activity with multiple solution methods was found. It was found as a result of the examination of the textbooks that 47% of the worked example, activity, exercise, and unit evaluation tasks in the 5th-grade textbook with the code "5G1," 45% in the 5th-grade textbook with the code "5G2," 86% in the 6th-grade textbook with the code "6G1," 67% in the 6th-grade textbook with the code "6G2," and 70% in the 6th-grade textbook with the code "6G3" have a single outcome. By and large, in the examined mathematics textbooks, there are fewer worked examples, activity, exercises, and unit evaluation tasks with multiple outcomes. In the 6th-grade textbook with the code "6G1," no worked example, activity, exercise, and unit evaluation task with multiple outcomes was found.

3.4. Distribution of Tasks in Mathematics Textbooks by Contextual Features

The distribution of tasks in the five textbooks examined as a part of this study by their contextual features, that is, whether they are intra-mathematical, or realistic or authentic application problems, is given in Figure 6.



	5G1	5G2	6G1	6G2	6G3
Intra-mathematical	%60	%49	%58	%68	%62
Realistic	%29	%49	%38	%32	%38
Authentic	%11	%3	%4	%0	%0

Figure 6: Distribution of Tasks in Mathematics Textbooks by Contextual Features

As a result of the examination of the five different 5th- and 6th-grade mathematics textbooks, it was found that by their conceptual features, most of the worked example, activity, exercise, and unit evaluation tasks were intra-mathematical. The intra-mathematical tasks were followed by realistic and authentic application problems, respectively. It was found as a result of the examination of the textbooks that excluding instructions, 60% of the tasks in the 5th-grade textbook with the code "5G1," 49% of the tasks in the 5th-grade textbook with the code "5G2," 58% of the tasks in the 6th-grade textbook with the code "6G1," 68% of the tasks in the 6th-grade textbook with the code "6G2," and 62% of the tasks in the 6th-grade textbook with the code "6G3" were intra-mathematical by their contextual feature. Differently from the other examined textbooks, the shares of the intra-mathematical and realistic application problems were found to be 49% and 51%, respectively, which points to a roughly equal distribution. By and large, in the examined mathematics textbooks, the number authentic application problems was found to be few, and in the 6th-grade textbooks with the codes "6G2" and "6G3," no authentic application problem was found.

4. Discussion, Conclusion, And Recommendations

In this study, in order to discover the opportunities offered by middle school mathematics textbooks to learn area measurement, the instructions, worked examples, exercises, activities, and unit evaluation questions in these textbooks were evaluated within a framework developed based on the literature.

Before the formula of "$length \times width$" is introduced to students, concepts related to area measurement such as partitioning, covering, and array structure should be taught (Battista, 2004; Outhred & Mitchelmore, 2000; Sarama & Clements, 2009). In cases where textbooks only provide students with the formula without teaching the said aspects of area measurement, teachers overlook these aspects while designing course content, which consequently undermines students' experiences and meaningful learning of area measurement. This may limit the opportunities to learn that enable students to make sense of and work on concepts related to area measurement. Therefore, in textbooks, the order and timing in which tasks related to area measurement are presented are important. It was seen that in the mathematics textbooks examined as a part of this study, the order and timing of the tasks related to area measurement were suitable for the learning outcomes of the middle school mathematics curriculum. While in some of the textbooks the formula "$length \times width$" was presented with no background information, in some textbooks, concepts related to area measurement such as partitioning, covering, and array structure was introduced before, the formula was presented. Therefore, it can be said that in terms of the timing and order of the tasks, the

examined textbooks provide students with opportunities to learn that will facilitate their comprehension of the topic of area measurement as well as concepts related to it.

The findings of the study show that the content in Turkish middle school mathematics textbooks (instructions, worked examples, exercises, activities, and unit evaluation questions) mostly emphasize procedural information. This finding supports the conclusions of the study carried out by Smith et al. (2016), in which they examined American mathematics textbooks in terms of tasks related to area measurement and concluded that over 87% of the examined tasks emphasized procedural knowledge. In their study comparing Korean and American textbooks in terms of tasks related to area measurement, Hong et al. (2018) concluded that the area measurement tasks in the textbooks they examined drew more on procedural knowledge. As both countries' textbooks present the formula right after the definition of the concept of area, many tasks in these books are procedural. The textbooks from both countries were found to provide few opportunities to learn that enable the elimination of misconceptions about covering, array structure, and linking array structure to area formula. The findings of the study showed that American and Korean mathematics textbooks present procedural contents such as partitioning areas without array structure or counting square units without array structure that do not provide opportunities for students to discover the array structure or improve their skills of covering a region completely. The finding of this study that the middle school mathematics textbooks are procedural knowledge-intensive support the conclusion of Hong et al. (2018). In a study comparing the Trends in International Mathematics and Science Study achievement of 4th- and 8th-grade students in the United States between 1995 and 2003 with the achievement of students from over 25 different countries in the same period, it was found that although progress was observed in terms of achievement, students' overall performance was found to be poorer compared to students from other countries (Gonzales et al., 2004). According to Snider (2004), the reason for the decline in achievement is that although primary school textbooks that cover a large number of subjects, they cultivate shallow learning that does not enable students to develop their basic skills. The researcher also emphasized that education in the USA usually revolves around textbooks with procedural knowledge. Kridler (2012), on the other hand, emphasized that when student achievement trends are examined, procedural knowledge does not seem to positively contribute to student achievement. The opinions of these two researchers show that textbooks that lack in terms of content variety and the adoption of teaching methods drawing on procedural knowledge do not contribute to student achievement. Linking procedural to conceptual knowledge enables students to recognize real-life problems and adjust their knowledge in the face of new problems or challenges, make fewer errors, discover computational shortcuts, and learn facts and procedures easier (Baroody et al., 2007). Procedural and conceptual knowledge cannot flourish independently from one another (Baroody et al., 2007; Kilpartick et al., 2001; Lin et al., 2013). Therefore, linking the two is important in terms of enabling students to find solutions to various different problem situations. However, it was found in this study that the examined contents of the middle school mathematics textbooks emphasize procedural knowledge more than conceptual knowledge. This finding means that conceptual knowledge, which helps students to determine the appropriate procedures for solving the problems they encounter and apply these procedures to different problem situations (Zhao, 2018), is underutilized in the textbooks. Therefore, it is thought that due to the imbalance of types of knowledge they contain, the textbooks examined as a part of this study provide few opportunities to learn. It is recommended that in order to enrich education in terms of opportunities to learn and eliminate the disadvantages caused by learning based on only one type of knowledge, the same importance should be attached to two types of knowledge and contents that encourage students to link these two types of knowledge should be utilized.

It was seen that most of the activities and worked examples in the middle school mathematics textbooks had one solution method and one outcome. It was found that (excluding instructions), most tasks in the textbooks had one outcome. In the study conducted by Bingölbali (2020) to determine to what extent 6th, 7th, and 8th-grade mathematics textbooks offer questions with multiple outcomes and multiple solution methods, it was also found that 8% of the examined questions had multiple outcomes while 92% had only one outcome. Furthermore, it was found that only 6.2% of all examined worked questions could be solved through multiple methods. This finding in Bingölbali (2020) shows similarity with the finding of our study that the majority of the tasks in the examined textbooks have a single solution method and a single outcome. It was observed that tasks with multiple solution methods enhanced the quality of mathematics lessons as they encouraged students to discuss their opinions, compare different solution methods, examine the relationships between different concepts, and improve their

knowledge by shifting between different representations (Leikin & Levav-Waynberg, 2008; Yackel & Cobb, 1996). It was found in our study that the number of questions in middle school mathematics textbooks that can be solved through multiple different methods is extremely few. This means that the contents of these textbooks are insufficient in terms of comparison between different solution methods and shifts between different representations, and therefore, they do not provide enough learning opportunities for students to utilize in improving themselves in these respects. It is held that textbooks, which are the primary teaching resources, should be enriched with tasks with multiple solution methods in order to ensure that they improve students' problem-solving skills, creativity, and mental flexibility, reinforce their mathematical understanding, reasoning, and thinking, and strengthen their network of ideas.

It was found that the contents related to area measurement (worked examples, exercises, activities, and unit evaluation questions) in middle school mathematics textbooks were intra-mathematical in terms of their contextual features. Similarly, in a study carried out by Glasnovic-Gracin (2018) to examine the tasks in the most commonly used Croatian mathematics textbooks in the 6^{th}, 7^{th}, and 8^{th} grades, it was found that most of the tasks were intra-mathematical. In a study carried out by Cannon (2021) to examine the opportunities to develop concept images of polygons in middle school (6^{th}, 7^{th}, and 8^{th} grades) mathematics textbooks, all of the three middle school mathematics textbook series that were examined were found to have more purely mathematical tasks than those related to the real world. On the other hand, Sullivan et al. (2012) stated that contextualized tasks have great potential to attract students' attention and show that they can help them make sense of the world of mathematics. It can be held that thanks to such contents, textbooks can offer better opportunities to learn. However, the finding of this study that the tasks in the examined textbooks were mostly intra-mathematical points to the fact that the number of contextual learning opportunities offered by middle school mathematics textbooks is fewer. While real-life problems have such an important role in the development of various skills of students, it is of course important to include more such content in the textbooks that represent the respective curriculum. Therefore, it is recommended to enrich textbooks in a way to include authentic and realistic application problems in addition to intra-mathematical problems.

In the continuation of this study, the subjects related to the area in middle school textbooks can also be analyzed according to this framework. It is recommended to analyze the content related to area measurement in mathematics textbooks not only at the middle school level but also at the primary school level.

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The Effect of Music on the Motivation of Athletes in Taekwondo and Karate Training

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Abstract
This study examines the effect of music on motivation during sports activities in taekwondo and karate training. A total of 258 active athletes between the ages of 12 and 18 be engaged in taekwondo (n=159) and karate (n=99) branches participated in the study voluntarily. "The Effect of Music in Sports Activities Scale (SUMEÖ)," developed by Karayol and Turhan (2020), was used to collect data in the study. The scale consists of 18 items, has 3 sub-dimensions, and is in a 5-point Likert type. The data were collected using the Effect of Music in Sports Activities Scale and digital web technologies. Descriptive statistics were made for demographic variables in the analysis of the research data. Data obtained from the scale were analyzed using the IBM SPSS Statistics 26 program. According to the results of the analysis, it can be said that the type of music chosen by the athletes and the upbeat music has a significant effect on sports activities. In training with technical exercises step, it was determined that listening to fast-paced music chosen by the athletes themselves can increase the motivation of the exercises while listening to slow-paced music contributes to the recovery process. It can be said that music is a tool to motivate athletes by reducing the stress on athletes and that the gender variable is a factor affecting the effect of music in sports activities in different branches.

Keywords: Sports Performance, Music, Motivation, Karate, Taekwondo, The Effect of Music

1. Introduction

Pythagoras, one of the genius teachers of mathematics, explained "music as the expression of the universal harmony existing in arithmetic and astronomy." The effects of music on the emotional state have attracted a lot of attention recently, and evidence from many sources shows that music has the ability to evoke emotion in listeners. Music creates different effects on each listener and is considered an abstract concept. The reactions of individuals with different psychologies to the same music will also be different from each other in parallel (Akkuş, 2007). Music, which has an ergogenic effect, delays fatigue, increases training capacity, and increases athletic and exercise performance. In the context of physical activity, whether warming up for jogging, in a park or a judo

competition, music seems like a relatively effortless stimulus. Many participants in martial arts use music to psychologically prepare for competition (Lane, 2015).
Music is frequently used by athletes to increase motivation and improve their aerobic-anaerobic performance (Hammad et al., 2019). Studies conducted have shown that music is a tool that helps athletes become motivated by reducing the pressure on them (Gacar, 2021). Besides, in the studies conducted in terms of the effects of music on performance, it has been suggested that the type of music, type of exercise, timing, and fitness level of the athlete may affect the performance response to music, and conflicting results have been found (Eliakim et al., 2013).

In the literature, studies such as the effect of music on anger and psychological symptoms (Sezer, 2011), The place and importance of music on human health (Akkuş, 2007), The effect of music on the cognitive functions of the brain (Ayata & Aşkin, 2008), The Place and Importance of Music in Wrestling Matches (Altınölçek, 2010), The effect of different tempo music on aerobic performance in young women (Böcekci, 2019) have been made, and studies have been carried out by considering the effect of music almost together with many fields.

Music helps athletes to be motivated and feel safe by controlling their emotional state with excitement while performing their physical activity or in competitions. However, there are studies on its effect on speed, agility, and balance ability. In a study conducted by Ferguson et al. (1994), the scores recorded in the competition environment were examined by playing negative and positive music to the karate players, while music with positive effects caused significant increases in the performance of karate players, music with negative effects caused the performance of athletes to decrease. Hutchinson et al. (2011) stated that well-chosen music encourages positive impact, even at high levels.

Various factors affect sports performance and motivation. Music has an important place among the factors that move the athlete in these factors. Studies conducted show that music is used by most athletes as a mood-adjusting strategy (Stevens & Lane, 2001). In this study, the effect of music chosen according to the athletes' own preferences and at a different tempo and played in a suitable environment on the motivation of athletes was examined.

2.Method

2.1. The Aim of the Study

This study aims to examine the effect of active taekwondo and karate athletes between the ages of 12-18 during training on different days, accompanied by dynamic and slow music of their own choice at different tempos, on the motivation of athletes.

2.2. Study Population and Sample

"The Convenience Sampling" technique was used to determine the study group. Since this sampling method adds speed and practicality to the research, the researcher chooses the situation that is easy to access (Yıldırım & Şimşek, 2006). For this study conducted, the participants in the sports clubs in Istanbul were reached. In this study, a survey model was used. In the music protocol, during the sports activity, each athlete listened to any music he/she wanted from his/her own headphones. "Rocky" soundtracks as upbeat music and Tchaikovsky's "Swan Lake"-like music as light tempo music, which was used by Yamamoto et al. (2003) (Yamamoto et al., 2003) in their studies, were listened to.

2.3. Data Collection Tool

Personal information form and "The Effect of Music in Sports Activities Scale (SUMEÖ)" developed by Karayol and Turhan (2020) was applied to collect data in the study. The scale without negative (reverse) items is a 5-point Likert-type scale consisting of 18 items with 3 sub-dimensions: Psychological Resilience (7 items), Physical

Strength and Performance (6 items), and Motivation (5 items). In the personal information form, there are questions to learn the gender, branch, frequency of listening to the music of the athletes.

2.4. Data Analysis

While collecting the data, sports halls and training days where the athletes can express themselves comfortably were selected. All the data obtained were coded in the IBM SPSS 26 program in the computer environment. The scores obtained were scored separately with their sub-dimensions. Parametric tests were used for the analysis and interpretation of the data. Official approval for this study was obtained from the Ethics Committee of Şırnak University with the letter numbered 2021/93.

3. Results

In this part of the study, the results of the analysis of the data obtained from the total scores of "The Effect of Music in Sports Activities Scale (SUMEÖ)" applied to the participants were interpreted in terms of some variables by putting them into tables. The analysis of the attitude scores of the athletes aged 12-18 who are actively engaged in taekwondo and karate branches regarding the effect of music on the motivation of the athletes according to the variables and the findings of the relationship between them are given below.

3.1. Descriptive Attributes

Table 1: Frequency and percentage distributions of the descriptive attributes of the study group

Variables		***f***	**%**
Gender	Male	158	61.2
	Female	100	38.8
Sport Branch	Taekwondo	159	61.6
	Karate	99	38.4
Frequency of Listening to Music	Always	111	43.0
	Sometimes	92	35.7
	Rarely	55	21.3
	Total	258	%100

** Significant difference with p<0.05*

According to Table 1, of the participants 61.2% are male (n: 158) and 38.8% are female (n: 100). Of the participants 61.6% (n: 159) are taekwondo athletes, 38.4% (n: 99) are karate athletes. As for the frequency of listening to music, 43% (n:111) always, 35.7% (n:92) and 21.3% rarely (n:55) listen to music.

3.2 Statistics and Data Analysis

The results of the t-test analysis performed to determine the statistical differences between the "The Effect of Music in Sports Activities Scale (SUMEÖ)" sub-dimensions and the demographic characteristics of taekwondo players are given in Table 2.

Table 2: Independent samples t-test results of sub-dimensions of the scale of the effect of music in sports activities according to taekwondo player demographic variables

	Variables		**Gender**	**N**	**X**	**ss**	**t test**		
							t	***sd***	***p***
TAEKWONDO	Psychological Resilience	Music of self-choice	Female	94	3,42	.867	.488	157	.626
			Male	65	3,35	.968			
			Female	94	2,95	.786	1.320	157	.189

	Fast rhythm music	Male	65	2,79	.709			
	Slow music	Female	94	3,62	.728	0.74	109.108	.941
		Male	65	3,61	1.003			
Physical Strength and Performance	Music of self-choice	Female	94	4,14	.651	2.493	106.432	.014*
		Male	65	3,81	.929			
	Fast rhythm music	Female	94	3,43	.911	.661	157	.510
		Male	65	3,34	.887			
	Slow music	Female	94	3,53	.817	-1.607	157	.110
		Male	65	3,75	.902			
Motivation	Music of self-choice	Female	94	3,91	.812	3.148	117.247	.002*
		Male	65	3,43	1.017			
	Fast rhythm music	Female	94	3,36	.834	.757	157	.450
		Male	65	3,25	.859			
	Slow music	Female	94	3,47	.870	.842	157	.401
		Male	65	3,35	.965			

** p<0,05*

When the effect of music during sports activities on taekwondo players is examined according to gender, statistically significant differences were found in favor of men in the sub-dimensions of physical strength and performance and motivation according to the music parameter they chose ($p<0.05$). According to the analysis results, men's scores of training with the music genres they chose ($x=4.14$) in Physical Strength and Performance sub-dimension scores, and arithmetic averages in Motivation sub-dimension ($x=3.91$) are higher than women. Accordingly, it can be said that the gender variable is a factor affecting the music genre preferred by the athletes (Table 2).

The results of the t-test analysis performed to determine the statistical differences between the "The Effect of Music in Sports Activities Scale (SUMEÖ)" sub-dimensions and the demographic characteristics of karate players are given in Table 3.

Table 3: T-test results of sub-dimensions of the scale of the effect of music in sports activities according to karate players demographic variables

	Variables		**Gender**	**N**	**X**	**ss**	**t test**		
							t	***sd***	***p***
KARATE	Psychological Resilience	Music of self choice	Female	64	2,99	,621	-1,548	97	.125
			Male	35	3,22	,787			
		Fast rhythm music	Female	64	2,85	,756	1,632	97	.106
			Male	35	2,58	,781			
		Slow music	Female	64	3,37	,620	-.245	97	.807
			Male	35	3,40	,443			
	Physical Strength and Performance	Music of self choice	Female	64	3,32	,727	-3.188	97	.002*
			Male	35	3,80	,657			
			Female	64	3,39	,928	-.144	97	.885

	Fast rhythm music	Male	35	3,42	1,137			
	Slow music	Female	64	3,41	,731	-.463	97	.644
		Male	35	3,49	,732			
Motivation	Music of self choice	Female	64	3,40	,771	-.471	97	.639
		Male	35	3,48	,786			
	Fast rhythm music	Female	64	3,48	,864	1.865	97	.065
		Male	35	3,12	1,021			
	Slow music	Female	64	3,47	,955	-.823	97	.413
		Male	35	3,63	,906			

** p<0,05*

When the effect of music on the karate players according to their gender during the sports activity was examined, a statistically significant difference was found in favor of women in the sports activities scores of the athletes according to the music parameter they chose (p<0.05). According to the analysis results, in the Physical Strength and Performance sub-dimension scores, the arithmetic averages of women's scores for training with the music genres of their choice (x=3.80) were higher than men's. Accordingly, it can be said that the gender variable is a factor affecting the music genre preferred by the athletes in sports activities (Table 3).

The results of the t-test analysis performed to determine the statistical differences between the "The Effect of Music in Sports Activities Scale (SUMEÖ)" sub-dimensions and branches are given in Table 4.

Table 4: T-test results of sub-dimensions of the scale of the effect of music in sports activities according to branches

Variables / Type of music		**Sport branch**	**N**	**X**	**ss**	**t test**		
						t	***sd***	***p***
Psychological Resilience	Music of self-choice	Taekwondo	159	3,39	,907	3,202	246,037	.002*
		Karate	99	3,07	,688			
	Fast rhythm music	Taekwondo	159	2,88	,757	1,341	256	. 181
		Karate	99	2,75	,772			
	Slow music	Taekwondo	159	3,62	,848	2,691	254,998	,008*
		Karate	99	3,38	,562			
Physical Strength and Performance	Music of self-choice	Taekwondo	159	4,00	,791	5,214	256	,000*
		Karate	99	3,49	,736			
	Fast rhythm music	Taekwondo	159	3,40	,900	-,030	256	,976
		Karate	99	3,40	1,002			
	Slow music	Taekwondo	159	3,62	,857	1,697	256	,091
		Karate	99	3,44	,728			
Motivation	Music of self-choice	Taekwondo	159	3,71	,928	2,554	256	,011*
		Karate	99	3,43	,773			
	Fast rhythm music	Taekwondo	159	3,31	,843	-,356	256	,722
		Karate	99	3,35	,934			
	Slow music	Taekwondo	159	3,42	,909	-,894	256	,372
		Karate	99	3,52	,937			

** p<0,05*

Considering the effect of music genres according to the branch, a statistically significant difference was found in favor of taekwondo players in sports activities scores (p<0.05). According to the analysis results, it has been

determined that in the psychological resilience sub-dimension scores of the scale used, the scores of the taekwondo players training with the music genres they chose (x=3.39) and the scores of training with the slow music genres (x=3.62); in physical strength and performance sub-dimension scores, the scores of taekwondo players training with the music they chose (x=4.00); in the motivation sub-dimension scores, the scores of the taekwondo players training with the music they chose (x=3.71) has higher arithmetic averages than karate players.

The results of the one-way analysis of variance (ANOVA) conducted to determine whether the frequency of listening to the music of the participants is related to the effect of music in sports activities are given in Table 5.

Table 5: The effect of music in sports activities scale one-way anova results according to frequency of listening to music and variables in quality

Type of music	Variables	N	X	Ss	Source of variation	KT	sd	KO	F	p	Anlamlılık
Music of self-choice	Rarely (1)	55	3,28	.622	**Between Groups**	5,218	2	2.609	5.714	.004*	2-1; 3-1;
	Sometimes (2)	92	3,55	.665	**Within Groups**	116.437	255	.457			
	Always (3)	111	3,66	.708	**Total**	121.656	257				
	Total	258	3,54	.688							
Fast rhythm music	Rarely (1)	55	2,94	.680	**Between Groups**	3,345	2	1,672	3.291	.039*	2-1; 3-1;
	Sometimes (2)	92	3,19	.762	**Within Groups**	129,592	255	,508			
	Always (3)	111	3,24	.685	**Total**	132,937	257				
	Total	258	3,16	.719							
Slow music	Rarely (1)	55	3,59	.636	**Between Groups**	.904	2	.452	.959	.385	
	Sometimes (2)	92	3,44	.639	**Within Groups**	120.291	255	.472			
	Always (3)	111	3,54	.746	**Total**	121.195	257				
	Total	258	3,51	.686							

** Significant difference with p<0.05*

There is a significant difference between the use of the type of music preferred by the participants (F=5.714; p<.0.05) and the type of dynamic music applied (F=3.291; p<.0.05) in sports activities and the frequency of listening to music (Table 5).

