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Table of Contents	i
Education Quarterly Reviews Editorial Board	iii
Does Getting into a First-Choice University Affect Learning Attitude in Japan? Ryo Takeshita	1
A Teaching Note on Contracts Richard J. Hunter, Jr., John H. Shannon, Henry J. Amoroso	12
The Influence of Teachers' Wages on Student Performance in Mathematics and Reading at Urban and Rural Primary Schools in Burkina Faso Sayouba Ouedraogo	39
The Effect of Problem-Based Learning Models on Improving High School Students' Learning Achievement Nurmiati, Phika Ainnadya Hasan	68
Results of a Postgraduate Survey of Physiotherapists who Participated in an Undergraduate International Exchange Program Kazumasa Nakagawa, Yuko Takahashi	80
Analyzing Jeanne's Character and its Tragic Elements in Une vie from Hippolyte Adolphe Taine's 'Three Elements' Perspective Luyao Xia, Mengyan Xie, Xinyi Zhu, Li Chao	87
A Study of the Problematic State of Teachers' use of Innovation in Teaching and Learning Management at Thailand National Sports University Chon Buri Campus Arthicha Unarmat, Kanika Inchana, Thanarit Thanaiudompat, Jakkarpan Semoum	97
Research on the Strategies for Cultivating College Students' Digital Innovation Abilities in the Context of the Digital Intelligence Era Jialu Wu, Jiating Tang	105
Student Responses to Merdeka Belajar Kampus Merdeka Regarding Learning Loss When Experiences Outside Campus Suyono, Agus Purnomo, Nevy Farista Aristin	114
Nurturing Excellence: An Evaluation of the Higher Education Quality Assessment Model from the Perspective of Undergraduate Students in Somalia's Benadir Region Abukar Mukhtar Omar, David Onen, Irene Etomaru	121

Children Early Nutrition Supplementation and Augmenting Factors in Teaching of Reading in Lungwena, Mangochi District, Malawi Chikondi Maleta, Edrinnie Kayambazinthu, Anthony Chigeda, Patrick kambewa	133
Developing A SERVQUAL-Based Scale for Measuring Student Satisfaction with Academic Service in Higher Education Yosef, Arief Rachman Ibrahim, Muhammad Yusup, Damar Tatur Wicaksono, Putri Amalia	146
Teaching at the Right Level: From Pre-service Teachers' Perspective to Design of Teaching Material Hasan Busri, Ari Ambarwati, Khoirul Muttaqin, Gusti Firda Khairunnisa	158
Development of Social Competence of Future Tourism Specialists by Conducting Excursions within the Framework of English Language Classes Madina Ozturk	172
Guidelines for Promoting the Mental Health of Sarasas Affiliated Schools Teacher Punya O-sod, Anusorn Nampradit	181

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Does Getting into a First-Choice University Affect Learning Attitude in Japan?

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Abstract

In Japan, one in two people attends university after graduating from high school, and the annual university dropout rate is low. However, more than 80% of university students study for less than 10 hours a week outside of class. If high school graduates cannot pass the first-choice university exams and enter a university that is not their first-choice university, they might lose motivation to study harder because they cannot receive the desired education or curriculum. To investigate whether those who pass the entrance exam for their first-choice university spend more time studying outside class than those who do not, I used microdata on Japanese university students. From the OLS estimations, I found that whether students study is likely to be more influenced by their satisfaction with their university life than by whether they were able to enroll in their first-choice university. Additional ordered probit estimations concerning students' learning attitudes revealed that students who were dissatisfied with their first choice displayed higher levels of laziness than students who were satisfied with their first choice.

Keywords: First-Choice University, Japanese University Students, Learning Attitude, Satisfaction with University Life, Study Time

1. Introduction

The Japanese university enrollment rate in 2022 was 56.6% (Note 1). In other words, one in two people attended university after graduating from high school. Graduates from highly selective universities receive very high wages, and many students want to enter such universities; however, not all students can attend their first-choice university, and only a limited number of applicants are successful. As Ono (2004) points out, university quality has an important effect on earnings in the Japanese labor market. Ono (2004) also noted that “examination hell” is an expression that means cramming and preparing for the entrance exam to get into a good university. Some students, even prospective *Ronin* students, aim to attend universities with difficult entrance exams to increase their lifetime wages (Note 2). On the contrary, because of the declining birth rate in Japan, high school graduates with low academic ability can enroll in universities if they do not choose a university. Thus, the gap between universities that are difficult to enroll in and those that are easy to enroll in is widening (Note 3).