According to the results of the LSD test, which was conducted to determine that there was a difference between the music applied to the participants in sports activities and the frequency of listening to music by the athletes, it has been stated that those who always listen to music (X=3.66), those who listen to music occasionally (X=3.55); In the study conducted with moving music, those who always listen to music (X=3.24) and those who listen to music occasionally (X=3.19) has higher scores than those who rarely listen to music, and that music has a more positive effect.

4. Discussion

In this research examining the effect of music during Taekwondo and Karate training, a statistically significant difference was found in favor of men in the effect of the type of music chosen by the athletes in the sub-dimensions of Psychological Resilience, Physical Strength and Performance, Motivation in the sports activities of taekwondo players according to gender. According to the results of the analysis, it was observed that the arithmetic mean of the effect on men was higher than on women. The karate branch shows a significant difference in favor of women

in sub-dimensions of Physical Strength and Performance according to gender. In a study conducted on Elite Brazilian Taekwondo players, it has been reported that motivation levels are similar in both genders, but there are statistical differences in favor of women (Albuquerque et al., 2008; Vatansever et al., 2018). Ekiz and Atasoy (2021) in their study on physical education and sports school students. They found statistically significant differences in the effect of music in favor of men during sports activities. In another study conducted on the Effect of Music on Sports Activities on 1206 taekwondo athletes. It has been reported that there are significant differences in the sub-dimensions of the scale according to gender and the type of music listened to (Gacar, 2021). Our study is supported by the literature, and it can be said that the gender variable is a factor affecting the effect of music in sports activities.

According to the results of the analysis, it was determined that the music genres chosen by taekwondo players were effective on their resilience, physical strength and performance, and motivation, slow music genres were effective on their psychological resilience, and their arithmetic averages were higher than the karate players. Looking at the literature, studies by Kartal and Ergin (2018) reported that athletes contribute positively to their motivation when they work with the music genre of their choice. In a study conducted by Mavi (2012) on elite taekwondo players, it has been reported that taekwondo players who listen to fast tempo music before the match score in the match, the number of attacks and the number of techniques they apply increase compared to the pre-test compared to the post-test. In the studies conducted by Rouhollah et al. (2015) on non-elite taekwondo players, it has been reported that high rhythm music has isokinetic force production and motivating effect. In the study conducted by Vatansever et al. (2018) on women, it has been reported that listening to fast-paced music during maximal exercise causes the exercise time to prolong and the maximal heart rate to increase.

According to the findings obtained according to the music listening frequency values of the athletes, it has been observed that music is more motivating in athletes who frequently listen to music in their daily life. In our study, the athletes stated that they preferred upbeat music during technical training, and they preferred slow music at the end of warm-up techniques and training. Looking at the literature, studies conducted have shown that athletes routinely use music to increase their motivational status and performance (Laukka & Quick, 2013; Pain, et al.; 2011). In the study in which 252 Swedish athletes participated, it has been reported that of the participants, 66% listen to music several times a day, 71% prefer high-tempo music, and women listen to music more often than men (Laukka & Quick, 2013).

Upbeat music genres and slow tempo music genres also vary from person to person. It can be said that positive findings will be obtained by choosing the right decibel and music types such as pop, rock, remix, etc. Such activities are an important factor in reducing the anxiety levels of the athletes before the competition and during the competition and keeping their competition performance at an optimal level (Gönen & Güçlü, 2019).

Suggestions

The music factor can be used to balance the recovery level after training, which provides concentration and relaxation for the athletes in taekwondo, karate competitions, poomsae, and kata competitions and training, which requires great motivation. If the types of music to be listened to by the athletes are chosen correctly in a way that appeals to them, the athletes can be able to increase their performance and concentrate by making good use of the music. With the correct music, the effects on physiological parameters such as agility, strength, and endurance states and heart rate, body temperature can be investigated in elite sports athletes in different branches.

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The Place of Non-Governmental Organizations in the Turkish Education System According to Social Studies Teachers

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Abstract
In this research, the place of non-governmental organizations in the Turkish education system was tried to be determined according to the opinions of social studies teachers. Phenomenology design was used from qualitative research methods. The study group of the study consists of 37 social studies teachers selected from schools in Hatay city center through purposeful sampling. Four open-ended questions prepared to collect data were asked to social studies teachers for their opinions. In the analysis of the obtained data, the content analysis method used in qualitative analysis researches was applied and themes were created by grouping according to the similarity of the expressions. The teacher's views that stand out in each theme are reflected in direct quotes. According to the results obtained from the opinions of social studies teachers at the end of the research; It was concluded that non-governmental organizations are necessary but not sufficiently supported by the society, and that non-governmental organizations are not sufficiently involved in education policies and practices, that they remain insensitive in solving the problems related to education and that they cannot express these problems sufficiently.

Keywords: Civil Community Organization, Social Studies, Non-Governmental Organizations Educational Relationship, Teacher Opinion

1. Introduction

1.1 Introducing the Problem

With the social changes in recent years, the phenomenon of civil society has started to have a wide range of spread from economy to politics, from culture to social life. For this reason, individuals need to take into account civil organizations, which can also be referred to as non-state social organizations, in order to better perceive the events (Talas, 2011). These organizations are known by different names in different parts of the world.

Organizations that are generally defined as Non Governemental Organizations (NGOs) in Europe and Public Voluntary Organizations (PVOs) in the USA are referred to as non-governmental organizations (NGOs) or non-governmental organizations (NGOs) in Turkey. However, civil society organizations, lobbies, political groups,

associations, trade unions, chambers, etc. In general, it is possible to see different names such as pressure or interest groups in the political decision-making process. "Non-governmental organizations are voluntary organizations whose members are primarily engaged in non-state activities and through these activities protect their own identities by applying pressure and control over state institutions" (Keane, 1994). Talas (2011) defined non-governmental organizations as voluntary organizations that carry out a number of political, cultural, economic and social activities outside the state organization. Habermas (1999) defined non-governmental organizations as "structures in which people come together outside the official sphere to form groups, to produce social relations by voluntarily coming together outside the sphere of influence and economic sphere of the state." Uğur (1998) and Şirin (2008) define the structures and activities consisting of associations, foundations, civil initiatives, platforms, relationship networks and the like that are formed by citizens in the field other than the legal, administrative, productive and cultural organs of the state by coming together on a voluntary basis with the aim of common view, common interest, common sensitivity, common demand, etc. as non-governmental organizations.

Especially in the 18th and 19th centuries, the official state organization called the public sphere and the bourgeois class, which was a dominant mentality over the state, had an influence on many points of social life. A single understanding of publicity has been tried to be established. The struggle in many areas such as democracy, multicultural life, human rights has led to the acceleration of the birth and development of civil society organizations expressed as civil society, non-governmental society, 3rd class sector (Doğan, 2000). In line with these developments, with the 20th century, civil society organizations in the west have started to increase both in terms of diversity and numbers. The fact that participatory democracy came to the fore after the 1950s, the threat to humanity by two great wars, the imbalance caused by capitalist life are shown among the reasons for the rapid emergence of civil organizations. Associations, foundations, voluntary public activity organizations, trade unions, tradesmen and commercial organizations, cooperatives are among the civil organizations that are rapidly multiplying and becoming effective. The reaction to the emergence of non-governmental organizations only against the inadequate functioning of the state administration cannot be accepted as the only reason. In addition, especially since the middle of the 20th century, the emergence of civil society organizations has gained rapid momentum with the effect of the increasing understanding of participatory democracy and the accumulation of knowledge (Çankaya, 2005).

Researches on civil society in Turkey reveal that there is a civil society that dates back to the Ottoman period and the republican years and is identical to our own culture. In the report prepared by the World Bank on NGOs in Turkey in 1997; It is stated that civil society in Turkey developed with the concept of volunteerism and that this was a process of about 700 years dating back to the foundation years of the Ottoman Empire. However, as in many countries of the world, it is possible to say that the concept of civil society was more popular in Turkey after 1980. Civil society organizations operating in many fields from economic field to politics, from education to law exploded after 1980 and started to form a basis for pluralism (Çaha, 2000). New organizational activities such as civil education centers, family counseling centers, private schools, private kindergartens, foundations and associations, solidarity institutions, project and entrepreneurship centers, which gained momentum rapidly after the 1990s in Turkey and accelerated after the 80s, are accepted as indicators that civil social understanding has begun to gain importance (Cahaha, 2000; Cankaya, 2005).

In recent years, the activities of civil organizations have increased and they have started to play a more important role in society by diversifying their activities (Lee, 2010). When we look at the civil organizations operating today, it is possible to see that they have emerged in a wide variety of scenes. For example, they have roles that share political power, and it is possible to see them in multifaceted projects such as projects to protect nature, environment and animals, European Union projects, projects to protect street children, employment projects for young people, projects on women's rights and violence against women, etc. However, Tekeli (2000) examined the characteristics of NGOs under four main headings. These are;

- NGOs are founded on volunteering,
- Contribute to social development,
- Being built on horizontal relations,
- He explained that they are clear and concentrated organizations.

These features are the features of NGOs; It is clearly understood that it should be in a structure that will appeal to a certain subject, field or professional groups in order to contribute to the development of society and the solution of problems and to help individuals protect their rights. Since non-governmental organizations are established for different purposes, individuals become members of these organizations for different reasons. Yılmaz (2004) aims to define the two main objectives of non-governmental organizations; rights-oriented organizations and community service organizations.

Organizations for the Acquisition of Rights: These are organizations that aim to protect the rights and interests of the individual against the authority of the state. For this purpose, non-governmental organizations can be classified as trade unions, associations, professional organizations and professional chambers.

Community Service Organizations: These are the organizations formed by individuals without any distribution of rights with the state, without considering any benefit, in order to contribute to the society by serving in their own fields. Such organizations are called voluntary organizations/organizations. Environmental organizations, charities, development and beautification associations, school associations and foundations can be given as examples of this category.

The factors that cause the rapid development of non-governmental organizations in terms of economy, education, law, political, socio-cultural and human values are listed as follows according to Özdemir (2002) and Çankaya (2005):

- Activities to eliminate the gaps between employers and employees that emerged with the industrial revolution,
- Inadequate public sectors in the face of today's information technology,
- Increasing interaction between people with developing communication technologies in the globalizing world,
- Efforts to ensure that the whole society benefits equally from public services,
- Increasing the imbalances in the economic field in the world,
- Ensuring organized participation in the decision-making process in many areas of society and developing common responsibility,
- National and international activities of value-oriented organizations,
- Increasing peace efforts in the world,
- Development of global governance understanding,
- Instead of bureaucratic organizations, organizations that emphasize human relations and have a flexible structure are rapidly adopted.

NGOs have gained importance in terms of creating a democratic and transparent society, reconciling the views of different interest groups, and ensuring that society that faces new technologies and globalization pressures keeps pace with change. In recent years, non-governmental organizations have an important position in the maintenance and realization of democratic life all over the world (Gözübüyük, 2002).

The fact that NGOs influence decisions at the international level reveal the importance of these organizations. They play an important role in determining the course of political and economic decisions to be taken by forming public opinion and reaching large masses of voters. So much so that they are able to achieve an important position in international agreements and agreements on many issues, from sabotaging multilateral investment agreements to news of environmental disasters, to achieve the results they want. These structures sometimes even have the opportunity to reach the power to deliberately mislead the public (Rugman, 2000). Since they have the feature of being organizations that directly contribute to the development of citizenship awareness by raising awareness of individuals in society, participation and development in these organizations should be supported by the state.

It provides information to the government that the participation of NGOs in this process is necessary for governments to develop appropriate policies. It also monitors the process by establishing pressures in the implementation of the laws and plays a role in supporting government policies in line with the interests of society.

In most developing countries, NGOs have programs that complement policy objectives and government programs. A close working relationship between governments and NGOs emerges in the development of these policies (Ghaus-Pasha, 2005).

1.2 Discover the Importance of the Problem

NGOs play a variety of roles in supporting educational services. Some civil society organizations aim to contribute to the development of education by putting pressure on governments to fulfill their responsibilities related to education (Rose, 2009). In our country, non-governmental organizations are thought to have an impact on education-related studies. The most obvious example of this is the inclusion of the opinions of non-governmental organizations as well as universities, institutions and organizations and the central and provincial organizations of the Ministry of National Education in the National Education Councils (Board of Education [TTKB], 2010). In the study conducted by Eraslan (2011), it was stated that there are 23 education unions organized in the field of education, 909,168 people work in this business line and 524,484 people are members of these unions. According to the Law on Public Servants' Unions and Collective Bargaining, unions affiliated to the "Education, Training and Science Services" branch; All employees affiliated with the Ministry of National Education (MoNE), the Institute of Public Administration of Turkey and the Middle East (TODAİE), the Council of Higher Education (YÖK), the Interuniversity Council (ÜAK), the Student Selection and Placement Center (OSYM), the Higher Technology Institutes, the Higher Education, Credit and Dormitories Institution (YURTKUR) have the right to become members. When the aims of education unions in general are examined, the basic elements of universal trade unionism, such as solidarity, unity, protection and development of rights and interests, are also included. In general, when the activities of non-governmental organizations related to education in Turkey are examined, it can be said that they coincide with the education policies of the state (Çakır, 2006; The Sun and the Sun, 2003). When we look at the educational services of some of the non-governmental organizations, it can be said that they also provide important services in the field of education. In particular, non-governmental organizations such as foundations and associations have turned to educational activities. Thus, their impact on the education system cannot be denied as they contribute to the development of Turkish democracy (Tezcan, 2003).

NGOs, which are defined as the structure in which individuals voluntarily come together for purposes such as common view, common interest, common sensitivity, common demand, etc., are thought to express the demands of the society and individuals in the problems and developments related to education. In this direction, it is important to determine the opinions of teachers about what teachers think about non-governmental organizations in our country and the place of NGOs in education. Another factor that makes the study important is that there are few studies in the literature on the place of NGOs in education. Within the framework of this importance, teachers' opinions about the place of non-governmental organizations in education constitute the purpose of the research. For this purpose, the following questions were answered:

1. Is there a need for non-governmental organizations in the Turkish education system?
2. Are the non-governmental organizations in the Turkish education system adequately supported by the society?
3. Are non-governmental organizations included in educational policies and practices in the Turkish education system?
4. Do non-governmental organizations adequately express the problems of society related to education in the Turkish education system?

2. Method

In this research, where teachers' opinions about the place of NGOs in the Turkish education system are tried to be determined, the phenomenology design, one of the qualitative research methods, was used. The phenomenon science pattern focuses on phenomena that we are aware of but do not have an in-depth and detailed understanding of. It is also an appropriate research method for investigating phenomena that are not completely alien to us but whose meaning we cannot fully comprehend (Yıldırım and Şimşek, 2018).

2.1 Working Group

In determining the study group, the easily accessible situation method included in the purposeful sampling methods was used. This sampling method gives the researcher speed and practicality. Because in this method, the researcher chooses a situation that is close and easy to access (Şimşek and Yıldırım, 2018). The study group consists of 37 teachers working in secondary schools (n=37) in the city center of Hatay. The demographic characteristics of these teachers are shown in table 1.

Table 1: Frequency table of teachers according to different variables

Gender		Chile	Village		Sum
	N	20	17		37
	%	54.0	46.0		100
Learning		License	Graduate		Sum
State	N	27	10		37
	%	73.0	27.0		100
Seniority		1-3	4-6	7 years +	Sum
	N	11	13	13	37
	%	30.0	35.0	35.0	100

2.2 Data Collection Tool

Six open-ended questions were prepared to determine teachers' opinions on the contributions of non-governmental organizations to education. In the preparation of the questions, the existing studies in the literature were examined and presented to three expert opinions. In line with the expert opinions, two of the six questions in the interview form were removed from the form on the grounds that they were similar to the other questions. Interview forms containing the remaining four questions were given to the teachers, necessary explanations were made and they were asked to respond to the questions in these forms. These interview forms filled out by social studies teachers were accepted as the main data source of the research.

2.3 Analysis of Data

In the analysis of the data obtained by taking into account the opinions of social studies teachers, the "content analysis" method used in the analysis of qualitative researches was used. In content analysis, the basic process is to bring together similar data within the framework of certain concepts and themes and to organize and interpret it in a way that the reader can understand. The main goal of content analysis is to reach concepts and relationships that can explain the collected data. In this way, data are tried to be defined and facts that may be hidden in the data are tried to be revealed (Yıldırım and Şimşek, 2018). In the study, firstly, the responses of social studies teachers to the interview form were examined and all the collected data (37 interview forms) were accepted as valid. Later, analyzes were made on these interview forms and a word document was created for each question by giving the number to each of the forms sequentially and the answers transferred to the computer environment were analyzed with the statistical data analysis program Nvivo package program (demo version). In the analysis of teacher opinions, themes were created by grouping according to the similarity of the expressions and teacher opinions were placed in appropriate themes. In addition, frequency values related to teachers' opinions were determined in the study. The opinions of the participants were coded as Ö1, Ö2,...,Ö37 and the participants' opinions that attracted attention in each theme were included with direct quotations. In order to measure the reliability of the research, expert opinion was consulted to see whether the answers to four different questions obtained from their opinions represented the theme in which they were placed. In this respect, the answers obtained from the questionnaires requested to be examined by the expert and the list of themes created by the researcher were matched in such a way that no answer was left out. In addition, to measure the reliability of the research, Miles and Huberman (1994) developed; The formula Consensus Percentage (P) = Consensus (Na) / (Consensus (Na) + Disagreement (Nd)) X 100 was used. In qualitative studies, reliability is ensured when the agreement between expert and researcher evaluations is 90% or more (Saban, 2008). Accordingly, the expert whose opinion was consulted placed only nine statements in a different category from the researchers. After this calculation, the reliability of the research; P =

223 / (223 + 9) X 100 = 96%. In this way, the internal validity of the research was ensured. In order to ensure the external validity of the research, the sample of the research was selected in a way to allow generalization.

3. Findings and Interpretation

In order to examine the general opinions of social studies teachers regarding the determination of the place of non-governmental organizations in the Turkish education system, the main themes and categories related to these main themes were formed by taking into account the answers given to four different questions in the interview form. The main themes related to the necessity of non-governmental organizations related to the question "Is there a need for non-governmental organizations in the Turkish education system?", the categories and frequency values depending on the main themes are shown in Table 2.

Table 2: Is there a need for non-governmental organizations in the Turkish education system?

	als	**f**	**%**
	Common sound	9	24.0
	Democracy	7	18.0
	Organization	6	16.0
Has	Self-expression	4	11.0
	Raising public awareness	3	8.0
	Modernity	2	6.0
	Assistance to the state administration	1	3.0
		32	86.0
	nials	**f**	**%**
None	Ideological thought	4	11.0
	Ineffectiveness	1	3.0
Sum		5	14.00

When the obtained data were examined, it was seen that the number of teachers who argued that NGOs were necessary (f = 32) was higher than the number of teachers who argued that they were unnecessary (f = 5). In the views of teachers who argued that NGOs were necessary, statements about the categories of common voice (f = 9) and democracy (f = 7) were more often encountered. It is also noteworthy that there are repeated views in the categories of organization (f = 6), self-expression (f = 4), raising public awareness (f = 2), modernity (f = 2) and assistance to state administration (f = 1). In the views that argued that it was not necessary, ideological thought (f = 4) and the ineffectiveness of NGOs (f = 1) were among the repeated statements. Sample statements about teachers' views on the necessity of NGOs are given below:

Yes, because...

Ö2: "They contribute to the spread of democracy and the achievement of rights." (Democracy)

Ö9: "As a matter of democracy, there must be an organization that defends rights." (Organization)

Ö12: "Since NGOs are the common voice of individuals, problems are easily expressed." (Common voice)

Ö15: "It is necessary to be a modern and democratic society." (Modernity)

Ö17: "I believe that it is necessary for different ideas to be expressed." (Common voice)

Ö18: "I strongly believe that the more NGOs there are in a country, the better the democracy works in that country, the easier the country's problems will be solved." (Democracy)

Ö119: "I believe that it is necessary to protect rights or raise awareness on any issue in order to bring disruptions to the forefront." (Public awareness)

Ö21: "I think it is useful in terms of raising public awareness." (Public awareness)

Ö23: "I think of it as an environment where the individual can express himself better in line with his own interests and needs." (Self-expression)

Ö37: "It is necessary for us to adapt more easily to innovations by being in practice, so that it can more easily articulate the deficiencies in the required area." (Modernity)

The main themes created for the question "Do you think that the non-governmental organizations in the Turkish education system are adequately supported by the society?" the categories and frequency values related to the main themes are shown as in Table 3.

Table 3: Are the non-governmental organizations in the Turkish education system adequately supported by the society?

	als	**f**	**%**
Not supported	Lack of organizational awareness	12	33.0
	Ideology	7	18.0
	Insensitivity	6	16.0
	Shyness	5	14.0
	Moving away from their goals	3	8.0
		33	86.0
	nials	**f**	**%**
Supported	Raise issues	3	8.0
	ideology	1	3.0
Sum		5	11.00

In addition to the teachers' opinions that non-governmental organizations are not supported by the society (f = 33), there were teacher opinions (f = 4) that they are not supported. Of the views that argued that they were not supported, expressions related to the categories of lack of organizational consciousness (f = 12), ideology (f = 7), insensitivity (f = 6), timidity (f = 5) were frequently encountered, while statements about the category of moving away from the goals of NGOs (f = 3) were less repeated. It has been mentioned by a small number of teachers that non-governmental organizations are supported by the society. The categories formed under this view are; it was seen as voicing problems (f = 3) and ideology (f = 1). Sample statements regarding teachers' views on the state of public support of NGOs are given below:

No, because...

Ö2: "There is not enough support because the public is not made aware." (Lack of organizational awareness)

Ö3: "Our people are not sensitive about NGOs." (Insensitivity)

Ö5: "They are not supported much because they are close to political parties." (Ideology)

Ö8: "Individuals have not been made aware of NGOs." (Lack of organizational awareness)

Ö12: "People are afraid to side with NGOs." (Shyness)

Ö15: "Our people are not very aware of this issue. Necessary introductions can be made and disseminations can be made about this issue." (Lack of organizational awareness)

Ö24: "Unfortunately, the people of our country are indifferent to these organizations." (Insensitivity)

Ö27: "People are afraid to be given an ideological stigma." (Shyness)

Ö35: "The supports are more aimed at political and ideological views." (Moving away from purpose)

The main themes related to the question "Are non-governmental organizations included in the education policies and practices in the Turkish education system?" asked of the teachers, the categories and frequency values related to the main themes are shown in Table 4.

Table 4: Are non-governmental organizations included in educational policies and practices in the Turkish education system?

	als	**f**	**%**
Not included	Governments ignoring civil society organizations	9	24.0
	ineffectiveness of non-governmental organizations	5	14.0
	moving away from the purpose of non-governmental organizations	3	8.0
	Governments implementing their own education policies	2	6.0

	Moving away from their goals	1	3.0
		20	53.0
	nials	**f**	**%**
	Problems with education		24.0
Taking place		9	14.0
	In determining the curriculum programs	5	
	In development plans	3	8.0
Sum		17	46.0

It was observed that the number of teachers who thought that NGOs were not involved in education policies and practices (f = 20) was higher than the number of teachers who thought they were involved (f = 17). In opinions that think that they are not included in education policies and practices; The categories of governments ignoring NGOs (f = 13), ineffectiveness of NGOs (f = 12), drifting of NGOs from their purpose (f = 8), and governments implementing their own education policies (f = 5) were frequently expressed. When the opinions of teachers who think that NGOs are involved in education policies and practices are examined, it is seen that frequent opinions are expressed in the categories of problems related to education (f = 12), in the determination of curriculum programs (f = 6) and in development plans (f = 3). According to teacher views, these categories are the areas in which NGOs take part in educational policies and practices. Sample statements regarding teachers' views on the involvement of NGOs in education policies and practices are given below:

No...

Ö2: "Since NGOs are like extensions of political parties, they do not object to the decisions taken by the governments or the governments do not take into account those who object." (Governments disregarded)

Ö4: "Because even if the opinions of NGOs are taken, they are not given importance. They read what they know." (Governments implementing their own policies)

Ö7: "Because governments in our country do not take NGOs into account because they have an understanding that we have done it." (Governments disregarded)

Ö8: "Instead of taking the opinions of NGOs, the policies of governments are carried out." (Governments implementing their own policies)

Ö11: "Even if they are in the environment where decisions are made, they are ineffective." (Ineffectiveness of NGOs)

Ö14: "We could not see them in these radical reforms in the 4+4+4 system." (Ineffectiveness of NGOs)

Ö18: "NGOs are in a race to put themselves at the forefront instead of fulfilling their duties." (Moving Away from Your Purpose)

Ö19: "NGOs are doing politics instead of their main duties." (Moving Away from Your Purpose)

Yes.

Ö27: "They often raise the problems of educators." (On problems related to education)

Ö32: "There are many educational institutions. There are organizations to explain the deficiencies in the system." (On problems related to education)

Ö34: "In the development of educational programs and curricula.." (In the curriculum)

Ö36: "I think that especially in development plans and councils, the opinions of non-governmental organizations are definitely taken." (Development plans)

The main themes created for the question "Do non-governmental organizations adequately express the problems of the society related to education in the Turkish education system?", the categories and frequency values related to the main themes are shown in Table 5.

Table 5: In the Turkish education system, do non-governmental organizations adequately articulate the problems of society related to education?

	als	f	%
Does mention	Insufficient attention to education	9	24.0
	Ideology	6	16.0
	Apathy for non-governmental organizations	5	14.0
	Constantly changing education policy	2	6.0
	Moving away from their goals	1	3.0
		23	62.0
	nials	**f**	**%**
Voices	As long as the opinions of non-governmental organizations are taken		18.0
	Civil society organizations to demonstrate their interest in educational issues	7	14.0
		5	
		12	32.0
Partially expresses		2	6.0
Sum		2	6.0

In addition to teachers who think that NGOs do not raise problems related to education (f = 25 and (f = 12), there are teacher opinions who think that they partially express these problems (f = 2). Of the views arguing that NGOs do not raise issues related to education, frequent opinions have been expressed in the categories of lack of importance given to education (f = 9) and ideology (f = 6). The apathy of NGOs (f = 1), the ever-changing education policies (f = 2 categories were also found to be opinions. On the other hand, teachers noted that NGOs raise issues as long as their own ideas are taken (f=7) and to show that they are interested in educational issues (f=5). Sample statements regarding teachers' opinions on NGOs' situations in which they raise problems related to education are given below:

No...

Ö1: "It doesn't. Because NGOs in our country are a continuation of a political ideology." (Ideology)

Ö3: "NGOs do not raise the problems related to education very much. A new education policy is constantly being developed. Education has become a summer-puzzle board." (Constantly changing education policies)

Ö5: "I believe that NGOs established in relation to education are distant and insensitive to problems." (Apathy of NGOs)

Ö7: "The views of NGOs are not taken into account." (Ignoring NGOs)

Ö9: "At least even if they cannot fully replace it, they express their interest, they express their interest." (To show that they are interested)

Ö12: "Since the country's agenda is quite intense, education cannot take its turn." (Not giving enough importance to education)

Ö14: "NGOs cannot say anything because of the ever-changing education policies." (Constantly changing education policies)

Yes.

Ö25: "At least they make it clear that they are interested."

Ö31: "NGOs raise issues related to education, but governments ignore them and implement their own policies."

Ö32: "They speak the words as much as they pass."

4. Results and Recommendations

When the studies on NGOs both in the world and in our country are examined; it has been observed that research emphasizing the importance and necessity of these organizations has been limited.
Research shows that the importance and necessity of NGOs in all sectors are increasing day by day (Ghaus-Pasha, 2004; Lee, 2010; Özdemir, Başel and Şenocak, 2009; Talas, 2011). This importance and necessity are also supported by the opinions of teachers in the education sector. While the vast majority of teachers feel that non-governmental organizations are necessary, few teachers feel that they are unnecessary. In the views of teachers who argue that NGOs are necessary; They expressed their opinion that NGOs are the common voice of society and that NGOs should be a requirement of democracy. In addition, it is noteworthy that the views of organization, self-expression, raising public awareness, modernity and helping the state administration are repeated to a lesser extent. In the study conducted by Taş (1995), he expressed the expectations of teachers from non-governmental organizations related to education as helping the Ministry of National Education in the solution of the education system. In the research conducted by Karakaya (2001), it was stated that teachers are organized to participate in the solution of general problems in the education system and in decisions related to education. These results support the results of our research.

On the other hand, it was seen that many teachers expressed opinions that non-governmental organizations were not supported by society, while a small number of teachers expressed the opinion that they were supported. From the opinions of teachers who argued that they were not supported, it was seen that expressions about the lack of organizational awareness in individuals, the proximity of NGOs to political and ideological activities, and the insensitivity and timidity of individuals towards NGOs were frequently used. A small number of teachers who stated that non-governmental organizations are supported by society; They stated that it was easier to express problems with NGOs than to individually and that they were supported for ideological reasons. In the study conducted by Kahyaoğlu and Kaya (2012); While teacher candidates have sufficient information about the duties of non-governmental organizations related to the environment, it is noteworthy that they do not recognize some of them. This situation also reveals that although non-governmental organizations include activities for environmental education, they have not achieved their purpose in the national sense. In addition, in the research conducted by Aksu (1998); teachers defined the inadequacy of legal regulations on the establishment and work of unions, the inadequacy of the work of unions on professional development and the ineffectiveness of trade union decisions as obstacles to organizing. According to the teachers' views, this can be interpreted as the inability of the education unions to fulfill the functions they undertake. These results support the findings of the research.

In addition, many opinions that think that NGOs are not involved in education policies and practices have been reported by teachers. In opinions that think that it is not included; the fact that governments do not take NGOs into account, the ineffectiveness of NGOs, the drift of NGOs from their purpose, and the views that governments implement their own education policies are expressed by teachers. When the opinions of teachers who think that NGOs are involved in education policies and practices are examined, there are opinions of teachers who think that they are involved in solving problems related to education, determining curriculum programs and development plans. In the research conducted by Top (1999), he investigated the participation of the education union in decisions. As a result of the research, it was determined that the existing education unions agreed with the positive decisions taken by the ministry center, but they put an annotation against the unilateral decisions taken and rejected them. This conclusion supports the views that the unions agreed with the decision.

The majority of teachers stated that NGOs did not raise issues related to education, while a small number of teachers stated that they did or partially raised them. The teachers, who argued that they did not express it, stated that education was not given enough importance and that NGOs were indifferent and inadequate in the problems related to education. In addition, NGOs' disregard for educational problems and ever-changing education policies are among the common reasons. Stating that NGOs express the problems related to education, teachers say that NGOs are concerned with education.

The Place of Non-Governmental Organizations in Education. they stated that they raised educational issues as long as their ideas were taken in the studies or to show that they were interested. Mundy and Murpy (2001) stated in their study that NGOs play an oppressive advocacy role in order to voice their problems related to education.

This view does not coincide with the views of many teachers who stated that NGOs did not raise problems related to education in our study.

In the literature, it is seen that there are many studies on education and non-governmental organizations. In his study titled "The Effects of Education Unions on the School Development Process" conducted by Gemici (2002), it was concluded that those who were union members emphasized more that education unions had a positive contribution to the school development process than those who did not. In the study conducted by Şirin (2008) titled "The Political Functions of Education and the Analysis of the Views of Civil Society Organizations in Turkey on These Functions," we investigated the level of participation of NGOs in the decision process or decision to be taken in education and it was seen that there were differences in the perceptions of NGOs. It concluded that the majority of NGOs expressed their opinion that they partially participated.

Although the Ministry of National Education included non-governmental organizations in its educational activities, this study revealed that non-governmental organizations did not contribute enough to education and that society did not support non-governmental organizations sufficiently. It is thought that eliminating these deficiencies on the way to becoming a democratic and developed society will benefit society, individuals and non-governmental organizations. What non-governmental organizations can do to eliminate these deficiencies can be suggested as follows:

- To inform the education workers by clearly expressing their aims and activities through meetings or publication organs,
- To raise awareness of teachers about organizing,
- To take the opinions of the society in the changes and decisions to be taken regarding education and to convey them to the relevant management organs,
- Individuals should not engage in political and ideological activities that cause timidity about their participation and contribution to NGOs.

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A Study on Scale Adaptation to Determine Classroom Learning Environment Perceptions

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Abstract
This study aimed to perform a scale adaptation to determine students' perceptions of a classroom learning environment. The sample of the study consisted of 337 students for exploratory factor analysis and 1,639 students for confirmatory factor analysis. The scale known as My Class Activity adapted in this study was developed by Gentry and Gable (2001). The adapted scale is a five-point Likert-type scale consisting of four factors (interest, choice, challenge, and enjoyment). The scale was previously adapted to Turkish culture by Deniz and Saranli (2017), and in this study, we readapted the scale to Turkish culture. Exploratory factor analysis and reliability analysis of the data obtained from the scales were completed with SPSS software and confirmatory factor analysis with AMOS. As a result of the analyses of the adapted scale, it was decided to remove the challenge dimension. After the validity and reliability studies obtained from the three-factor (interest, choice, enjoyment) structure of the scale, it was concluded that the scale could be used in Turkish culture.

Keywords: Learning Environment, Perception, Validity, Reliability

1. Introduction

In-class learning environments are the main environments where teaching processes are shaped. The learning environment is structured by factors that include students, teachers, and teaching activities (Jackson et al., 1999; Gentry, Rizza, & Gable, 2001; Graetz, 2006; Rayneri, Gerber, & Wiley, 2006). Learning environments that facilitate the interaction of these factors contribute to creating a positive classroom climate (Adıay, 2011). This is because the personal and behavioral characteristics of individuals interact with environmental influences (Bandura, 1986), and the learning environments are social environments that require students to establish interactions (Graetz, 2006). Given the fact that teachers and students, among the main factors in the learning environment, can directly affect each other in the process, the importance of classroom activities is also revealed. When previous studies in the literature are reviewed, it is observed that there are findings supporting the fact that structured learning environments contribute to the motivation of students (Tremblay-Wragg et al., 2019; Sani, Rochintaniawati & Winarno, 2018). The perception of the learning environment is as effective on the learning

outcomes as the structuring of the learning environment. Patrick et al. (2011) stated that students' perception of a harmonious relationship with their teachers increases students' motivation. This situation also positively affects academic success in the process (Cayubit, 2022; Church, Elliot, & Gable, 2001; Ogundokun, 2011; Yerdelen & Sungur, 2019). In two studies they conducted among undergraduate students, Church, Elliot, and Gable (2001) found an indirect relationship between perceived classroom environment and academic achievement. Wang and Holcombe (2010) stated that students' perceptions of the school learning environment affect academic achievement. In their study, Yerdelen and Sungur (2019) revealed that the perceived classroom learning environment had significant predictive power in explaining students' achievement goals for science learning. In this respect, it is seen that especially students' interest, attitude, behavior and motivation towards activities in classroom learning environments are considered to be among the factors affecting the learning process (Cayubit, 2022.).

Determining the interests, attitudes, motivations and behaviors of the students towards the learning process and then revealing the missing aspects contribute positively to the learning process. In this direction, necessary arrangements should be made in the learning environment to increase academic success, which is considered as an output of the learning process. However, it is not correct to expect each student to show similar characteristics in the learning environment. In this case, it is necessary to reveal the characteristic differences of the students regarding the learning environment. Identifying differentiated groups in the classroom is seen as the first step in responding to the needs of these groups.

Gifted students are one of the differentiated groups encountered in the classroom. Gifted individuals have some differences in terms of characteristics such as learning capacity, academic achievement, attention, motivation, mental risk-taking, interests, and problem-solving skills (Akkaya, 2016; Davis & Rimm, 1998; George, 1995; Jackson & Klein, 1997; Renzulli, 2002). These differences cause differentiation in the perception of the learning environment. Determining the interests, attitudes and motivations of gifted students, who are among the students with special needs, and responding to the learning needs of these students is important in terms of ensuring class integrity. It is necessary to create a suitable learning environment to provide gifted students with appropriate education in an effective manner (Thomson, 2010). It is known that it becomes easier for gifted children to display the high-level performance they have when they are provided with suitable learning environments (Sak, 2017). In this context, when we examine studies on gifted students, it is foreseen that the perception of learning environment can be associated with academic success and motivation (Akdağ & Köksal, 2022; Joel, 2019). In order to prevent the loss of motivation, students' needs must be met in learning environments (Snyder & Linnenbrink-Garcia, 2013). In this sense, to determine the perceptions of gifted students in the classroom as a learning environment, it is necessary to use a measurement tool. From this perspective, it is important to include gifted individuals, who can differ in cognitive, affective or psychomotor areas, in the development process of the measurement tool, as they are one of the important student groups in an inclusive learning environment.

"My Class Activities" Scale

If we look at the students' perceptions of learning environments in the classroom in general, Gentry and Gable (2001) evaluated this situation in a 31-item scale called "My Class Activities" under the factors of interest, challenge, choice, and enjoyment. In the literature, the dimensions of in-class education activities have been evaluated in different ways with different measurement tools, and the importance of these dimensions has been presented.

While students' interest in the learning environment makes teaching more effective, it also creates a suitable learning environment (Marsh & Cooper, 1981). Students who are in the position of the learner in the classroom gain more from the situations where they are at the center of attention (Tynjälä, 1999). In this context, Abrantes, Seabra, and Lages, in their study (2007,) revealed that the student's interest has the primary effect on perceived learnings followed by pedagogical effect and learning performance. Mazer (2012) stated that emotional interest is a situation that encourages students to want to learn more in a lesson. Skinner and Pitzer (2012noteded that interest supports students' emotional participation in the lesson. Some studies on the challenge dimension report that pushing the limits in the classroom helps the improvement of students (Stone & Rottier, 1996; Eccles & Midgley,

1989). It is stated that especially challenging activities contribute to developing high-level thinking skills (Alderman, 1999). The choice dimension is considered as an important fact, or especially in the motivation and success of the student (Deci, 1995; Glasser, 1996). Bandura (1997) studied the motivations of individuals who could choose and regulate themselves in achieving their goals. Eisele (1996) argued that in order to increase their motivation and learning, students should be able to have more choices in their activities. Regarding the evaluations on the entertainment dimension, Hernik and Jaworska (2018) stated that it was easier to remember the information learned at an enjoyable lesson. Goetz et al. (2006) stated that the lack of enjoyment dimension in the learning process was one of the main factors negatively affecting the achievement of educational goals.

The aim of this study was to contribute to the adaptation of the scale prepared by Genty and Gable (2001) into Turkish in order to contribute to the evaluation of the activities carried out in the classroom in different dimensions and to help teachers identify students' characteristics.

2. Research Model

This study is a methodological validity and reliability study of a measurement tool. It was carried out to adapt the "My Class Activities" scale into Turkish language. The scale was renamed Classroom Learning Environment Perceptions scale.

2.1 Study Group

The study group, whose data were collected at different times, consisted of 5th, 6th, 7th and 8th grade students in three schools affiliated with the Ministry of National Education in Malatya in 2018. A total of 337 (179 girls, 158 boys) participants were included in the exploratory factor analysis (EFA), and 1,639 participants (862 girls, 777 boys) in the confirmatory factor analysis (CFA). The convenience sampling method was used in the study to provide convenience in terms of time, effort, cost, and transportation (Cohen, Manion & Morrison, 2007; Gall, Gall, & Borg, 2007). Descriptive statistics of the study groups are given in Table 1 and Table 2.

Table 1: Descriptive statistics of the participants in the exploratory factor analysis

		n	%
Bilsem	Attending BILSEM	13	3.9
	Not attending BILSEM	324	96.1
Gender	Female	179	53.1
	Male	158	46.9
Grade	5th Grade	90	26.7
	6th Grade	129	38.3
	7th Grade	59	17.5
	8th Grade	59	17.5
	Total	337	100.0

Table 2: Descriptive statistics of the participants in the confirmatory factor analysis

		N	%
Bilsem	Attending BILSEM	75	4.6
	Not attending BILSEM	1 551	94.6
	Lost data	13	0.8
Gender	Female	862	52.6
	Male	777	47.4
Grade	5th Grade	431	26.3
	6th Grade	588	35.9
	7th Grade	340	20.7
	8th Grade	280	17.1
	Total	1 639	100.0

2.2 Data Collection Tool

As for the data collection tool, the 31-item classroom learning environment scale prepared by Gentry and Gable (2001) formed the basis of the study. However, revised and reduced to 29 items based on the version that had been adopted in China by Yang et al. (2016) with a sample (N= 943) where gifted students were also included. The reason for considering the revised version of the scale for China was that it is more up-to-date, and gifted students are also included in the sample. The response options of the 29-item Likert-type scale is "always (5), often (4), sometimes (3), rarely (2), never (1)". As the answers approach 5, students' participation in classroom learning activities increases, and as they approach 1, participation decreases. There is no question with a negative sentence root in the scale. The 4-factor structure in the version of the scale did not change. These factors are stated as "interest, choice, challenge, and enjoyment" (Gentry & Gable, 2001). These dimensions are described below:

Interest: *This sub-dimension is defined as the student's affinity for lessons, subjects and activities in the learning environment, directing his/her studies in line with the areas s/he is close to, and having positive feelings about working in these areas. In the study of Gentry and Gable (2001), it was stated that the reliability coefficient of this factor was 0.89.*
Challenge: *This sub-dimension is defined as the high-level, compelling effort that the student shows to exceed his/her own mental capacity. In the study of Gentry and Gable (2001), it was stated that the reliability coefficient of this factor was 0.78.*
Choice: *This sub-dimension is defined as the student's ability to direct several variables in the learning environment in line with his/her own will. In the study of Gentry and Gable (2001) it was stated that the reliability coefficient of this factor was 0.75.*
Enjoyment: *This sub-dimension is defined as the student's enjoyment and satisfaction with some variables (lesson, time, activity, project) in the learning environment. In the study of Gentry and Gable (2001), it was stated that the reliability coefficient of this factor was 0.92.*

In the scale adapted by Yang et al. (2016), in which gifted individuals were included in the sample, the reliability coefficients of the factors were stated as 0.88 in the dimension of interest, 0.73 in the dimension of challenge, 0.81 in the dimension of choice, and 0.91 in the dimension of enjoyment. The adaptation study of this scale was previously carried out in our country by Deniz and Saranli (2017) with 214 participants under the name of "My Class Activities". Our study is actually a re-adaptation study, and what distinguishes our study from Deniz and Saranli's (2017) study is the large sample size and the inclusion of gifted students in the sample. Another distinctive feature of the study is the grade levels of the students in the sample. While the original study was designed for use in the 6th, 7th and 8th grades, the scale was applied to the 3rd, 4th, 5th, and 6th grades in its adaptation to Chinese culture. In the previous Turkish adaptation study, it was applied to the 3rd, 4th, 5th, 6th, 7th and 8th grades, and in our study, it was only applied to the 5th, 6th, 7th and 8th graders. While determining the grade level of the study group, it was taken into account that the learning environments of the study group were differentiated by the fact that they attended basic courses such as science, mathematics and social studies until the 5th grade in a single classroom environment with their classroom teachers, and then they were taught these courses with teachers from different branches. Grade levels were determined by taking into account the variables mentioned while adapting to Turkish. Goodness of fit values in the CFA analysis of the study of Deniz and Saranli (2017) were reported as X2(426) =643.97, CFI=0.98, NFI=0.94, IFI=0.98, GFI= 0.84, RMSEA=0.049. In the study of Deniz and Saranlı (2017), the number of factors was preserved, as in other studies, and the reliability coefficient of the factors was stated as 0.86 for interest, 0.82 for challenge, 0.83 for choice, and 0.90 for enjoyment.

2.3 Data Analysis

Before determining the sub-factors and reliability levels of the measurement tool called "Classroom Learning Environment Perceptions" used in the study, the dataset was checked for any missing or wrong data. Afterwards, the validity and reliability of the data obtained from the measurement tool were tested. For linguistic and semantic validity, help was obtained from 2 language experts. The scale, which was created as a result of the translation, was evaluated with 19 students (9 defined as gifted, 10 with normal development), and necessary corrections were made in line with the opinions of language experts.

In terms of construct validity, first, an exploratory factor analysis was performed on the 29-item scale with the SPSS package program with 337 students (179 female, 158 male). In the exploratory factor analysis, without making any prediction, it is examined whether the items are well-distributed among the factors. This is a scale adaptation study, and although the factor loads are determined beforehand, it requires an objective evaluation as to whether there is any problem in the distribution of the items to the factors, since the scale is adapted to a new language and also to new students studying in a different learning environment in an educational sense.

After the exploratory factor analysis, the 18-item scale was administered to 1639 (862 female, 777 male) students in confirmatory factor analysis. In this direction, the 29-item scale was revised with exploratory factor analysis and an 18-item scale was obtained after the necessary changes were made. The data obtained in the study were analyzed with the SPSS (Statistical Package for Social Sciences for Windows 25.0) program. Afterwards, AMOS package program was used for confirmatory factor analysis.

2.4 The Findings of the Exploratory Factor Analysis

The data were evaluated using descriptive statistical methods (number, percentage, mean, standard deviation). In addition to normality tests, which determine whether the data are normally distributed or not, data can be evaluated with distribution measures such as histogram, Q-Q plot, box-plot graphics, coefficient of variation, and skewness and kurtosis (Hayran & Hayran, 2011). The normal distribution was checked with conformity tests of normality and kurtosis skewness values. Reliability analysis is carried out to control whether the statements in the scales are consistent with each other and whether all the statements measure the same subject (Ural & Kilic, 2006). In order for the tests and results to be reliable, the measurements must be reliable. In this context, the reliability of the scale was examined with the Cronbach's Alpha coefficient.