As Vansteenkiste et al. (2009) pointed out, autonomous motivation is related to higher psychological well-being, greater use of adaptive metacognitive strategies, greater determination and will, better cognitive processing, and higher grades. If we follow this idea, university students might study longer when they pass the first-choice university entrance exams, because passing the first-choice university is thought to increase autonomous motivation. However, if their goal is to enter a prestigious university, the amount of time they spend studying will be short.

Tables 1 and 2 present the study hours per week of Japanese university students investigated by the National Institute for Educational Policy Research (2016), where more than 80% of university students study less than 10 hours a week outside of class. This trend does not vary according to the type of university or students' grades. According to the Ministry of Education, Culture, Sports, Science and Technology of Japan (2022b), the annual university dropout rate in Japan is 1.95%. This means that almost 90% of Japanese university students can obtain a bachelor's degree without studying for long hours outside of class. In other words, almost all Japanese students can graduate from university with little study beyond their regular classes.

Table 1: Class preparation and review hours per week

Hours per week	Whole	National University	Public University	Private University	First Grade	Second Grade	Third Grade	Forth Grade
0	21.1	20.5	19.9	21.3	11.9	11.8	14.7	44.5
1~5	51.9	45.5	49.7	53.5	58.0	55.9	55.9	40.6
6~10	15.8	19.3	18.3	14.9	19.3	19.3	17.1	8.0
11~15	5.7	7.2	6.3	5.3	6.3	7.7	6.1	2.6
16~20	2.2	3.8	2.1	1.9	2.1	2.6	2.5	1.4
21~25	1.1	1.4	1.1	1.1	1.0	1.0	1.4	0.9
26~30	0.5	0.6	0.8	0.4	0.2	0.5	0.7	0.4
31~	0.9	1.1	1.1	0.8	0.5	0.6	0.9	0.8
Unknown	0.7	0.7	0.8	0.7	0.7	0.5	0.6	0.9
Total (%)	100	100	100	100	100	100	100	100

Source: National Institute for Educational Policy Research (2016), *Investigative Research on the Learning Situation of University Students*

Table 2: Study hours not related to classes per week

Hours per week	Whole	National University	Public University	Private University	First Grade	Second Grade	Third Grade	Forth Grade
0	44.7	42.8	42.8	45.2	52.8	48.8	35.6	43.0
1~5	35.7	35.1	33.7	35.9	35.4	36.9	41.3	30.7
6~10	9.2	9.8	11.0	8.9	6.4	7.4	11.2	11.3
11~15	3.7	4.2	4.2	3.6	2.0	2.9	4.6	5.2
16~20	1.9	2.2	2.1	1.8	1.0	1.3	2.1	2.9
21~25	1.2	1.4	1.7	1.1	0.7	0.5	1.4	1.8
26~30	0.7	0.8	1.1	0.6	0.1	0.3	1.1	3.0
31~	2.0	2.8	2.2	1.8	0.6	0.6	1.8	3.5
Unknown	1.0	0.8	1.2	1.0	1.0	1.3	0.9	0.6
Total (%)	100	100	100	100	100	100	100	100

Source: National Institute for Educational Policy Research (2016), *Investigative Research on the Learning Situation of University Students*

If high school graduates cannot pass the first-choice university exams and enter a university that is not their first-choice university, they might lose motivation to study harder because they cannot receive the desired education or

curriculum. On the other hand, even though they enter a university that is not their first choice, they might study hard to catch up and gain an advantage in job searches.

Therefore, this study aims to analyze whether those who pass the entrance exam for their first-choice university spend more time studying outside of class than those who cannot. Additionally, I examined the effects of passing the entrance exam to their first-choice university on students' learning attitudes. The remainder of this paper is organized as follows: The relevant literature is discussed in Section 2. Section 3 describes the data and variables used in the estimations, and Section 4 presents the estimation results. Finally, Section 5 summarizes the major findings.