Table 3: Results of the Exploratory Factor Analysis for Classroom Learning Environment Perceptions

Factor	Items	Factor Load
Interest	1	0.664
	2	0.683
	3	0.553
	4	0.665
	5	0.428
	8	0.521
Choice	18	0.702
	19	0.664
	20	0.630
	21	0.530
	22	0.609
	23	0.739
	24	0.773
Enjoyment	25	0.736
	26	0.831
	27	0.736
	28	0.824
	29	0.662
	Variance Explained	52.528
	KMO=0.909, Bartlett's Test $X^2(153) = 2247.342$, p=0.000*	

As shown in Table 3, the "Classroom Learning Environment Perceptions" scale was developed with four dimensions. To reveal the factor pattern of the scale, an Exploratory Factor Analysis was performed. To test the suitability of the sample size for factorization, the Kaiser-Meyer-Olkin (KMO) test was applied before the exploratory factor analysis. The KMO value was found to be 0.909 as a result of the analysis. In line with this finding, it was concluded that the sample size and items were “adequate” for factor analysis. Additionally, when the results of the Bartlett’s Sphericity test were examined, it was observed that the Chi-square value was significant ($X2(153) = 2247.342$, $p<0.01$). Accordingly, it was assumed that the data had a multivariate normal distribution. After confirming the suitability of the data for factor analysis, an exploratory factor analysis was performed by using Principal Components Analysis to examine the factor structure of the scale.

As a result of the factor analysis, item 10 with a factor load of less than 0.40 and the items 16, 15, 13, 12, 11, and 7 loaded on several factors were excluded from the analysis. In the exploratory factor analysis, since one of the dimensions consisted of two items, the structure was examined in three dimensions. As a result of the factor analysis, items 9 and 14 with a factor load of less than 0.40 and the items 7, 6, and 17 that overlapped in several factors were excluded from the analysis. It was determined that the scale had an ideal distribution in its final state. Therefore, the relevant scale was accepted with three dimensions, and it was determined that the factor structure was acceptable. The scale developed according to the results of the exploratory factor analysis explains 52.528% of the total variability.

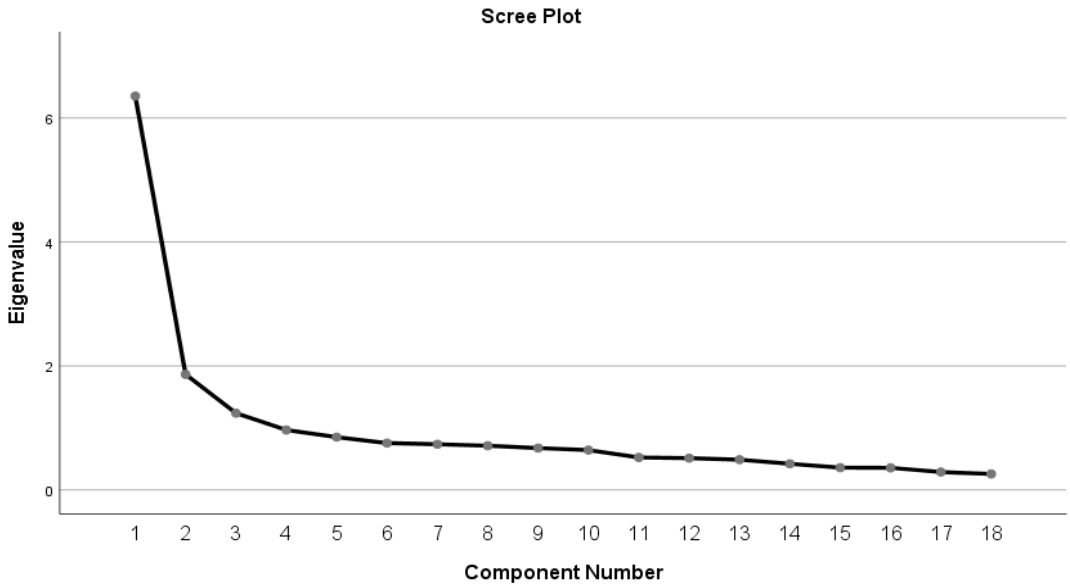

Figure 1: Scree plot explaining the factor number of Classroom Learning Environment Perceptions scale

In Figure 1, the horizontal axis represents the number of factors, and the vertical axis shows eigenvalues in the graph. It is observed that the acceleration in decrease stops after the first point (Cokluk, O., Sekercioglu, G. & Buyukozturk, S. ,2012). From the third point onwards, the decrease reflects the degree of contribution to the variance. Given the eigenvalues and percentages of variance and the data obtained from the graph, it was decided that the scale should be limited to three factors in line with the exploratory factor analysis (Table 4).

Table 4: The results of the item analysis for Classroom Learning Environment Perceptions scale

	r	**t (Upper 27%-Lower 27%)**	**p value (Upper 27%-Lower 27%)**
I1	0.464	-10.325	0.000*
I2	0.383	-8.171	0.000*

I3	0.488	-10.010	0.000*
I4	0.376	-7.316	0.000*
I5	0.509	-11.868	0.000*
I8	0.510	-10.859	0.000*
I18	0.373	-7.504	0.000*
I19	0.391	-8.114	0.000*
I20	0.417	-8.967	0.000*
I21	0.472	-10.253	0.000*
I22	0.449	-10.263	0.000*
I23	0.578	-12.828	0.000*
I24	0.642	-15.751	0.000*
I25	0.587	-16.180	0.000*
I26	0.703	-15.893	0.000*
I27	0.699	-14.511	0.000*
I28	0.651	-16.334	0.000*
I29	0.618	-13.176	0.000*

*n = 337, ** n1 = n2 =91;*
*r= Item Total Score Correlation * Significant values for p < 0.05.*

Table 4 shows the independent group t-test results showing the distinctiveness and the total correlation of all items. The minimum value required for the item-total test correlation to be sufficient is specified as 0.30 (Brinkman, 2009). Among the scale items whose correlations we examined, those with a correlation below 0.30 should not be included in the analysis. The item-total test correlation values of the answers given by the participants to the scale questions were examined, and it was determined that there were no items below 0.30. The item-total test correlation values of all items vary between 0.373 and 0.703. As seen in the item-total test correlation table, it was determined that all items were related to each other. To determine the distinctiveness of the items in the scale, the raw scores obtained from the scale were ranked from the largest to the smallest, and the mean scores of the groups in the lower 27% and upper 27% were compared with the independent group t-test. As a result of the comparison, it was observed that there was a statistically significant difference between the means of the item scores in the lower and upper groups. From this point of view, it can be said that the scale is distinctive in terms of measuring the desired quality.

Table 5: Reliability analysis of Classroom Learning Environment Perceptions scale

Scale and sub-dimensions	Number of Items	Cronbach's Alpha
F	18	0.887
F1: Interest	6	0.727
F2: Choice	5	0.696
F3: Enjoyment	7	0.901

Reliability analysis is performed to test whether the statements on the scales are consistent with each other and whether all the statements measure the same subject (Ural & Kilic, 2006). In the reliability analysis, the Cronbach's Alpha (α) coefficient value varies between 0-1; a value between 0.00-0.40 is considered unreliable; between 0.40 and 0.60, it is considered low reliability, between 0.60 and 0.80, it indicates a reliable scale, and if between 0.80-1.00, it is considered a highly reliable scale (Tavsancil, 2005). When the results were examined, the Cronbach's Alpha value of Classroom Learning Environment Perceptions scale was found 0.887, while the Cronbach's Alpha was 0.727 for the "Interest" sub-dimension, 0.696 for the "Choice" sub-dimension, and 0.901 for the "Enjoyment" sub-dimension, making it a very reliable scale.

Table 6: Split-half reliability of Classroom Learning Environment Perceptions scale

Cronbach's Alpha	Part 1: S1, S2, S3, S4, S5, S8, S18, S19, S20.	0.755
	Part 2: S21, S22, S23, S24, S25, S26, S27, S28, S29.	0.574
Split-half correlation		0.632
Spearman-Brown Co-efficient		0.775
Guttman Split-Half Co-efficient		0.752

The split half method mentioned in Table 6 is also one of the methods used for reliability. The logic in the split half method is to divide the items in the data set into two and evaluate the relationship between these two halves. According to the results, the correlation in both halves was 0.632; the Spearman Brown coefficient was 0.775, and the Gutman Split Half coefficient was 0.752, and the scale was found to be reliable.

2.5 The Findings of the Confirmatory Factor Analysis

Confirmatory factor analysis is an analysis that is theoretically supported and used to reveal the level at which factors consisting of many variables are compatible with real data (Sümer, 2000). Confirmatory factor analysis is a method used to determine validity in the process of adaptation from different cultures of measurement tools developed over different samples. The 18-item scale obtained in line with the exploratory factor analysis was re-evaluated with a different sample, and parameter estimates for the model were obtained as shown in Figure 2.

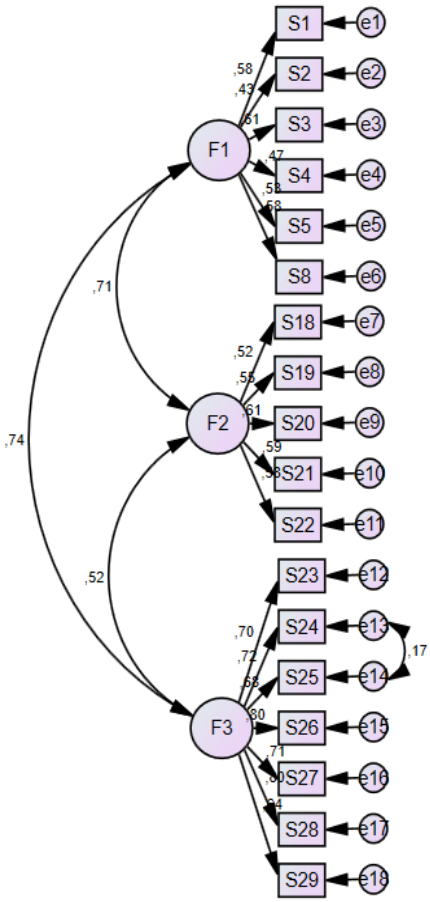

Figure 2: First-level multi-factor model confirmatory factor analysis of Classroom Learning Environment Perceptions scale

The model and parameter estimates in Figure 2 are presented in detail in Table 7, together with the t statistics.

Table 7: Confirmatory factor analysis factor loads of Classroom Learning Environment Perceptions scale

	Standardized Factor loads	Regression weight Factor Load	S.H.	C.R. (t statistics)	P
I1	0.579	1.000	-	-	-
I2	0.432	0.746	0.053	14.108	<0.001
I3	0.609	1.155	0.063	18.2	<0.001
I4	0.474	0.912	0.060	15.17	<0.001
I5	0.531	1.174	0.071	16.538	<0.001
I8	0.576	1.167	0.067	17.529	<0.001
I18	0.523	1.000	-	-	-
I19	0.547	0.998	0.066	15.066	<0.001
I20	0.606	1.020	0.064	15.954	<0.001
I21	0.594	1.081	0.068	15.795	<0.001
I22	0.576	1.168	0.075	15.533	<0.001
I23	0.702	1.000	-	-	-
I24	0.723	0.926	0.034	26.924	<0.001
I25	0.680	0.937	0.037	25.364	<0.001
I26	0.797	0.961	0.033	29.566	<0.001
I27	0.707	0.839	0.032	26.477	<0.001
I28	0.795	1.025	0.035	29.517	<0.001
I29	0.637	0.817	0.034	23.954	<0.001

The values given in Table 7 show whether the scale items are statistically significant in line with the t statistics. Accordingly, first, it is seen that all t values are significant, and the factor load values of all items are above 0.40. If the factor load values are above 0.40, it can be concluded that the items are suitable for the structure, and the structure is confirmed. It was found that the factor loads of all items were between 0.432 and 0.797.

Table 8: Findings related to confirmatory factor analysis of Classroom Learning Environment Perceptions scale

Index	Perfect Fit Criterion	Acceptable Fit Criterion	Calculated Values	Result
X^2/SD	$0 \leq \chi^2/df \leq 3$	$3 \leq \chi^2/df \leq 5$	3.752	Acceptable Fit
RMSEA	0.00≤ RMSEA ≤0.05	0.05≤ RMSEA ≤0.08	0.041	Acceptable Fit
CFI	0.95≤ CFI ≤1.00	0.85≤ CFI ≤0.95	0.961	Perfect Fit
IFI	0.95≤ IFI ≤1.00	0.80≤ IFI ≤0.95	0.961	Perfect Fit
TLI	.95≤ TLI ≤1.00	.80≤ TLI ≤0.95	0.954	Perfect Fit
SRMR	0≤SRM≤0.05	.05≤SRMR≤0.10	0.032	Perfect Fit

Chi square/ Degrees of Freedom (X^2/SD)
Root Mean Square Error of Approximation (RMSEA)
Comparative Fit Index (CFI)
Incremental Fit İndex (IFI)
Turker-Lewis Index (TLI)
Standardized root means square residual (SRMR)

When the findings in Table 8 were examined, it was determined that the Structural Equation Modeling Results of the scale was significant at the p=0.000 level according to the confirmatory factor analysis, and it was related to the scale structure with 18 items and three factors. According to the results of the first level multi-factor analysis, it was determined that "Classroom Learning Environment Perceptions Scale" showed an acceptable fit when the goodness of fit indices were examined. As a result, it was determined that the necessary construct validity of the scale was achieved.

Table 9: Reliability analysis of Classroom Learning Environment Perceptions scale

Scale and sub-dimensions	Item number	Cronbach's Alpha
F	18	0.880
F1:Interest	6	0.703
F2:Choice	5	0.705
F3: Enjoyment	7	0.883

Reliability analysis is performed to test whether the statements in the scales are consistent with each other and whether all the statements measure the same subject (Ural & Kilic, 2006). When the results in Table 9 are examined, the Cronbach's Alpha value of the Classroom Learning Environment Perceptions Scale was 0.880, while the Cronbach's Alpha value was 0.703 for the interest sub-dimension, 0.705 for the choice sub-dimension, and 0.883 for the enjoyment sub-dimension, and the scale was determined to be very reliable.

Table 10: Split half reliability values of Classroom Learning Environment Perceptions scale

Cronbach's Alpha	Part 1: I1, I2, I3, I4, I5, I8, I18, I19, I20.	0.744
	Part 2: I21, I22, I23, I24, I25, I26, I27, I28, I29.	0.856
Correlation between two halves		0.660
Spearman-Brown coefficient		0.795
Guttman Split-Half coefficient		0.779

The Split-Half Method is one of the methods used to measure reliability. The logic of this method is to divide the items in the data set into two and evaluate the relationship between the two halves. According to the values obtained in Table 10, the correlation in both halves was 0.660, the Spearman Brown coefficient was 0.795 and the Gutman Split Half coefficient was 0.779, and the scale was found to be reliable.

3. Discussion and Conclusion

In the study, the scale named "My Class Activities" was adapted into Turkish. Different methods and techniques were used to determine the validity level of this measurement tool. First, the linguistic validity of the scale was evaluated. After the linguistic validity was ensured, data collection and analysis processes were completed. As a result of the analysis of the 4-factor scale called "My Class Activities," it was concluded that the challenge dimension should be removed. It can be argued that this 3-factor scale obtained can be used as a data collection tool.

The "My Class Activities" scale developed by Gentry and Gable (2001) was adapted to different cultures, including Turkey, and its 4-dimensional version was generally accepted after some modifications (Pereira et al., 2010; Yang et al. ., 2012; Yang et al., 2016; Deniz & Saranli, 2017).

When the adaptations of the scale in the relevant literature were examined, it was seen that Pereira et al. (2010) implemented it with 826 gifted children in the USA and the 4-factor version of the scale was accepted after revisions. Yang et al. (2012) carried out the adaptation of the scale to South Korean culture with 564 students and the four-factor structure was confirmed after necessary changes. While adapting the scale to the Chinese culture, Yang et al. (2016) implemented the survey with 943 children, including gifted students, and the 4-factor version of the scale was accepted after some adjustments. The adaptation study to the Turkish culture, which was carried out by Deniz and Saranli in Turkey in 2017, was applied with 214 students and the 4-dimension version of the scale was preserved with some changes. In line with the analyses performed, it was decided that the challenge dimension should be removed from the four existing dimensions that are, "interest, choice, challenge, and enjoyment" dimensions.

When studies in the literature are examined, it is observed that students' interest in the teaching process (Abrantes, Seabra & Lages, 2007; Mazer, 2012; Skinner & Pitzer, 2012; Tynjälä, 1999), students' freedom of choice in the teaching process (Bandura, 1997; Deci, 1995; Eisele, 1996; Glasser, 1996).) and the state of enjoyment in the teaching process (Hernik & Jaworska, 2018; Goetz et al., 2006) are described as the factors that directly or indirectly affect the teaching process.

Regarding the dimension of "challenge" in the teaching process, which was excluded from the scale, it is reported that it has a positive contribution to the learning process of students (Alderman, 1999; Eccles & Midgley, 1989; Ravenna, 2008; Stone & Rottier, 1996). In the literature, it is stated that the lack of this dimension in the learning process may result in boredom (Feldhusen & Kroll, 1991). In addition, it is also mentioned that the challenge process has the effect of maximizing the learning in a learning process (Clifford, 1990). It is important for students to experience pushing the boundaries/challenge so that they can evaluate it in classroom activities. However, in our study, this dimension was removed from the scale according to the analysis results.

As the scale was adapted to Turkish by Deniz and Saranli (2017) previously, it was used in several studies in Turkey. In a study by Senol and Koca (2021), a comparison was performed between the gifted and peers with normal development and no statistically significant difference was found between the two groups. In a study by Ozarslan (2019), the scale was used together with another scale to determine the students' perceptions of science course classroom activities and their level of interest in science subjects in terms of gender and class variables and to reveal the relationship between these variables. According to the findings obtained by Ozarslan (2019), the students' level of enjoyment, interest, ability to make choices, and the perception of pushing the boundaries regarding science activities, and interest levels in science subjects were found to be moderate. In addition, in this study, it was determined that there was no significant difference between students' perceptions of science course classroom activities by gender and grade level. Çelik (2019) used this scale to evaluate the social studies course activities of the 5th, 6th and 7th grade students in terms of gender, age and class variables, and it was determined that the students' scores for this scale were high. Özarslan and Sarac (2019) used the scale in their study to determine the relationship between secondary school students' perceptions of science course classroom activities and their motivation to learn science. In this study, it was determined that there was a statistically significant positive correlation between the students' scores of having an interest in the classroom activities of the science course, enjoying the activities, pushing the limits during the activity, and their score levels for general motivation for learning science and motivation for research.

The small number of gifted students in the sample is the main limitation of the study. In addition, the exclusion of the other special needs groups, which are indeed placed in inclusive education, from the dimensions of the scale is another important limitation of the study. Although the original scale was 4-dimensional, the challenge dimension was removed from the scale. The fact that the differentiation of this dimension is not supported by qualitative studies is also among the limitations of the study. This scale adaptation study attempted to adapt the scale to Turkish culture that would enable the evaluation of students' perceptions of classroom activities. In the light of the data obtained, it is thought that it will provide support to the literature on the relevant subject.

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Appendix A

SINIF İÇİ ÖĞRENME ORTAMINA YÖNELİK ALGI ÖLÇEĞİ
Cinsiyetiniz: Kız O Erkek O

Sınıf: 5. Sınıf O 6. Sınıf O 7. Sınıf O 8. Sınıf O

	Aşağıdaki ifadelerin karşısına size uygun olan sıklık derecelerinden birini seçerek (X) şeklinde işaretleyiniz.	Her zaman	Sıklıkla	Bazen	Nadiren	Hiçbir zaman
İlgi	1. Derslerde yaptıklarım ilgi alanıma girer.					
	2. Derslerde, ilgimi çeken konular üzerinde çalışma fırsatım vardır.					
	3. Derslerde yaptıklarım bana yeni ve ilginç fikirler verir.					
	4. Derslerde, ilgi çekici konular üzerinde çalışırım.					
	5. Öğretmenlerim, beni derslerde ilgi çekici etkinliklere dâhil eder.					
	6. Dersler, ilgi alanlarımı keşfetmeme yardımcı olur.					
Seçme	7. Derslerde ortak çalışmalar yaptığımızda, çalışma arkadaşlarımı seçebilirim.					
	8. Derslerde yapacağım proje konularını seçebilirim.					
	9. Derslerde fazla sayıda görev olduğunda, bana uygun olanı seçebilirim.					
	10. Derslerde kullanacağım materyalleri seçebilirim.					
	11. Derslerde geliştirdiğim ürünleri sunacağım kişileri seçebilirim.					
Eğlenme	12. Derslere gireceğim zamanı dört gözle beklerim.					
	13. Derslerde eğlenceli vakit geçiririm.					
	14. Öğretmenlerim öğrenmeyi eğlenceli bir hale getirir.					
	15. Derslerde yaptığım etkinlikleri severim.					
	16. Derslerde çalışmalar yapmayı severim.					
	17. Derslerde yaptığım etkinlikler eğlencelidir.					
	18. Derslerde, üzerinde çalıştığım projeleri severim.					

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Negotiating Meaning Relationships in the Rhetorical Structure of EFL Argumentative Writing through Text Cohesion

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Abstract
Being a configuration of logically interconnected statements realized in moves and stages, an argumentative essay is built around the notion of textual unity achieved through lexico-grammar and semantic associations. The study attempted to analyze the role of cohesion in the rhetorical structure of undergraduate EFL students. Hence, the 13 moves in the three-stage argument structure were analyzed on a preset framework of cohesion analysis. Discourse analysis as a research method was used to ascertain how cohesion functioned in the rhetorical structure of these argumentative essays. The results revealed the presence of cohesive associations between the different moves of the rhetorical structure which corresponded with the move length. Referential and Lexical cohesion had a more frequent and dense presence than the co-referential element in the sample texts; however, the relatively low incidence of conjunctives pointed towards the relative scarcity of rhetorical functions in students' writing. The study proposes a research initiative that could use frameworks other than the present study or compare two or more sub-genres for the use of cohesion in the rhetorical structure.

Keywords: Academic Writing, Argumentative Essay, cohesion, Genre, Rhetorical Structure

1. Introduction

Argumentative writing despite its challenging nature and "underresearched" status (Pessoa, 2017 p.42) is one of the most common types of academic discourse in the academia. Contemporary practices in argumentation studies involve an analysis of the linguistic, cognitive and social dynamics to comprehensively account for the diversity of features that constitute an academically appropriate text. Apart from persuasion which is considered to be the most common use of argumentative discourse (Meiland, 1989), scholars in argumentation studies have also proposed other characteristic features of the argumentative texts. Blair (2004) in Gilbert (2005), for instance, suggests that argumentative writing is primarily concerned with proof or demonstration, justification, persuasion, inquiry, and resolution of a disagreement. Gilbert (2005), however, argues that proof-demonstration and disagreement-resolution patterns do not feature prominent in students' academic writing. Seyler (2008) in Lap and Truc (2014 p.68), on the other hand, proposes "purpose, arguable issues, evidence, audience, and recognition of topic's complexity" as the most frequently recurring elements of argumentative texts. An argumentative text in academic contexts, thus, may be a possible configuration of appropriate audience analysis and purpose; generation and structuring of the content; and the linguistics resources that could produce a cohesive and coherent text.

2. Literature Review

The argumentative essay as a sub-genre of the academic essay (Hyland, 2006) can be assumed as a plausible manifestation of students' ability to create a variety of rhetorical functions in conformity with the norms and conventions of the academic discourse community (Ahmad, 2019a). This manifestation of a variety of language functions in the rhetorical structure is based on the acquisition of a set of skills in argumentation which, according to Promwinai (2010), aid comprehension of the cognitive organization of knowledge. Cognitive organization of knowledge which Swales (1990 p.84) dubs as "formal schemata" includes "rhetorical elements of the genre, such as structure, style, and register" (Wingate, 2012 p.147). Formal schemata are believed to manifest a student writer's ability to comprehend, generate and organize relevant content to facilitate the production of a genre specific text which meets the expectations of the academic discourse community (Ahmad, 2019b). An equally crucial feature of the formal schemata is to prepare student writers acquire appropriate *voice* and *stance* for their arguments which Street (2009) thinks are not explicitly taught but are crucial to successful academic writing. Moreover, students might engage with supporting more than one claim for the proposition, and this requires them to create a logical text organization at both the micro and the macro level. Following Schleppegrell (2006) in Pessoa et.al. (2017), stance in argumentative writing can be achieved only if students connect their ideas and progress their argument by using modality and consequential relationships. Similarly, Hyland's (1998) notion of metadiscourse seems to correspond with Swales' (1990) formal schemata and includes both the lexico-grammatical elements such as the conjunctives which help in organization and interpretation of the text, and the more specialist language features and rhetorical techniques to create a text macro-structure that not only implies the purpose of the writer but also enables the text to qualify for its discourse community's approval.

Thus, an argumentative essay which unfolds itself in a "connected series of statements" (Andrews, 1995 p.3), or as the "sequence of interlinked claims and reasons" Toulmin et al (1984 p.14) involves an analysis and evaluation of the content knowledge (Wu, 2006). This entails that the students attempting an argumentative essay are expected to display "a process of systematic and methodical reasoning with the aim of arriving at a conclusion or solving a particular analytic problem by formulating a set of coherent and relevant arguments" Aarts as cited in Jenkins (2006 p.157). The more specific aim of an argumentative essay, however, is to "convince, get an adhesion, justify a way to see facts, refute interpretations about an event, or persuade the reader to change an opinion about a subject" (Chala and Chapetón, 2012 p.28). Typically, the students use comparison and contrast, cause and effect, claim and refutation, exemplification etc. as rhetorical strategies to develop their opinion in support or opposition of the argument they engage with. The development of the authorial stance thus presupposes that these clause relation patterns in the text are semantically related to each other within and across the moves and stages of the argument structure. One of the linguistic resources that ensures these meaning relations is the system of cohesion which through its text-forming potential and system of 'tie' give the text its textual identity (Halliday and Hasan, 1976 p.3). Moreover, following English for Academic Purposes (EAP) perspectives (e.g. Hyland, 2006; Swales, 1990 etc.) and Systemic Functional Linguistics' (SFL) traditions (e.g. Christie, 2000; Martin, 1992 etc.) the argumentative writing is embedded in its socio-cultural context which dictates the choice of register and rhetorical conventions, thereby resulting in a piece of discourse which is, at one level, a reflection of how socio-cultural priorities shape discourse, while at the other, an illustration of how register choices through the repertoire of the lexico-grammar culminate in a specific genre i.e. the argumentative essay. These lexico-grammatical resources are no other than the cohesive devices which being non-structural sources of text formation are semantic in their functional orientation, and therefore, central to the internal unity of text. A study of cohesion in the rhetorical or argument structure of an argumentative essay can, potentially, reveal not only how the student writers organize content but also how they establish meaning relationships between and among different moves and stages of the argument structure to create texture through textual unity (Ahmad, 2020).

2.1. Hyland's (1990) framework for the argumentative essay

According to Hyland (1990), the rhetorical structure of an argumentative essay is based on three stages: Thesis, Argument and Conclusion. Each stage has further sub-stages called moves, and which are, in fact, "rhetorical instruments that realize a subset of specific communicative purposes associated with a genre."(Bhatia, 2001 p. 84). Moves can also be understood as "semantic/functional units of texts, which can be identified through their

communicative purposes and their typical linguistic boundaries." (Upton and Connor, 2001 p. 317). The moves in an argumentative structure can either be mandatory or optional. Below the system of moves is the language system which through its lexicon and grammar assigns various forms to the moves. Following (Tankó and Tamási, 2008), it can be inferred that writing a piece of argumentation for academic purposes poses serious challenges to the students as they are expected cognitive process, rhetorical conventions, lexico-grammar, and the socio-cultural setting.

Hyland's (1990) model has been adopted by various researchers, partially though. For instance, Henry and Rosemary (1997) investigated introductions and conclusions of student' writing using Hasan's (1989) taxonomy, and the move analysis was conducted in comparison with Hyland's (1990) framework. Moreover, a paragraph level move analysis of the rhetorical devices was done by McGee (2014). Another significant research was initiated by Schneer (2014) who applied Hyland's (1990) framework to study the rhetorical organization of the argumentative opinion blog. The results of the study revealed significant differences in the rhetorical structure and which do not comply with the Hyland (1990) model as adopted for teaching purposes. A study of Pakistani student writers was made by Imtiaz and Mahmood (2014 p.99) which analyzed the move-step structure of the argumentative essays on Hyland's (1990) framework. The researchers concluded that the model was a useful tool for teaching argumentative writing. They could also discover two additional moves "contradiction" and "suggestion" which were not in the original framework. Liu 92015) also applied the same model for analyzing Chinese students' argumentative essays in his comparative study. The units of analysis were the moves and the concluding sentences of 184 Chinese student writers. The results indicted significant differences between the Chinese and English texts in the moves which signaled conclusion. Similarly, a study by Boukezzoula (2016) applied Hyland (1990) model to analyze moves to find out the effectiveness of the framework for teaching and learning argumentative writing. Experimental research done by Malekie and Moghaddam (2017) also attempted to gauge the usefulness of Hyland's model for teaching argumentative essays in academic contexts. However, the findings did not show performance variation between the control and the experimental groups. Kanestion et al.'s, (2017 p. 39) based on Hyland's (1990) model unveiled the role of linguistic elements in the formation of moves and steps of argumentative texts. The findings revealed that the moves created by the pre-university students in the study had visible variation from the framework since new moves were identified in each stage.

3. Aim and Significance of the Study

Most studies which used Hyland's (1990) framework did not investigate language elements such as the cohesive devices as they unfolded in different moves and stages of an argumentative essay. The researcher, therefore, initiated to adopt the framework to see how student writers negotiate meaning relationships in the rhetorical structure through cohesive features and the use of these text forming resources helped in the development of their argument. The researcher assumed this study to be the first of its kind and is expected to inspire more research efforts in the domain. The rationale behind the use of Hyland's (1990) model was its prior application in academic writing, and the researcher believed that this would be more conclusive in providing an accurate analysis of the argumentative texts in comparison with other frameworks such as that of Coffin (2006) which had four stages namely: Background; Thesis; Supporting Arguments; and Reinforcement but did not specify moves as were done in Hyland's (1990) framework or Toulmin's (1958; 2003) which "imposes a judicial procedure on the execution of argument and ultimately restricts our interpretation of argument structure and function" (Gilbert, 2005 p.132).

4. Method

This qualitative study adopted discourse analytical model for the analysis of (n=30) undergraduate argumentative essays produced in the Mid and Final Term examinations at the English Language Center at Yanbu Colleges and Institutes, Saudi Arabia. More specifically, textual analysis is an effective research method to explain the form and function of language use "through the deployment of specific textual features" (Griffin, 2007 p.93). For the analysis of rhetorical structure, the researcher chose Hyland's (1990) framework for analysis which comprised of three main stages with 13 moves in between these stages. For cohesion analysis, Halliday and Hasan's (1976) taxonomy of cohesive devices and sentence unit/s was adapted for observing the behaviour of cohesive ties in the rhetorical structure. The researcher took percentage count of the incidence and frequency of the cohesive element

that was identified in each move and stage along with the presupposed item/s which had been referred to. For purpose of the use of cohesion in the rhetorical structure, the devices in each move were analyzed in view of the rhetorical function which the move and the stage were expected to perform according to Hyland's (1990) framework. This way, the researcher was able to analyze and explain the more prominent ties in context of their use and application in the rhetorical organization of the sample texts. The researcher, however, did not consider errors or mistakes except for those of the misuse or overuse of the cohesion devices. Since the subjects of this study were not acquainted with Hyland's (1990) framework, and had been instructed in writing argumentative texts from a coursebook by Oshima and Hogue's (2006) which had its own prescriptive model of argumentation, the researcher expected the deviations in the sample essays from the chosen model.

5. Results

The sample texts (n=30) had 1954 cohesive devices which were unevenly distributed over the three stages and 13 moves of students' writing. The Introduction stage had 326 devices, the Argument 1382 and the Conclusion housed 246 cohesion devices. The detailed results for the presence and use of cohesion in each stage and move are presented below:

5.1. Cohesion in the Thesis/Introduction stage

There was visible frequency of cohesive devices which indicated the presence of strong coreferential feature in the Introduction stage.

5.2. Gambit

Following Halliday and Hasan (1976), there was rarity of cohesive element in the first sentence due to lack of the presupposed item, Gambit with 6.44% of the cohesion devices in Introduction did not reveal a high incidence and frequency of cohesive devices. The main use of Gambit was to create foreground relevance with the Proposition/Thesis so that both the element of persuasion and comprehension was established. The results mostly showed the use of referential and lexical items which developed a semantic association between the presupposing and the presupposed. The aim of leading the reader from general to specific detail was achieved as had been found in " *Culture is very important thing in every country*" where the general noun "*thing*" pointed back to "*culture*." The student writer tried to progress from the general to the specific to create proposition for the topic "*Saudi youth are losing their cultural identity*.":

5.3. Information

Information move contained 45.39% of cohesive element in the stage because it was like a link between the Gambit and Thesis and carried contextual material for the thesis statement. An example from a student essay would reveal the use of cohesive ties in this move:

> *College students suffering from this fact. They were not prepared for such stress from the high school level of education. And that ('is' missing) why they are facing a serious problems in college.*

To associate with the topic, the student processed from the general to the specific. The use of the pronominal "*they*" referred to "*college students*" reflected objectivity which is an essential feature of academic writing. Besides, there were three other types of cohesion devices: recurrence of "*school*" and "*college*" tied with the similar devices in the Gambit. The general noun "*fact*" cohered with "*difference ...*" in the Gambit. "*serious problems*" collocated with "*such stress*" in the previous sentence. The move also revealed the use of sentence-initial "*and*" which, in fact, corroborated Halliday and Hasan's (1976) concept of additive conjunctive. "*And*" and "*that is*" were used for two important academic purposes: elaborating a previous concept and creating cause and result relationship.

5.4. Proposition/Thesis statement

Being the only mandatory move in Introduction, Proposition had 25.76% of the stage which were predominantly lexical and referential. The move was the most important for the whole argument of the essay was developed around this.

> *Although almost all educators support that college life must be challenging with this so many tests, there is many evidence show that it affect students grades and performance negatively.*

The student writer in this example tried to foreground both the aspects of his argument. While the main clause had the main focus, the dependent clause expressed the opposing claim. The use of the demonstrative "*this*" was faulty; however, the pronominal "*it*" - an anaphor - encapsulated the entire idea elaborated in the dependent clause. The use of collocations "*support - evidence - show; tests - grades- performance*" was aptly used for an academic genre.

5.5. Evaluation

Evaluation as an optional move gave a "positive gloss" (Hyland, 1990 p.69) to the Proposition. Though rare in incidence, a few of the texts had this move which contained 12.88% of the cohesive ties in the stage.

> *(In the last six years with the smart phone revelution it start to weaken the personal relationships.) Kids with cell phone mobile applications and Internet are all taking part in this issue.*

The example revealed the student's effort to consolidate the proposition which mentioned negative aspects of the use of phones. The semantic relationship between the stance in the two moves was established with the help of three lexical ties and a specific demonstrative pronoun. The writer used "*Cell phone*" as a synonym for "*smart phone*" referred to in Proposition; "*internet*" created part-whole association with "*smart phone revolution*," and "*this*" and "*issue*" was deployed as a demonstrative and a general noun to cohere with "*it start to weaken the personal relationships*." These examples supported Hyland's (1990 p.71) stance that "positive comment" depended on the structural and semantic ties which develop through a varied use of lexical and demonstrative reference devices.

5.6. Marker

This last and optional move in Introduction with 9.50% of the cohesive element, aimed to "structure discourse by signposting its subsequent direction" (Hyland, 1990 p.71).

> *However, Video games don't cause behavioral problems in youth and they have a lot of benefits such as releasing stress, learning and providing real life images.*

The student writer employed the adversative instead of the formulaic chunks to signal the flow of discourse in the next stage i.e. Argument. The essentials of the main claim had been arranged in the sentence with lexical repetition of "*video games*" and "*youth*" and the use of the pronominal "*they*" developing semantic relationships at the intra as well as intersentential level to showcase unity and flow in discourse.

5.7. Restatement

Being an optional move, Restatement revealed only 6.72% of the unevenly distributed cohesive devices in Introduction. The move aimed at strengthening the stance developed in Proposition so that the reader could identify an association with the main concept of the topic as could be seen in the following example:

> *This seems to be true because there is an increase in murder crimes among young people.*

The student adhered to a different strategy. He employed the demonstrative "*this*" to cohere with the thesis and then wrote the causal conjunctive "*because*" to rationalize the claim made in the Proposition. "*Young people*" was a mere repetition of a previous identical item.

5.8. Cohesion in the Argument stage

There was predominant incidence and frequency of the coreferential element in the Argument stage both in and between the moves.

5.9. Marker

Marker had only 3.61% of the cohesive ties in the stage as, for example:

First opponents say that money can buy you desired goods.

The example shows the use of temporal conjunctive "*first*" whereby the reader could follow a chain of claims. Then there was the topic word "*money*" employed as lexical repetition to tie with an identical device in the previous sentence. The examples here confirmed Hyland's (1990) stance that the Marker not only initiated a stretch of discussion but also semantically associated itself with the Proposition. The sample texts revealed the use of temporals to signal the flow of ideas as they unfolded in the discussion that ensued after the Proposition but also formulaic expressions such as "*I think*", "*in the following paragraph*" etc.

5.10. Claim

Following Hyland (1990 p.72) that Claim "endorses the validity of proposition", it can be considered the most important stage in an argumentative text. The results revealed that 17.51% of the cohesive element in the Argument stage was situated in Claim

i. *The idea that money can buy happiness is comon and mony people belive it.*
ii. *Opponents claims that the result of a research indecates 90% of youth in Saudi Arabia did not lose their cultural identity. The research is insafficient and inconclusive.*
iii. *The too much testing in Yanbu Industrial College is affect on phsycology state of students.*
iv. *cell phones keep everyone in tech with his family or friends everywhere and any time.*

In example (i) the cataphor through "*the idea*" cohered with "*money can buy happiness*" not only signposted the topic but also could be traced back identifying with lexical items in the previous move. Similarly, "*people*" tied with a similar one used anaphorically to form lexical repetition, whereas the personal pronoun "*it*" cohered with "*the idea*" in the clause initial position. The second sentence of example (ii) substantiated how the student writer developed a claim by rebutting a counterclaim. The use of demonstrative "*the*" and lexical repetition "*research*" cohered with "*a research*" in the previous sentence as well as marked it for contrast through the use of emphatic words "*insufficient*" and "*inconclusive*." Example (iii) was grammatically wrong but had repetition of "*the too much testing*" signalled by "*the*." The claim in example (iv) demonstrated an instance of the lexical repetition "*cell phones*" - topic phrase, and the pronominal "*he*" that connected with the indefinite pronoun "*everyone*."

5.11. Support

Support, in an argumentative text, is premised on supplying, "explicit reinforcement for the claim" (Hyland, 1990 p.73), and could be achieve through a repertoire of rhetorical functions. This move had the highest incidence of cohesion devices (72.14%) not only in the Argument stage but also in the entire text.

i. *Although some people got their money from their parents, many [E1] worked hard to reach where they are now. I also believe that with bigger achievements, your happiness will be more, and as they say "a success will bring another sucess," so you can keep your happiness with hard work.*

ii. *on the other hand, there are people who see this as an innovative way and a chance to teach young people how to drive using semulation technology. In contrast, some people argue that these games are nothing but a kind of intertainment and to spend time and to have fun but what is fun about killing people, even if its veritual and unreal?*

In example (i), the writer used persuasion as a rhetorical strategy to support his claim. The cohesive devices he employed were the general noun "*some people*," the contrastive "many" and the nominal ellipsis. Further cohesive effect was achieved by the lexical repetition of "*their money*" and "*their parents*" which cohered with "*some people*." Another rhetorical function of creating cause-result association was manifest in the use of the causal "so" which not only gave semanticity to the proposition but also strengthened the supporting detail through unity and persuasion. Example (ii) also illustrated the use of persuasion but through adversative conjunctives such as "*on the other hand*," "*in contrast*," and "*but*" to mark contrast. Text unity and coherence were further established by the repetitive "*young people*" and "*simulation technology*." Likewise, the demonstratives "*this*" linked with an entire concept in the preceding lines whereas "*these*" cohered with a previous incidence of "*games*."

5.12. Cohesion in the Conclusion stage

Unlike packing up the main ideas as is common with conclusion in other essay types, conclusion in argumentative essays is "the fusion of constituents of this genre" (Hyland, 1990 p.73). Through reaffirmation, conclusion synthesizes the claim and the supporting evidence to produce persuasive argument. Only 12.58% of the entire cohesive devices of the corpus were found in the conclusion. The student writers mainly used conjunctives such as "*in conclusion, in short, to sum up, therefore, thus* etc." to foreground packing up of the argument.

i. *The bottom line is, there are things in life that a person should be thankful for.*
ii. *In short, I do agree that*
iii. *To sum up,*

5.13. Consolidation

Being the only obligatory move in Conclusion, Consolidation accounted for 38.61% of CD use in Conclusion in the present study. A few extracts from students' essays are cited below:

i. *Its not always about money, its about finding the true happiness which is something money can never buy*
ii. *Saudi youth are losing their identity culture due to life defolopment and improvement by studing outside saudi, working with other nationalities and using high technology divices.*

The personal pronoun "*it*" in example (i), established a semantic relationship with the Thesis by showcasing the writer's stance against the role of money in happiness. The repetitive items "*money*" and "*happiness*" tied with the preceding instance of similar devices. In (ii), the writer tried to strengthen his stance by restating the main ideas and repetition of "*Saudi youth*," the grammatically incorrect "*their identity culture*," and "*outside Saudi*" could locate their presupposed items in the preceding move, and helped to created cohesion and semantic association of meaning.

5.14. Affirmation

The main use of Affirmation was to restate the proposition (Hyland, 1990). The sample texts had 35.36% of the cohesive element in Conclusion. An example from sample texts is given below for its cohesive functions:

infact the player can develop himself from video games as video games sometime become emotional. the player also can learn some cultures from video games.

The conjunctive "*in fact*" was used as an affirmation of and emphasis on the claim made by the student and which he reiterated in this move. The instances of lexical repetition of "*the player*," "*video games*," and "*emotional*" cohered with their presupposed items in the last move as well as in this on to lend the essay its cohesiveness.

5.15. Close

Close as an optional move only had 15.85% of the cohesion ties in the Conclusion. Unlike other moves on the stage, it was prospective in its manifestation.

i. *I suggest that goveronment and educated people must interfere to prohibit the selling of violent video games.*
ii. *Therefore , in my opinion, Yanbu Industrial College must change their rule about number of tests.*

The prospective feature of Close was seen specifically in the use of the modal "*must*," "*suggest*," and the causal "*therefore*" and "*so*." The instance of "*suggest*" in example (i) pointed to an expectation. He student writer in example (ii) used "*therefore*" to refer to the urgency of shift in testing procedures he wanted to occur.

6. Discussion

Text length and position of the move in the argument stage were the two determiners of the incidence and frequency of the cohesive element in the sample texts. Though a frequent move in the rhetorical structure, Information is not a mandatory move. Following Hyland (1990 p. 70) that Information is realized through limited range of rhetorical functions, this move in the sample essays is mostly cohesive in as much that it helps the student writers to perform some relevant discourse functions. Proposition as a move, on the other hand, tries to develop a relationship between the topic and the focus that emerges out of it. The writers, as a matter of fact, foreground what they intend to include in their arguments, especially through appropriate lexis and formulaic expressions such as "*I think*," "*in my opinion*" etc. Occasionally, and as a rhetorical strategy, the writers do introduce rebuttals or refutations to signpost their claims and support. The student writers of this study used cohesive ties to give semantic identity to their Thesis, whereby certain rhetorical functions like stating or refuting an opinion, contrasting information, and sequencing of ideas were realized. Except for putting Proposition in the clause initial position which is a knack of the expert writers, Proposition in these sample essays was observed to fulfill most of the ways proposed by Hyland (1990 p. 71) such as that it may be very "succinctly" created or it may emerge from the Information move or may embed "contextualizing information" in the "proposition itself." Marker as a move is a feature of examination papers and involves use of formulaic language with a limited range. The samples of writing had been produced as examination scripts and the results revealed use of the formulaic language with the intent of guiding the reader to the focus of the argument. By employing the conjunctive "*however*" the mature writers showed that adverstaives could be used to substitute for the functional use of formulaic expressions. Assuming Restatement as a rhetorical strategy which signals the Proposition, the students used lexical devices, especially repetition to make the move cohesive as well as foreground different semantic associations to help the reader anticipate the writers claims and supporting arguments. However, the students could have adopted a range of cohesive ties such as the demonstratives and conjunctives to produce an effective Restatement.

Hyland (1990) mentions three strategies for the creation of claim in argumentative writing. First, a piece of information which is commonly assumed by both the writer and the reader can be used so that both the interlocuters agree on the claim. Secondly, a general statement duly supported by factual evidence or logical opinion can be used for persuasion. And finally, the writers employ emphatic adjectives and adverbs to persuade their readers agree with their claim. Following these strategies, the sample texts, notwithstanding the errors of form, exhibit a range of rhetorical features that corroborate the strategies. Cohesive ties facilitate not only text flow but also the rhetorical functions appropriate to the move and stage. The Support move is significant insofar that it validates the authenticity and appeal of the claim through the supporting evidence. However, it is relatively easier to validate those Claims which are not grounded in expert knowledge such as found in the sample texts as they bear a common understanding between the interlocutors involving rhetorical functions such as cause and effect, exemplification, comparison and contrast, fact and figure etc. On the other hand, Claims originating from specialist knowledge

such as themes from chemistry or mathematics may reveal big gaps between the presuppositions of the interlocutors, and therefore, could result in limited or conditioned acceptability.

The sample essays show use of the temporal conjunctives which marked the summing up of the argument and also created semantic association with other pieces of supporting evidence foregrounded by sequential adverbs such as "*first*, *secondly* etc."

The study was initiated to observe how cohesive devices function in the rehetroical structure. Although the quality of the argument was not a priority, the analysis was a useful attempt to unfold the behaviour of cohesion devices in the structure of the argumentative essay. Discourse in Arabic differs from that in English, for instance, as for as the notions of paragraphing and punctuation are concerned. Text structuring in Arabic is influenced by culture (Ayari, 1996); however, this stance is refuted by a study by Ahmad (2022) which could not identify the impact of culture on text cohesion and text organization. Most of the sample essays could be aligned with the model of argumentation used as a framework for analysis. The findings also challenge Berzlánovich's (2008) stance that argumentative writing because of its explicit emphasis on the rhetorical organization ignores the ideational function and therefore, employs a very limited range of lexical devices for cohesion. The results also contradict Wang and Cho (2010) who claim that a predominant use of premodifications badly affects the cohesiveness of argumentative writing. In contrast, despite occasional misuse or overuse of the cohesive ties, the sample texts have generally been appropriately cohesive.