2. Literature Review

In this section, I review previous studies that have investigated the study time of university students and their motivation to study. I focused mainly on the studies conducted on Japanese university students.

Vansteenkiste et al. (2009) studied 484 first-year students from four Belgian teacher training institutions. They conducted cluster analyses and found four clusters: a good-quality motivation cluster with high scores on autonomous motivation and low scores on controlled motivation; a high-quantity motivation cluster with high scores on both autonomous and controlled motivation; a poor-quality motivation cluster with low scores on autonomous motivation but high scores on controlled motivation; and a low-quantity motivation cluster with low scores on both autonomous and controlled motivation. They found that the high-quality motivation group displayed an optimal pattern of educational outcomes.

Saitou (2002) investigated the relationship between motivation for university applications and stress after university enrollment. He collected a sample of 525 students from four Japanese universities. From the results of the factor analysis, he observed five main factors: (1) because of their parents' orders and their friends going to university; (2) because they want to enjoy their free time; (3) because they do not want to work immediately after graduating from high school; (4) because they want to develop their talents and learn manners; and (5) because they want to study at a university. He found that if students' motivation was (4) or (5), they were less likely to experience stress during university life.

Yajima (2005) collected a sample of 207 students from two universities in Japan to consider students' adaptation to university conditions along with the Self-Rating Depression Scale. He found that students who attended their first-choice universities were less likely to experience depression. His correlation analysis revealed a negative correlation between satisfaction with university life and working part-time. He guessed that one of the reasons students drop out of school is because part-time jobs become interesting, and they end up doing part-time jobs all the time. He argued that, to reduce the proportion of such students, support is needed to increase their satisfaction with their university lives.

Hatano and Mizokami (2013) focused on freshmen attending a university in Kyoto Prefecture and examined university students' learning from the perspective of their attitude toward learning and the time spent learning using the Active Class Attitude Scale. They also examined correlations between active class attitudes and in-class, out-of-class, and independent learning times. These correlation analyses revealed that active class attitudes were positively and significantly correlated with all types of study time.

Morozumi (2011) considered the effects of household income on the time spent learning using microdata from Japanese university students. She confirmed that students whose parents did not provide any living expenses spent a very short time learning, undertook long part-time jobs, and obtained poor test scores. Furthermore, she found that, although students who take out educational loans have good grades, they do not seem to have much time to prepare and review their studies. Students whose parents provide all tuition fees and living expenses have less time for part-time jobs, but they do not have much time to study and improve their test scores either.

Osumi et al. (2013) targeted 189 freshmen and surveyed them three times (April, July, and October 2007) to explore the factors that affect the degree and change in freshmen's feelings of adjustment to university. Participants were asked whether they were enrolled in their first-choice universities, their level of confidence during the entrance exams, their degree of adjustment to university life, and their relationships with their friends. They found that freshmen who entered their first-choice university and had a good time with their friends displayed high adjustment to their university life immediately after enrollment, and their adjustment levels declined gradually.

Kurokawa and Kawahara (2020) investigated the effects of the frequency of class attendance, time spent preparing and reviewing, academic ability before admission, and level of interest in class on test scores using microdata from students affiliated with a certain university in Japan. Multiple regression analyses revealed that all variables had a positive and significant effect on test scores. However, they estimated that more than 60 min of preparation and review per class were not very effective.

From these studies, a close relationship was observed between acceptance into a university of one's first choice and adapting to the university. As Kurokawa and Kawahara (2020) have pointed out, spending time on preparation and review has a positive effect on test scores. However, Japanese university students generally do not study outside of class, and these previous studies did not investigate the relationship between acceptance into their first-choice university and time spent studying outside of class. Thus, I investigated the direct effect of passing the entrance exam of their first-choice university on study time outside of class. Additionally, I examined the effect of passing the entrance exam to their first-choice university on students' learning attitudes.