7. Conclusion

The present study is significant insofar that no other initiative both in the Arab EFL context or beyond was found which studied cohesion devices in the argument structure on Hyland's (1990) framework. The researcher, therefore, assumes that this might be the first attempt of its research focus on the subject area. Owing to the non-availability of previous research, the results for the present study could not be compared and contrasted with other result findings. Suffice it to say that cohesion in the argument structure of academic essays has two main purposes: create text cohesion which leads to better semantic low and unity; and realize the rhetorical functions which are relevant to each stage and move in which the cohesion devices function.

Hyland's (1990) model for argument analysis is, however, not without its weaknesses, and further research on the topic can derive a few implications. As an instance, the present study did not gauge the quality of argument, and any further research can focus on the rhetorical functions, text quality and cohesion. Moreover, a comparative study including different frameworks of argumentation such as that of Toulmin (2003) can be conducted to find out similarities and dissimilarities. Another initiative could be to use narrative or expository texts to study cohesion in the moves and stages of the text structure. It is anticipated that the results from studies such as proposed here would positively impact the teaching and learning efforts for student writing.

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Reconstruction of Five-Fold Patterns with the Concept of Key Length

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Abstract
Art, architecture, music and literature, which are thought to be far from mathematics, contain complex mathematics. The fact that Anatolian lands hosted many civilizations throughout history provided cultural richness including the relationship between mathematics and art and created Anatolian culture. Geometric patterns are frequently encountered in artistic and architectural works in Anatolian culture. Geometric patterns existing in Anatolian culture vary according to their fold. In this research, five-fold patterns have been explained mathematically by introducing the 'Key Length' concept. We developed a system that reconstructs an existing Islamic Geometric Pattern in the context of the girih mode that we presented verbally and visually in eleven steps. In addition, we introduced to the literature the concept of 'Key Length' which is used in the drawing process.

Keywords: Art-Culture-Maths, Geometrical Drawing, Girih Mode, Islamic Geometric Pattern, Key Length

1. Introduction

This section discusses Islamic geometric patterns and their properties in the literature (§ 1.1), then explains symmetry and angle properties of Islamic geometric patterns (§ 1.2), examines the girih mode and properties (§ 1.3) and finally explains five-fold patterns and the girih mode (§ 1.4).

1.1 Islamic Geometric Patterns and their properties

Geometric patterns are cultural constructions. Different cultures have produced different geometric patterns in history and many geometric patterns have survived to the present day as cultural symbols. It is possible to see broken lines, zigzags, and lozenges in the works of ancient Greeks and Sumerians. However, geometric patterns gained another identity with Islamic culture (Bonner, 2017; Demiriz, 2017; Necipoğlu, 1995). Although the archaeological evidence does not offer specific information on where and when geometric pattern drawing methods were first utilized, research suggests that geometric patterns were invented in Baghdad, the Abbasid capital (Aljanabi, 2019; Bonner, 2017; Necipoğlu, 1995). Many Western researchers also base the basis of geometric patterns on the Abbasids and the use of Arabic letters in calligraphy by developing the geometry and connecting them to a system (Abas & Salman, 2007; Şen, 2013). The geometric patterns that began to spread throughout the Islamic world were associated with a few new artistic and architectural forms; thus, they became a determinant and symbolic language. Islamic Geometric Patterns have three essential properties. These properties

are that the patterns are symmetrical and constructed according to orders and rules, can be extended forever, and are anonymous (attribution of works to the architect of the period, artists not known by name) (Demiriz, 2017; Majewski, 2017).

In this study, we examined, explained, and used mathematics in the background rather than the historical development of Islamic Geometric Patterns. The next section describes symmetry and angle systems and the mathematical properties of patterns in detail.

1.2 Symmetry and angle properties of Islamic Geometric Patterns

Taking into consideration architectural constructions and historical records, numerous characteristics separate geometric patterns from one another. Despite this, a few design characteristics have been found (Aljanabi, 2019; Bonner, 2017; Majewski, 2019a) . The most apparent common mathematical property of Islamic Geometric Patterns is that their preparation process is in a similar symmetry axis system. The three primary symmetry axes used in Islamic Geometric Patterns are quadruple, quintuple, and hexadecimal systems. In other words, Islamic Geometric Patterns are four-, five-, six-fold, and all different patterns can be produced by utilizing the characteristics of four-, five-, and six-fold patterns (Aljanabi, 2019). The pattern fold can be briefly defined as the number of pieces separated when the corner angle (right angle) of the pattern's square or rectangular outer mold is divided into equal parts with the help of lines. The concept of pattern fold is critical as it also determines the angles of all polygons in the pattern.

The polygons forming the patterns with identical folds are related to each other. In other words, since the angle systems of the polygons are interconnected, the polygons complement each other (Aljanabi, 2019). Angles of 22.50 in four-fold patterns, 180 in five-fold patterns, and 150 in six-fold patterns remain between the lines dividing the right angle and form the angle system. In Figure 1, the angle systems used in the drawing of four-, five-, and six-fold patterns are shown in detail.

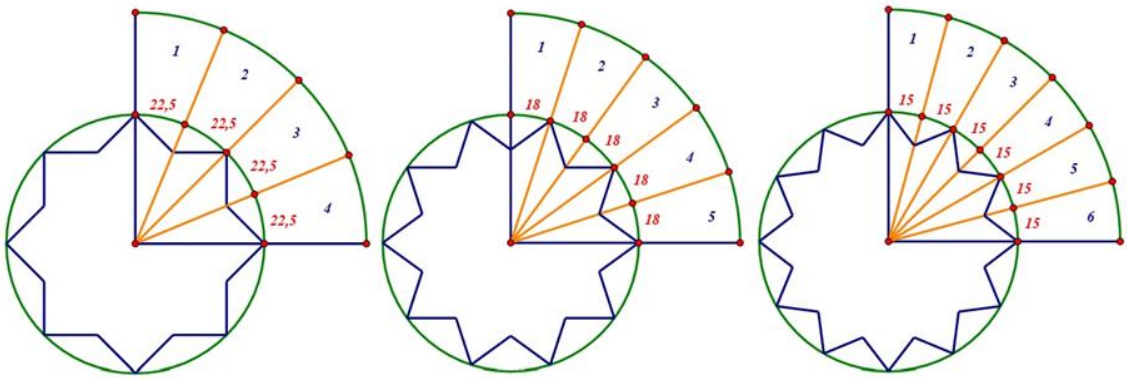


Figure 1: Angle systems of four-, five-, and six-fold patterns, respectively (Aljanabi, 2019).

Islamic Geometric Patterns have many common properties. However, closer inspection reveals that the patterns differ geometrically and contain various geometric components. This situation diversifies the techniques of constructing patterns. In many countries where Islamic culture is shared, local methods are used while constructing geometric patterns. In addition, there are some approaches to construct geometric patterns in Europe (Majewski, 2019a). In the next section, the girih mode, which is one of the approaches to constructing Islamic Geometric Patterns is explained in detail.

1.3 The girih mode and properties

The approach employed in the production of a geometric design determines the aesthetic character of the pattern (Bonner, 2017). No recorded text or book from that period describes how the Middle Ages Islamic Geometric Patterns came to be. (Bonner, 2017; Majewski, 2019a; Necipoğlu, 1995). Nevertheless, one was not completely unaware of that period's geometric pattern construction process (Majewski, 2017; Majewski, 2019a; Şen, 2013). Islamic Geometric Patterns often appear in many architectural structures, especially mosques. In addition, it has been a guide in constructing geometric patterns on drawing parchments belonging to architects living in the Middle Ages and later (Şen, 2013; Majewski, 2019a, Necipoğlu, 1995). Islamic Geometric Patterns reached their peak

with the girih mode, which is the most widely used in the historical process (Lu, 2007; Şen, 2013). The most convincing proof that the primary historical method of constructing Islamic Geometric Patterns is the girih mode is the Topkapı Parchment (Majewski, 2019a, Majewski, 2019b; Bonner, 2017; Lu, 2007; Necipoğlu, 1995). Traditionally, Central Asian builders have described the way used in patchwork scrolls as girih (Persian, "knot")(Majewski, 2019b). This term refers to the knots or corners of network-like geometric grid systems used when constructing patterns for two- and three-dimensional architectural plans and decorative coverings (Necipoğlu, 1995).

Within the scope of the research, Islamic Geometric Patterns were examined and reconstructed in the context of the girih mode, based in Central Asia. The most important reason for choosing the mode is using geometric properties of polygons such as angle, side, and symmetry axis in the pattern construction process. Another reason for this choose is that using geometric elements in the drawing process makes the process simpler and more understandable (Necipoğlu, 1995). The flexibility level of the design methodology and related design diversity is also crucial in choosing the technique (Bonner, 2017). In addition, the prediction about girih mode usage on the parchments with patterns in the Topkapı Palace played an essential role in choosing the method (Bonner, 2017; Majewski, 2019a, Necipoğlu, 1995). All drawing steps of the patterns constructed using the girih mode are based on a geometric structure. The investigations revealed that geometric patterns were constructed under some established guidelines. Girih mode consists of contour, tessellation and motif.

The examinations determined that the geometric patterns were constructed according to some standard rules while being constructed with the girih mode. These rules are given below.
1. The polygons that make up the tessellation are convex and symmetrical.
2. The sides of the polygons that make up the tessellation are coincident.
3. The tessellation polygons are either located inside the frame or intersect symmetrically at the sides.
4. If a pattern line touches the side of any tessellation polygon, that side has another line running in the mirror image on the other side.
5. When two lines of the pattern touch the side of any polygon in the tessellation, these two lines continue inside the other polygon with a standard side without changing direction. Note: the angles between the pattern lines and the tessellation sides are equal.
6. When the two lines of the motif in the tessellation , the lines are bent.
7. The motif lines can only stand on the side of the frame.
8. Each motif has the same symmetry as the tessellation polygon it is in. (Majewski, 2019a; Majewski, 2017)

1.4 Five-fold patterns and the girih mode

Five-fold patterns are fundamental in terms of Islamic art and architecture history. In the literature, five-fold patterns, also known as decagon patterns, are the most popular patterns in Iran and Turkey (Bonner, 2017; Majewski, 2019a; Necipoğlu, 1995). Seljuk and Ottoman designers have produced many designs and interesting methods using five-fold patterns (Bonner, 2017; Cromwell, 2009; Demiriz, 2017; Majewski, 2019a; Majewski, 2019b). Angle properties differ in the outer frame properties, tessellation polygons, and motifs described in the title ‘Symmetry and Angle Properties of Islamic Geometric Patterns.’ For this reason, in the next section, the outer frame properties of the five-fold patterns and the tessellation polygons are explained in detail.

1.4.1 Contour properties and drawings of five-fold patterns

The contour can be square, triangle, hexagonal or rectangular. Sometimes a pattern can be built using more than one pattern. The contour of the pattern may vary depending on the surface to be covered (Majewski, 2019b). However, when the architectural structures belonging to Turkish-Islamic Culture are examined, it is seen that many of the patterns are squares or rectangles with particular proportions like squares.

In the context of the girih mode, it is crucial to divide the right angle into five equal angles in the rectangular contour drawing of five-fold patterns. Therefore, an [AB] of any length is drawn.

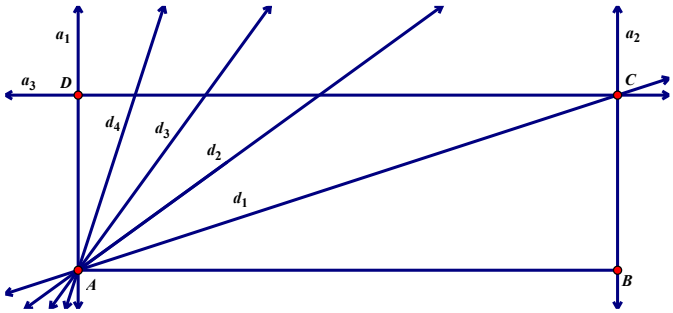


Figure 2: Rectangular contour drawing of five-fold patterns

The line a_1 passing through the point A and perpendicular to [AB] is drawn ($a_1 \perp$ AB). The resulting right angle (angle A) is divided into five equal angles. The lines dividing the angle are d_1, d_2, d3, and d4. The line a_2 passing through the point B and perpendicular to [AB] is drawn (a2 $\perp$ AB). Since the rectangle is in the form C (1, 5), the point C, ion of a2 and d1 becomes the third corner of the rectangle. Let a3 the parallel line to [AB] passing through the point C. The point D, the ion of a3 and a1 becomes the fourth corner of the rectangle. [AB]-[BC]-[DC]-[DA] are drawn. All lines used in the drawing are deleted except the sides of the rectangle to complete the rectangular contour in the form of C (1, 5) (Figure 2). The ion point of a2 and the lines d1, d2, d3 and d4 determined the form of the rectangular countour respectively C(1, 5), C(2, 5), C(3, 5) and C(4, 5). The concept of tessellation, which differentiates the girih mode, is examined after the contour drawing.

1.4.2. Properties of polygons forming the tessellation of five-fold patterns

The tessellation is the overlay of polygons with coindicent sides, which are drawn inside the contour or the determined ground, facilitating the placement of motifs. The tessellation is deleted when the pattern drawing finishes. In other words, the hidden network allowing to draw the pattern can be defined as tessellation. The polygons that make up the tessellation of five-fold patterns are formed by breaking up the regular decagon differently. Ten frequently used polygons are shown in Figure 3. The angles of each of these polygons are multiples of 180. The tessellation of a pattern may contain all or several of the polygons in Figure 3. These polygons, differently named in the literature, were renamed by us in the study. Explanations on naming polygons are given in the second part of the study.

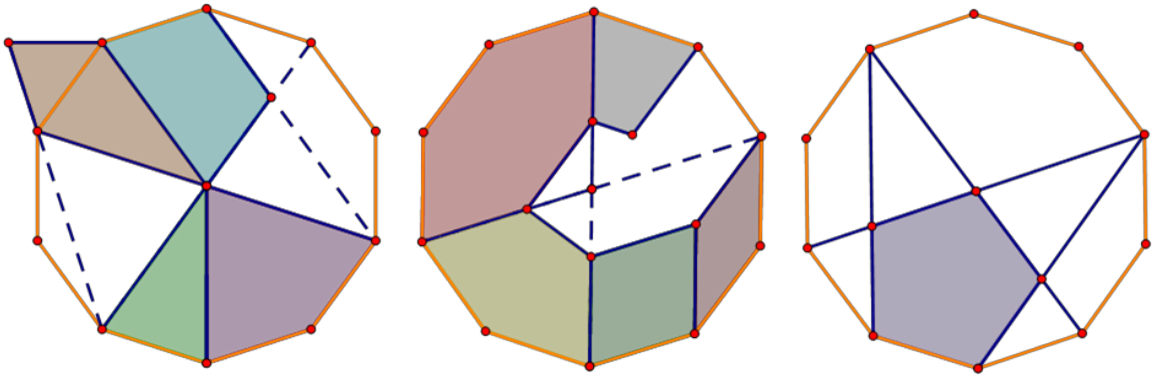


Figure 3: Polygons used in the tessellation drawing of five-fold patterns (Majewski, 2019a)

2. Contribution of the study to the literature

This section situates the importance of the study (§ 2.1), introduce the concept of Key Length (§ 2.2), explain the gradual system developed by the researchers for the use of the girih mode (§ 2.3), gives the names of the tessellation polygons of five-fold patterns (§ 2.4) and lastly presets the naming the motifs placed in the tessellation polygons in five-fold patterns (§ 2.5).

2.1. The importance of the study

Islamic Geometric Patterns were generally researched by architects and art historians in the literature. In this context, it can be said that the mathematical properties of the patterns have not been studied much. In this study, we examined in detail geometric patterns' mathematical properties. Many different geometric properties are used while creating Islamic Geometric Patterns with the girih mode. We haven't found any study in the literature that contains sufficient mathematical explanations about where and how to start the construction of the tessellation, which forms the framework of the girih mode, and how to continue it. In this study we explained mathematical properties to construct Islamic Geometric Patterns. The length required for the construction of the tessellation, i.e. the coincident sides of the tessellation polygons, is named as the 'Key Length'. We show mathematically how to obtain 'Key Length'in an empty frame. In addition, the reconstruction process of an existing Islamic Geometric Pattern in the context of the girih mode determined by us is explained in detail in eleven steps in total under the titles of analysis and reconstruction. In other words, the girih mode has become more systematic.

2.2 The concept of Key Length

We introduce the concept of Key Length, emphasizing the girih mode's mathematical properties and explaining where and how to use mathematics. The concept of tessellation is fundamental in patterns constructed using the girih mode. When the literature is examined, a lack of concept for the mathematical explanation of the tessellation drawing attracted attention. Obtaining the concept of Key Length using mathematics shows that the pattern drawings are not random but based on scientific foundations. The radius of the circle may be used to shift lengths, and equal sides can be readily constructed by determining this length. The concept was named 'Key Length' by the researchers of the study, based on the metaphor of quickly opening unlocked doors. The determination of the Key Length differs according to the pattern. Mathematical properties of angle, bisector, median, midpoint, diagonal and circle are frequently used to reach this length.

2.3 The gradual system developed for the use of the girih mode

There are research about the girih mode in the literature. However, these research is complex for interested people. We have considered and developed a gradual system to eliminate this deficiency and use it more easily. The developed system was based on the concept of 'Key Length,' and the system was composed of eleven steps under two titles. The two main steps of the system are analyzing and reconstructing the pattern. To reconstruct the pattern, it has to be analyzed mathematically. For this reason, we determined five crucial properties of Islamic Geometric Patterns as criteria for mathematical analysis. After the pattern analysis according to the given steps, we determined six steps to reconstruct the pattern. Next section is about the main steps of the system of analyzing and reconstructing the pattern.

2.3.1 Analysis of an existing five-fold Islamic Geometric Pattern

To construct an existing five-fold Islamic Geometric Pattern, a mathematical analysis of the pattern is required initially. Pattern analysis consists of five steps. These steps are sequential,

1. Determining the small pattern mold,
2. Determining the 'contour' properties of the small pattern mold,
3. Drawing tessellation on the determined pattern,
4. Determining the motifs in the tessellation polygons,
5. Determining the 'Key Length' required for the drawing.

2.3.1.1. Determining the small pattern mold. The first step of the pattern analysis is to determine the pattern's 'small pattern mold.' Small pattern mold can be defined as the smallest piece obtained by using the symmetrical property of Islamic Geometric Patterns and allowing to reach the whole pattern by repeating. The small pattern mold is determined by using symmetry axes, and there are no horizontal and vertical symmetry axes in this pattern. All drawing steps of the pattern are performed in these mold dimensions.

2.3.1.2. Determining the 'contour' properties of the small pattern mold. The small pattern molds of the five-fold patterns generally consist of rectangles. Most of the rectangles mentioned above have a special ratio between their sides. These rectangles are obtained by dividing the corner angle of the rectangular contour by five. The contour may consist of one or more rectangles depending on the pattern. In some patterns, the contour of the small pattern mold may not be well defined because it does not consist of particular rectangles. Rectangular contours generally follow this rule; although there are different drawing methods for molds that do not, this article is limited to the contours that comply with this rule.

2.3.1.3. Drawing tessellation on the determined pattern. The midpoints of the regular polygons that make up the pattern and the combination of these points can be used while drawing the tessellation on the determined pattern. Since the research is limited to five-fold patterns, the polygons frequently used while constructing the tessellation are presented within the scope of the research. Looking at the pattern, it is determined how to place these polygons in the rectangular contour with their sides coincident. In addition, eight rules of the girih mode should be considered while drawing the tessellation.

2.3.1.4. Determining the motifs in the tessellation polygons. The motifs in the tessellation vary according to the polygons. The motifs placed inside the polygons can be produced in any number without ignoring the angle and side properties. Although the motifs have different names in the literature, we renamed them using star names in this study by taking expert opinions considering the close relationship between astronomy and geometry for centuries.

2.3.1.5. Determining the Key Length of the pattern. The Key Length of the pattern is the length of the coincident sides of the polygons that forms the tessellation. For this reason, the Key Lenght varies according to the pattern and tessellation. It can be more than one, depending on the pattern.

2.3.2. Reconstructing an existing five-fold Islamic Geometric Pattern

After analyzing the pattern, the drawing step starts pattern design should consider eight rules of the girih mode. Considering these rules, the pattern is reconstructed or constructed in six sequential steps. These steps are,

1. Drawing the contour of the small pattern mold,
2. Obtaining the Key Length mathematically,
3. Construction of tessellation,
4. Drawing motifs inside the tessellation,
5. Checking the small pattern mold,
6. Completion of the pattern.

2.3.2.1. Drawing the contour of the small pattern mold. Rectangles with special ratios between their sides are used frequently in girih mode. The drawing steps of the five-fold patterns rectangles are explained verbally and visually in detail in the section of 'Contour Properties and Drawings of Five-Fold Patterns.'

2.3.2.2. Obtaining the Key Length. The Key Length differs from pattern to pattern as stated in the analysis step. Without the concept of Key Length, the explanations about the tessellation drawing will be insufficient mathematically. While obtaining the Key Length, the ion points of the lines dividing the right angle by five with the contour, the line segment lengths, the diagonal length of the contour, the side properties of the tessellation polygons, and the eight rules of the girih mode are used.

2.3.2.3. Construction of tessellation. Drawing the length is simple by utilizing the parallelism and perpendicularity characteristics of the lines and shifting the length with the Key Lengths.

2.3.2.4. Drawing motifs inside the tessellation. The motifs differ according to the polygons in the tessellation. Angle and side properties of tessellation polygons should be used considering the pattern fold while placing motifs inside them. Parallelisms, perpendicularities, bisectors, and the midpoints of tessellation polygons are used to place motifs.

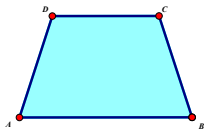
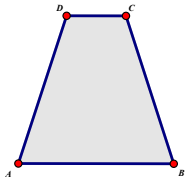
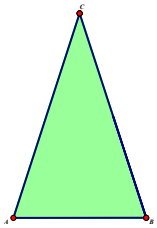
2.3.2.5. Checking the small pattern mold. Tessellation and motifs in the small pattern mold should be controlled according to the fold variable of the pattern. Since the research is limited to five-fold patterns, all angles of the polygons in the mold must be multiples of 18.

2.3.2.6. Completion of the pattern. The tessellation inside the small pattern mold is deleted to complete the pattern. Thus, only the motifs remain in the small pattern mold, and the pattern is ready to be reflected. The entire pattern is constructed by mirroring the small pattern mold as much as necessary (considering the axes of symmetry).

2.4. Naming the tessellation polygons of five-fold patterns

While naming the polygons that form the tessellation, 3-digit coding was performed. The first digit of the code consists of the initial letter of the known name of the polygon. The second digit consists of the numerical representation of the number of sides of the polygon. The third digit of the code consists of the letters A, B, C, and D to show the difference of polygons with equal sides. Examples of naming polygons are seen in Table 1.

Table 1: Naming the polygons

Polygon	Name of Polygon	Number of Sides of a Polygon	Polygon Form	Code Name of Polygon
	Trapezoid	4	A	**T4A**
	Trapezoid	4	B	**T4B**
	Triangle	3	A	**T3A**

2.5. Naming the motifs placed in the tessellation polygons in five-fold patterns

One of the most striking properties of Islamic Geometric Patterns is that they contain symmetrical shapes resembling 'stars' and 'constellations.' They have emerged from the Kufic art and gained different forms in the historical process. Star shapes appear in Islamic Geometric Patterns because astronomy and geometry are intertwined in Islamic culture. Many ancient mathematicians were also interested in astronomy and developed mathematical formulas about the positions of the planets. From the 9th to the 15th centuries, astronomy was the most passionate intellectual activity in the Islamic world. For this reason, the oldest observatories were built in Islamic geography, and Muslim astronomers firstly named many stars (Abas & Salman, 2007).

In the next section, the pattern of a window shutter of the Istanbul Üsküdar Mihrimah Sultan Mosque, which is the Architect Sinan work, was reconstructed using the concept of 'Key Length' and the sequential system of the girih mode. With the given an example, our contributions to the literature are revealed more clearly.

3. The process of reconstructing the pattern of the window shutter of the Üsküdar Mihrimah Sultan Mosque with the concept of Key Length.

This section gives the analysis the pattern of the window shutter of the Üsküdar Mihrimah Sultan Mosque with the concept of Key Lengt (§ 3.1) and explains the reconstruction of the pattern (§ 3.2).

3.1. Analysis of the pattern

This pattern is a five-fold pattern examined in detail within the scope of the research. It is possible to understand that the pattern is five-fold from the decagonal rosette in the middle or the quarter-decagonal rosette in its corners (Figure 4). Similarly, the regular pentagon is included among the polygons that make up the pattern, indicating that it has five folds.

Figure 4: Five-fold pattern determining

3.1.1 Determining the small pattern mold

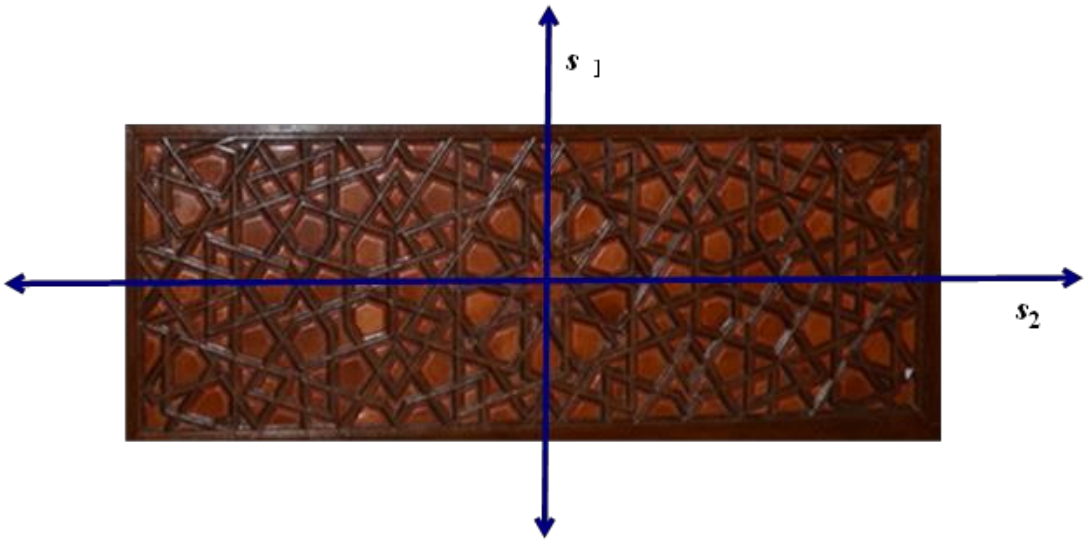


Figure 5: Symmetry axes of the pattern

A small pattern mold is found by using the symmetry axes. As seen in Figure 5, the small pattern mold of this pattern consists of a ¼ part of the whole figure. In other words, this pattern has two symmetry axes. The determined small pattern molds contain the same mathematical properties as they are symmetrical. For this reason, any of the four sections indicated in Figure 5 can be employed for the reconstructing and analysis procedure. In this study, all the design operations occur on the 1 in 4 pieces in the lower-left corner (Figure 6).

Figure 6: Small pattern mold belonging to the pattern

3.1.2. Determining the 'contour' properties of the small pattern mold

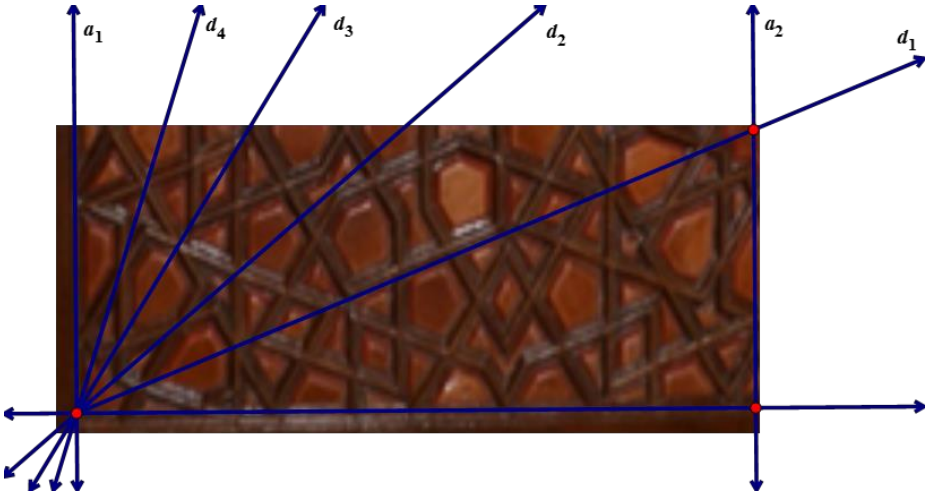


Figure 7: Contour size of small pattern mold

When the diagonal of the rectangular pattern is drawn, the diagonal passes through the corners or sides of the polygons making up the pattern. Line d1 dividing the right angle by five in the lower-left corner of the rectangle is seen in Figure 7 that it is the diagonal of the small pattern mold. For this reason, the contour of the small pattern mold obtained by using the symmetry axes is in the form of C (1, 5).

3.1.3. Determining tessellation on the small pattern mold

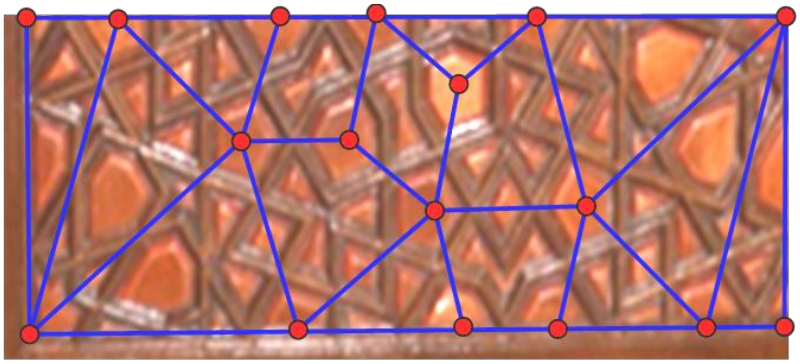


Figure 8: Tessellation drawing on the pattern

The tessellation of the pattern is drawn, as seen in Figure 8. The eight rules of the girih mode are considered while drawing the tessellation. In addition, the midpoints of the regular polygons forming the pattern are used. As seen in Figure 8, the tessellation of this pattern consists of four polygons. These polygons are named E4A - T3A - D4B - T4A. The highlighted and colored version of the tessellation polygons is shown in Figure 9.

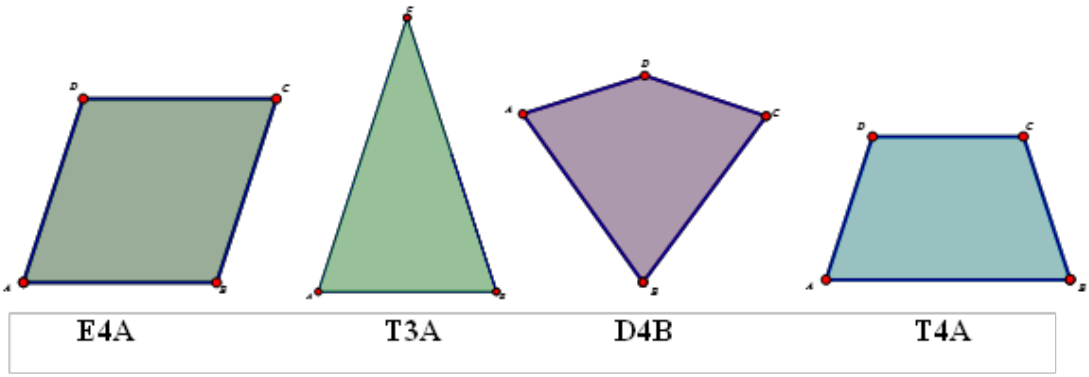


Figure 9: Tessellation polygons of the pattern

3.1.4. Determining the motifs in the tessellation polygons

The motifs situated inside the polygons are named after star names. These names are presented in Table 2.

Table 2: Motifs in the tessellation

Tessellation Polygon	E4A	T3A	D4B	T4A
Motif	*Zuhal*	*Rami*	*Anka*	*Mirza*

The highlighted and colored versions of the motifs in the tessellation polygons are shown in Figure 10.

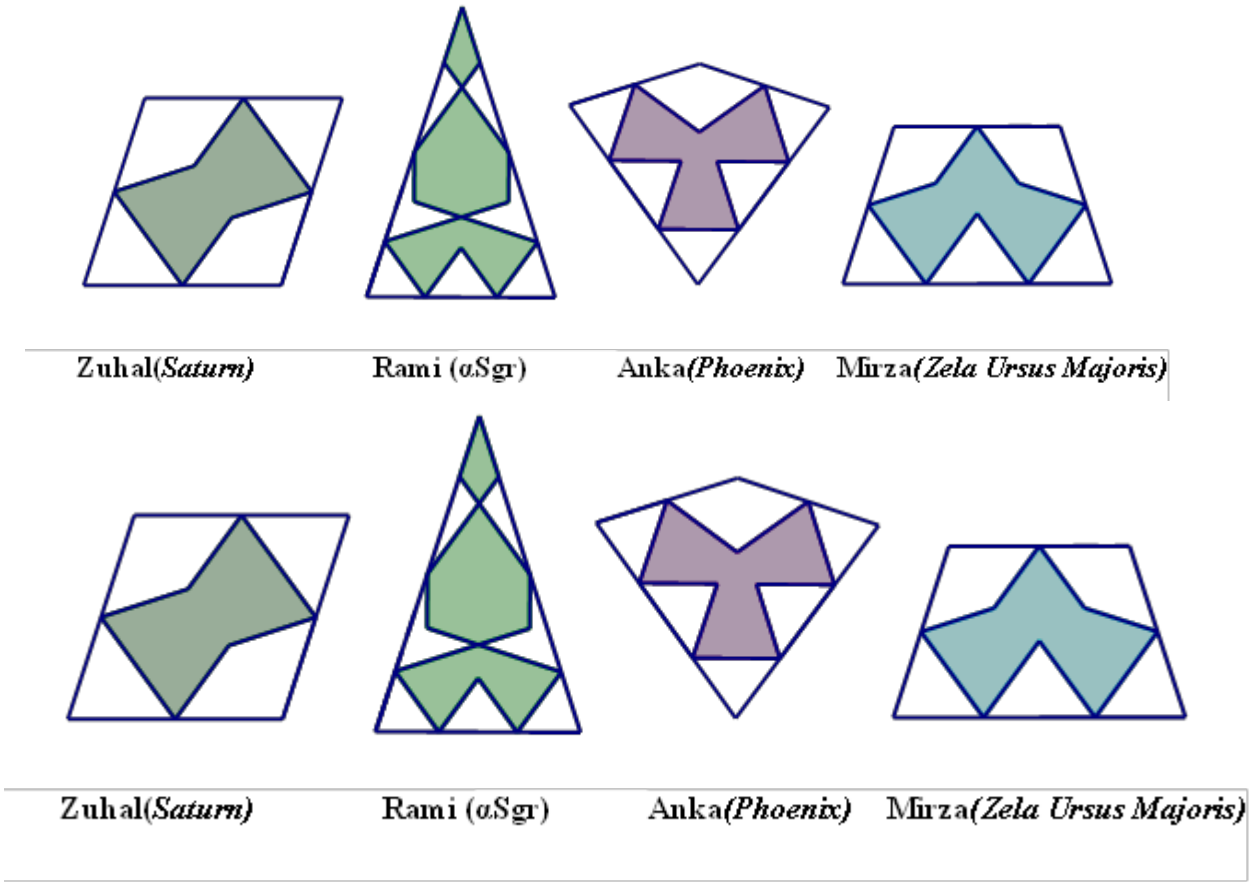


Figure 10: Pattern motifs

3.1.5. Determining the Key Length of the pattern

The short side length of T3A in the tessellation is equal to the long side of D4B and T4A. Also, the short side length of D4B is equal to the short side length of T4A and the side length of E4A (cf. Figure 9). In this context, the short side of T3A and the side length of E4A are the Key Lengths required for drawing.
Thus, the five-step pattern analysis finishes. The pattern has been analyzed and made easy to understand mathematically. The analyzed pattern has passed to the reconstruction step.

3.2. Reconstructing the pattern

As in the analysis step, drawing processes are carried out in the determined small pattern mold to avoid time loss and make the pattern easier to construct. The drawings included in the research were constructed in the Geometers' Sketchpad Program.

3.2.1. Constructing the contour of the small pattern mold

In the analysis phase of the pattern, it was determined that the contour was in the form of C (1, 5). The determined rectangle is explained with detailed visuals and verbal expressions under the section of 'Rectangular properties and drawings of five-fold patterns.' In Figure 12, there is a rectangle in the form of C (1, 5).

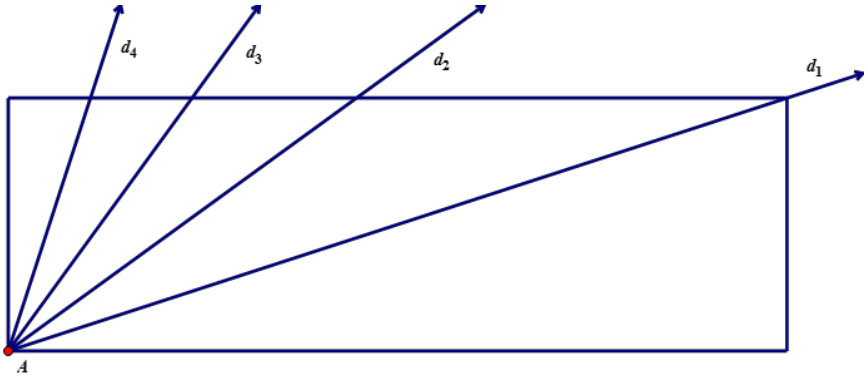


Figure 11: C(1, 5) Rectangle

3.2.2. Obtaining the Key Length

The Key Length required for the drawing has been identified during the analysis phase to be the short side length of T3A and the side length of E4A. To obtain this length, the draft tessellation is first carefully examined. Angle A is divisible by five, and the lines dividing the angle by five are not deleted. E is the point where the line d4 dividing angle A by five intersects the [DC] side. The length [AE] is the long side of T3A. C1 circle with center A and radius [AE] is drawn [C(A, AE)]. F is the point where the C1 circle intersects the line d2 [EF] is the short side of T3A. In other words, one of the Key Lengths is the length [EF]. Half D4B is located above the T3A in the corner. C2 circle with radius [EF] is drawn to construct D4B [C(A, AD)]. G is the point where C2 circle intersects the [DC] side. The length [FG] is the short side of D4B, the side length of E4A. So, the second Key Length is [FG]. The Key Lengths are in red, as shown in Figure 13.

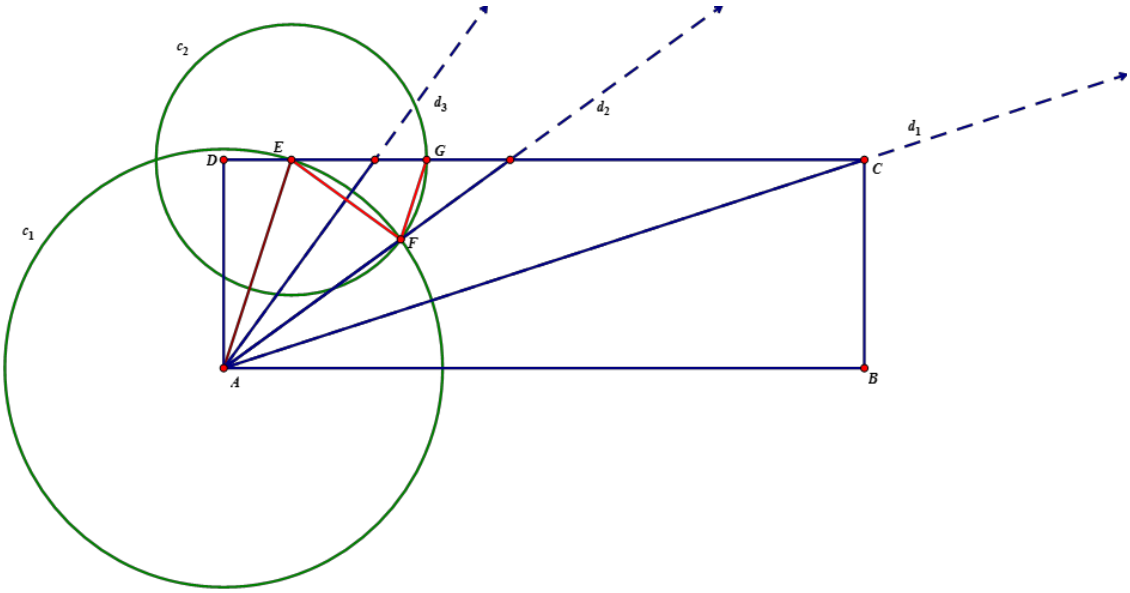


Figure 12: Key Length drawing of the pattern

3.2.3. Construction of tessellation

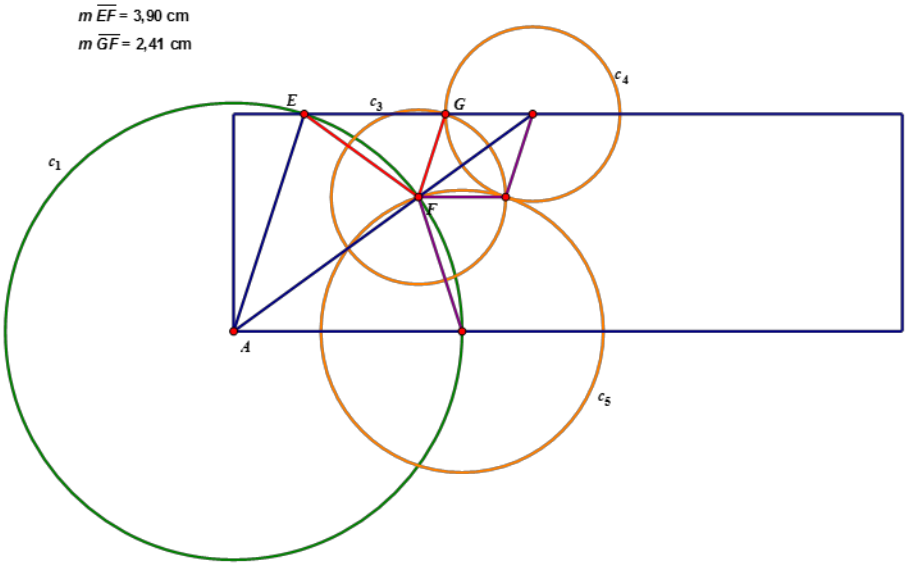


Figure 13a: Step 1

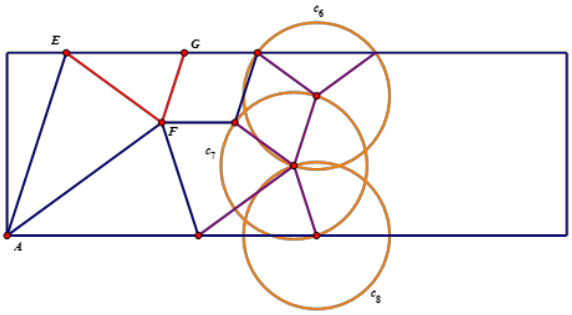


Figure 13b: Step 2

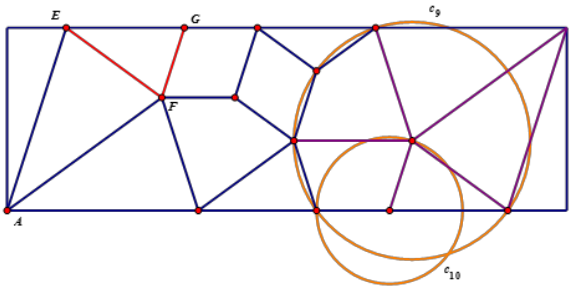


Figure 13c: Step 3

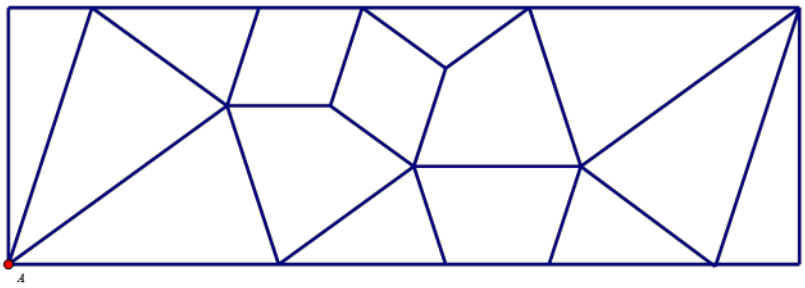


Figure 13d: Step 4

Figure 13: Steps of tessellation drawing of the pattern

The short side of T3A and the side length of E4A, the Key Lengths, were obtained by drawing. The tessellation was completed according to the draft analysis using the Key Lengths. While completing the tessellation, radius of circles, parallelism, and perpendicularity of the lines (Figure 14).

3.2.4. Drawing motifs inside the tessellation

The tessellation of the pattern consists of polygons E4A, T3A, D4B, and T4A. The motifs to be placed inside these polygons are Zuhal, Rami, Anka, and Mirza (Figure 15a and Figure 15b). The line continuity required for the completion of the pattern is provided by at least three corners of the motifs touching the tessellation polygons. The points where the motifs touch the tessellation polygon are usually the midpoint of the polygon's side. Each motif can be drawn separately inside the polygons of the tessellation, considering all the properties of the five-fold patterns. Another alternative is to draw any motif and to complete the motifs with the help of parallel and perpendicular lines, taking into account the rule of continuity of the lines. In this study, motif drawings are not explained in detail.

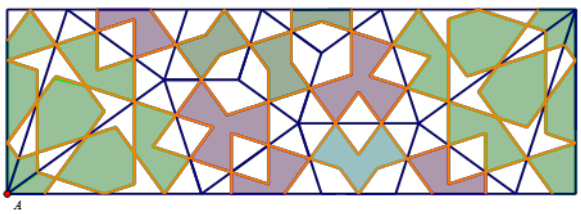


Figure 14a: Highlighted pattern motifs

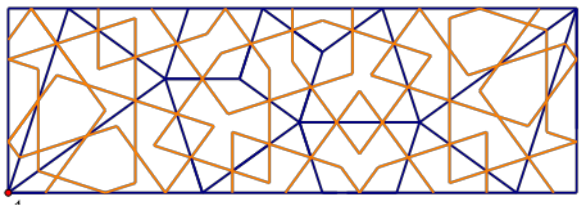


Figure 14b: Drawing of pattern's motifs

3.2.5. Checking the small pattern mold

Since the pattern has five-folds, the angles of each polygon of tessellation and the motifs in the small pattern mold should be multiples of 180. Angles were measured in the drawing program, and each polygon properties were provided.

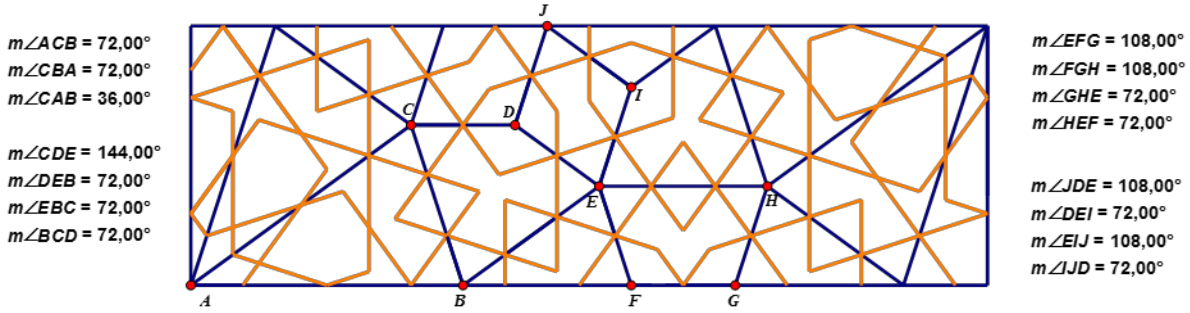


Figure 15: Angle properties of the polygons

3.2.6. Completion of the pattern

The tessellation of the small pattern mold, checked to complete the pattern, was deleted (Figure 17). Thus, only the motifs remained in the small pattern mold, and the pattern was made ready to be reflected.

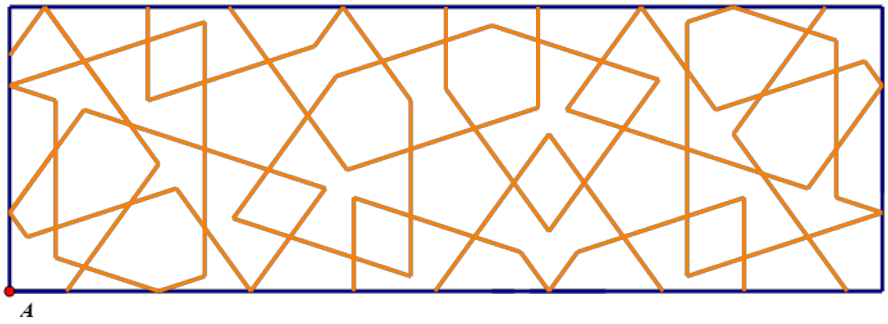


Figure 16: Small pattern mold

Since the small pattern mold of this pattern is 1/4 of the whole, the whole pattern was constructed by two mirroring operations with respect to [XY] and [ZZ'] (Figure 18a ve Figure 18b). Then the axes of symmetry were deleted. The final step of the pattern is in Figure 19.

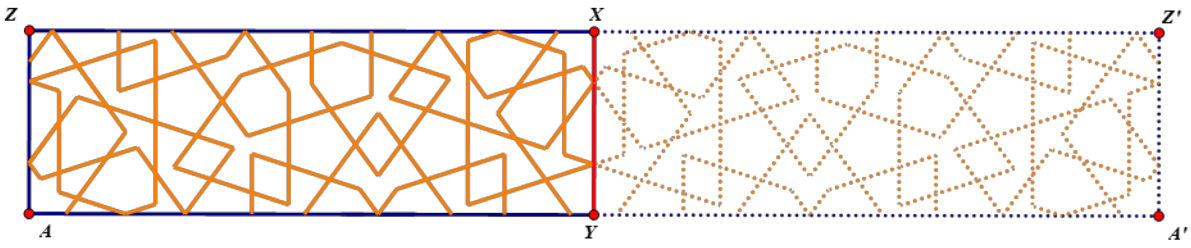


Figure 17a: Mirroring operations with respect to [XY]

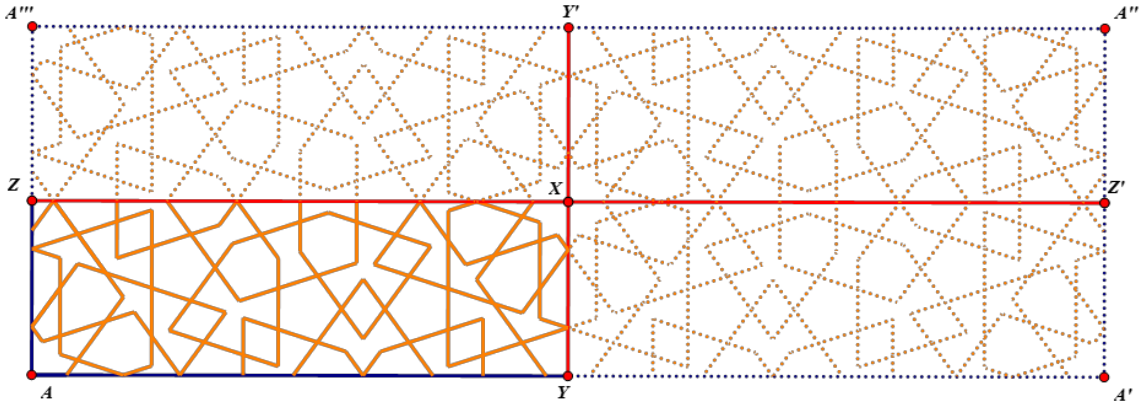


Figure 17b: Mirroring operations with respect to [ZZ']

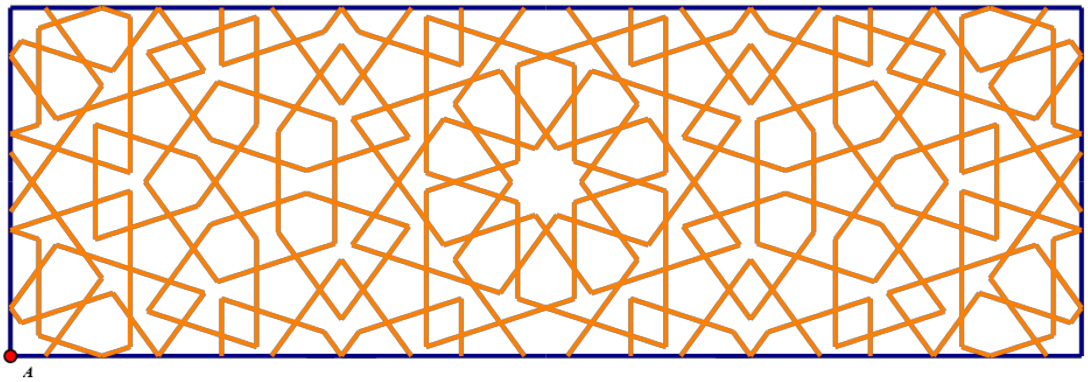


Figure 18: Üsküdar Mihrimah Sultan Mosque Window Shutter Pattern

4. Conclusion

It is not possible to completely abstract the mathematics that exists in life from culture. For this reason, it is very important to make sense of mathematical knowledge in the context of culture. As in other cultures, Anatolian culture was blended and fed mathematics with art. Geometric patterns are special structures where Anatolian culture blends mathematics and art. In the study, the concept of Key Length in the construction of geometric patterns provided the meaning of the knowledge. In addition, geometric patterns construct with the concept of Key Length are demonstrated. On the other hand, the polygons that make up the patterns that exist in the context of a culture are presented by naming them in the context of the same culture. It has been emphasized that these namings are much more important when it comes to a structure in which culture, art and mathematics progress together.

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Special Needs Elementary Schools' Clinical Supervision In Indonesia

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Abstract
The relevance and challenges of clinical supervision for effective teaching and learning in Elementary schools with special needs exploring through descriptive survey research. We collected data using twenty questionnaire items from 429 respondents consisting of principals and teachers and analyzed them using t-test statistics. The research findings reveal several relevancies of clinical supervision in teaching and learning: improving teacher classroom behavior and supporting students' clinical learning. Clinical management has challenges, including disagreements on collaboration between teachers and principals, lack of trained supervisors, inadequate supervisors in various areas of specialization, and time constraints. Based on these findings, this study recommends that the Management Board of elementary schools with special needs requires clinical supervision at least once a month.

Keywords: Teaching, Learning, Principal, Teachers, The Particular Need

1. Introduction

Effective teaching and learning are urgent to achieve the goals of educational institutions. Therefore, the maximum involvement of all administrators is significant (Keller et al., 2021) and supports the practice of influencing student achievement (Grund et al., 2022). Several researchers reported on effective teaching and learning and recently identified the characteristics of effective teaching (L. Chen et al., 2022; Cvetkova et al., 2010). The steps include practical teaching arrangements and clear goals for the classroom (Bardach et al., 2021), involving high expectations from students (Whitelock-Wainwright et al., 2021) with a focus on academics (Chhor et al., 2022). Maintain class regularly (X. Chen & Lu, 2022), use appropriate materials for teaching (Karst et al., 2022), and monitor student performance (Vilanova et al., 2019). Teachers in special education schools need some basic skills because of the specificity students possess. Everything they report is only limited to regular schools and does not explain schools with special needs. Therefore, we feel it is necessary to investigate the pattern that fits within the scope of elementary schools with special needs to get good results.

Effective teaching leads to effective learning, and ten Hagen et al. (2022) stated that teacher effectiveness is positively related to student achievement. Permanent positive changes in learner behavior are characteristics of effective learning (Choi et al., 2019). Effective teaching applies to all teachers at all levels (Finefter-Rosenbluh et al., 2021), including elementary schools with special needs. Learning is helping human resources to a higher level

(Hofer et al., 2022) and making people who are intelligent, knowledgeable, and expected to become leaders in their field of business (Hofer et al., 2022). Therefore, education administrators at that level are responsible for ensuring the support of teaching and learning activities that are appropriate for the development of their schools. Such administrators should endeavor to supervise their teachers and ensure that they are dedicated to their work so that there will be positive, permanent, and beneficial changes in student behavior. To support the above, Pazey et al. (2014) and Llantos & Estuar (2019) noted that school administrators as instructional leaders must oversee the implementation of the curriculum and the delivery of teacher instruction.

The phase of school administration focuses primarily on the achievement of the education system' appropriate instructional expectations is supervision. It is the process of guiding, directing, and stimulating growth to improve teaching and learning (Duan et al., 2022; Zhang et al., 2022). Due to the limitations of supervision methods in special education, such as differences in teacher perceptions and the ineffectiveness of supervision, we believe the most modern and appropriate approach that leads to effective teaching and learning methods is clinical supervision. The supervision method that focuses on improving teachers' performance through direct interaction of supervisors and teachers in natural teaching settings was developed at Harvard University by Morri Cogan. Clinical supervision improves the performances of staff members who provide teaching and learning to the learner. Clinical management is conducted through repeated stages to form an ongoing cycle.

At the same time, McKellar & Graham (2017) posit models or phases of clinical supervision in a cycle form that minimally of five stages. The five stages are pre-observation conference, observation, analysis and strategy, supervision conference, and post-conference analysis (van de Mortel et al., 2021). Pre observation conference is the teacher and the supervisor plan for the supervisor's forthcoming visit to the classroom. They decide to observe specific behaviors or events. The observation is in two global or particular types. Generally, the supervisor records all teacher behaviors. In a detailed statement, he noted selected behaviors agreed upon earlier and recorded. Pre and post-observation get a mutually acceptable location. In the clinical supervision cycle, the supervisor is a knowledgeable, trained, and experienced teacher's peer. He should demonstrate skills following non-directive, collaborative, and directive approaches and know when to use each. A post-observation conference should occur after the supervisor has time to analyze and organize the data.

Clinical supervision of teachers is a concept born in the 1960s at Harvard and continued later at the University of Pittsburgh. It originated in the frustration that Morris Cogan and Robert Goldhammer felt while trying to improve the instructional practices of beginning teachers. The term borrowed from the medical profession had since become what to describe the approach of experienced teachers coaching younger, inexperienced teachers to improve their teaching ability in a classroom setting. Depending on the school district involved, this could take on a variety of appearances (Harvey et al., 2020). It might be a seasoned teacher working with a student teacher assigned to them by their principal. However, it could also take the form of an experienced teacher, called a mentor, coaching a first-year teacher in their school, referred to as a mentee. The coaching can involve observations or other work the pair does to improve the mentee's teaching practices (Sundler et al., 2019).

In either case, the model of clinical supervision uses experienced teachers as trusted colleagues rather than their evaluators. Evaluators are there to determine whether a teacher should remain in the classroom, while the mentor's role is to help the mentee improve their teaching. Leaving the experienced teachers out of the student teacher's or new teacher's evaluation allows them to bond with colleagues in a trusting relationship. The relationship of mentor to mentee aims to nurture and coach the new teachers to succeed in their classrooms (Embo et al., 2015).

Treatment of clinical supervision may differ for each country due to the diverse characteristics of students. In Indonesia, students' ethnicity and first language differences are particularly concerning for teachers when conducting learning. Therefore, the questions of this research are (1) Is the clinical supervision relevant to effective teaching in Elementary schools with special needs in North Sumatra, Indonesia? (2) What is the challenge of clinical supervision in special needs elementary schools? There have been many reports on implementing clinical supervision in regular Indonesian schools, but it is still very minimal at the elementary school level with special needs. With that in mind, it is essential to obtain information to form an appropriate format for schools with special

needs. We explore the relevance and challenges of clinical supervision in effective teaching in primary schools with special needs in Indonesia based on the diversity of student characteristics.

2. Method

We requested permission from the provincial education office in North Sumatra to implement the clinical supervision design in elementary schools with special needs. Clinical supervision lasts eight weeks working days. There are sixty schools with 795 teachers and sixty principals (Ministry of education, culture, research, and technology of Indonesia, 2022). We used a proportionate sampling technique to get the sample size of 429 respondents (383 teachers, forty-six principals).

We collected data through a descriptive survey to identify the relevance of clinical supervision to effective teaching and learning. It collected data using the instrument of a 20 – item questionnaire on the relevance and challenges of using clinical supervision for effective teaching and learning.

We validate measurement tools by involving education management experts and measurement and evaluation experts first before using them. The device was a modified four-point scale ranging from Strongly Agree (SA) – 4 points to Strongly Disagree (SD) – 1 point. Testing the instrument reliability coefficient used the Cronbach alpha method and obtained .75 and .84 for clusters 1 and 2, respectively, while the overall index was .80.

We use Mean (M) and Standard Deviation (SD) to answer the research questions. The mean scores of principals and teachers for decision–making as a benchmark is 2.50. The item with a score of 2.50 and above is agreed, whereas those below have disagreed. We used a T-test to establish the significant difference in mean score between teacher and principal.

3. Results

3.1. Clinical supervision relevance

Principals and teachers agree with the relevance of clinical supervision, as in Table 1. The principals' grand mean = 2.67, and the teachers' = 2.70. These excellent means were above the benchmark of 2.50. However, items 5 and 10 on the teacher's side and item 6 on the principal's disagreed on the relevance of clinical supervision in effective teaching. These items have a mean below the benchmark of 2.50.

Table 1: Principals and teachers on the relevance of clinical supervision on effective teaching and learning of special needs elementary school

No	Statement	Principals, n = 46			Teachers, n = 383		
		Mean	Sd	Decision	Mean	Sd	Decision
1	Clinical supervision improves teachers' classroom behavior regarding the method and interaction ability.	2.62	1.02	Agree	2.72	1.04	Agree
2	They improve instruction by direct feedback to a teacher on an aspect of his teaching.	2.75	1.01	Agree	3.23	1.00	Agree
3	The approach allows the teacher to identify and discuss what improves his teaching.	2.75	.97	Agree	2.70	.90	Agree
4	It is more concerned with classroom activities that favor students learning than general school activities.	2.64	1.16	Agree	2.62	1.14	Agree
5	Clinical supervision between teachers and supervisors sharpens programs,	2.65	1.07	Agree	2.28	1.02	Disagree

	procedures, and strategies to enhance student learning.						
6	Clinical supervision removes the fear of inspection and general care instilled in the teachers that stifle learning.	2.11	.99	Agree	2.62	.84	Agree
7	Clinical supervision allows the two persons concerned to find a particular way of improving teaching and learning.	2.68	1.12	Agree	2.89	1.13	Agree
8	Professional development and improvement in the face-to-face and one-to-one teaching and learning offered by clinical supervision in classroom teaching are needed.	3.00	1.09	Agree	2.58	1.06	Agree
9	Clinical supervision allows the teacher to solve instructional problems such as interpreting concepts, choosing suitable instructional materials for a given topic, and formulating lesson objectives.	3.00	1.05	Agree	2.87	1.26	Agree
10	It provides the opportunity to have a good working climate in the school, enhancing teaching and learning.	2.54	.93	Agree	2.48	1.19	Disagree
	Grand Mean	2.67	1.19	Agree	2.70	.98	Agree

3.2. Challenges of clinical supervision

Table 2, the ten items listed are clinical supervision challenges that can hinder effective teaching and learning approved by principals (mean large = 2.79) and teachers (mean large = 2.75). The average of these items is above the benchmark of 2.50.

Table 2: Clinical supervision challenges may hinder effective teaching and learning

No	Item statement	Principals, n = 46			Teachers, n = 383		
		Mean	Sd	Decision	Mean	Sd	Decision
1	The problem of clinical supervision makes school supervision an internal affair.	2.54	1.10	Agree	2.59	1.06	Agree
2	It gives time constraints on the school administrator to carry out clinical supervision on all the teachers.	3.11	.75	Agree	2.79	1.04	Agree
3	Teachers always feel dissatisfied due to the principal who provides clinical supervision.	2.64	.95	Agree	2,81	.92	Agree
4	It constitutes work overload for school administrators because it makes them hard-pressed to do the job well.	3.07	1.12	Agree	3.31	1.04	Agree
5	Teachers do not use clinical supervision wisely after offering assistance.	2.93	1.15	Agree	2.65	1.16	Agree
6	It is challenging to find supervisors trained in various areas of specialization to carry out cross-disciplinary clinical supervision regarding content and pedagogy.	2.75	1.17	Agree	2.63	1.13	Agree
7	Money poses a problem when the school decides to lunch a program on clinical supervision.	2.71	1.08	Agree	2.69	.83	Agree

8	Lack of technological gadgets to be used, especially as it concerns the recording of what occurred to enhance the use of clinical supervision	2.68	1.12	Agree	2.61	.82	Agree
9	Using clinical supervision frequently influences teaching, and learning will be boring to teachers.	2.75	.89	Agree	2.79	.90	Agree
10	School administrators in Enugu state lack competency in the use of clinical supervision.	2.68	.95	Agree	2.58	1.17	Agree
Grand Mean		2.79	1.03	Agree	2.75	1.01	Agree

3.3. The principals' and teachers' relevance of clinical supervision to effective learning

The calculated T-test value of - .13 is less than the critical value of ±1.96 at a .05 level of significance and 427 degrees of freedom (Table 3). The responses of principals and teachers regarding the relevance of clinical supervision to the effectiveness of teaching and learning in elementary schools with special needs in North Sumatra were not significantly different. Thus, not rejecting the null hypothesis.

Table 3: Comparison of principals' and teachers' responses to the relevance of clinical supervision in teaching and learning in special needs Elementary schools in North Sumatra

Variable	Mean	Sd	N	df	Sig.	T_{-Crit}	T_{-Cal}	Decision
Principal	2.67	1.19	46	427	.05	± 1.96	- .13	not significantly different
Teacher	2.70	.98	383					

3.4. The principals' and teachers' challenges of clinical supervision on effective teaching and learning

In Table 4, the calculated t is less than the table t value of ±1.96 at the .05 level of significance and 427 degrees of freedom. It shows that there is no significant difference in the responses of principals and teachers to the challenges of clinical supervision in effective learning. Both respondents agreed to the same degree that the item was a challenge.

Table 4: Comparison of the responses of principals and teachers on the challenges of clinical supervision on teaching and learning.

Variable	Mean	Sd	N	df	Sig.	T_{-Crit}	T_{-Cal}	Decision
Principal	2.79	1.03	46	427	.05	± 1.96	- .20	no significant difference
Teacher	2.75	1.01	383					

4. Discussion

Research question 1 was to identify the relevance of clinical supervision to effective teaching and learning. Findings revealed that clinical management improves teachers' classroom behavior, improves instruction through direct feedback, and identifies the teaching method to enhance students' knowledge and create a good relationship between the supervisor and the supervisee. The benefits identified by the study agree with the statement made by (McKellar & Graham, 2017; Hall, 2019) that clinical supervision helps the supervisor and supervisee identify and develop problem-solving strategies, which usually leads to changes in teaching behavior. In support of the above, Dickie et al. (2019) opined that the clinical supervision model rests on the conviction that direct feedback can improve instruction to a teacher on aspects of his teaching, which will enhance learning. Research question 2 examined the challenges of clinical supervision on effective teaching and learning. The result indicated that challenges like time constraints on the part of school administrators and work overload adversely affect adequate clinical care and education. In addition, the lack of funds to launch full clinical supervision and inadequate technological equipment to record what happened were barriers to clinical management.

Another problem was that there were no trained supervisors to carry out this exercise. It is in opposition to Duan et al. (2022) recommendation that training for supervisors is needed because clinical supervision is very technical and unique. Reiser (2021) also retaliated that the supervisor plays the role of the teacher's knowledgeable, trained, and experienced peer. The t-test analysis in table 3 and 4 show that there is no significant difference between the mean rating of scores of principals and teachers on the relevance and challenges of clinical supervision on adequate supervision in secondary schools in North Sumatra, Indonesia.

5. Conclusions

This study's findings have many implications for special needs secondary education in North Sumatra. Some of the identified benefits of clinical supervision for effective teaching and learning are clinical care allows the supervisor to observe the teacher in the classroom as a clinic and interacts with the supervisee on issues about his education. We also found problems related to the implementation of clinical supervision. The reason is that clinical management, which has many advantages in the teaching process, will not be able to be carried out effectively if these obstacles still exist.

6. Recommendations

Based on the finding of the study, we made some recommendations:

1. The Early Childhood Education Management Agency requires clinical supervision to be carried out in all elementary schools with special needs in North Sumatra at least once a semester.
2. Principals and teachers must create awareness of the need for clinical supervision for effective teaching and learning.
3. Principals and supervisors need the training to conduct clinical supervision exercises in our schools.
4. Government should budget money for principals. They need it in clinical supervision.
5. The school administrator should allocate a simulator for clinical supervision exercises.
6. Good technological gadgets should be provided for teaching and recording what occurred during clinical supervision exercises.

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