3. Data

This section explains the data used for the estimation. For the analysis, I used the data from the "Career Awareness Survey of University Students, 2019," which targets first- and third-grade university students in Japan. The respondents of the "Career Awareness Survey of University Students, 2019" comprised 1031 first-grade students (563 males and 468 females) and 1031 third-grade students (563 males and 468 females).

In the first analysis, the dependent variable was time spent on class preparation, review, or study hours unrelated to classes. Respondents reported how much time they spent each week in classes, preparing for and reviewing classes, studying unrelated to classes, playing with friends, participating in club activities, working part-time, volunteering, watching TV, talking on the phone, using social media, surfing the internet, playing games, reading manga, and commuting to school. Some respondents were excluded from the analysis because their total working time exceeded 130 hours per week, which made their responses unreliable (Note 4).

To investigate the effects of passing the entrance exam for their first-choice university on study hours outside class, I created two types of dummy variables concerning their first-choice university. The first dummy variable was simply whether the university in which they were currently enrolled was their first choice at the time they took the entrance exam. I describe this type of dummy variable as "first-choice." The second dummy variable was a combination of whether the university was their first choice and whether they were satisfied with it. Thus, the respondents were divided into four types: 1) first choice and satisfied; 2) first choice but dissatisfied; 3) not first choice but satisfied; and 4) not first choice and dissatisfied. When I used the second type as the independent variable, respondents under type 4 (not first choice and dissatisfied) were the reference group.

To account for differences in individual attributes and faculties, several dummy variables were used as independent variables. If the respondent is female, the female dummy variable is equal to 1, otherwise 0. The third-grade dummy variable takes a value of 1 if the respondent is a third-grade university student (the reference group is a first-grade university student). In Japan, national and public universities are more difficult for admission than private universities. This is because national and public universities have lower tuition fees than private universities and have more entrance exam subjects. For example, the annual tuition fees of national and public universities are about 3600 US dollars, while those of private schools are about 6300 US dollars. For many subjects taken at national and public universities, taking a first exam (approximately seven subjects) and a second exam (approximately three subjects) is necessary. However, most private universities only require students to take two

or three subjects, and the exam complexity varies greatly depending on the university. To reflect this situation, I introduced public and private dummies (the reference group was a national university).

The curriculum also varies greatly, depending on the faculty. For example, science departments conduct many experiments, and nursing and medical schools provide considerable practical training. However, many classes in the liberal arts departments are lecture-based. To control for faculty differences, I used faculty dummy variables and adopted the humanities as the reference group.

I also considered students' academic abilities. If students had very good grades at the time of admission, their tuition fees were reduced or waived (tuition fee exemption dummy and grant-type scholarship dummy). In Japan, parents sometimes pay for university students' tuition and living expenses, but families that are not economically well-off often opt for educational loans to attend higher education. If a student takes out an educational loan, the dummy variable for educational loans equals 1.

To investigate the effect of passing the entrance exam for their first-choice university on students' learning attitude, I adopted four indicators: periodic examination results, motivation to learn (self-evaluation), performing tasks with minimal effort, and the mindset that students just need to get the credit. Concerning periodic examination results, this variable takes the value 5 if respondents answered that they scored 80 or above in 80% or more of their courses. This variable takes 1 if the respondent answered that they scored 80 or above in less than 20% of their courses. Thus, this variable had a high value when the proportion of participants with high scores increased. For motivation to learn (self-evaluation), respondents were asked the following question: "Do you think you have a strong desire to learn?" If the respondents strongly agreed with this question, this variable was scored 4. If the respondent strongly disagreed with this question, this variable was scored 1. The remaining two indicators were regarding laziness. If the respondent answered "strongly agree" to the question "Do you approach tasks with minimal effort?", they were assigned a value of 5. Those who tackled a task with great effort were assigned a value of 1. For this variable, higher numbers indicated laziness. Similarly, the question "Do you go to class thinking that all you need to do is get the credits?" is the same concept. If respondents were only concerned about getting credits, the variable was scored 5. On the other hand, if the respondent wanted to receive a good evaluation and not just credits, the variable was scored at 1. Table 3 presents the descriptive statistics.

Table 3: Descriptive statistics

Variable	Obs	Mean	SD	Min	Max
Periodic examination results	1,837	3.71	1.14	1	5
Motivation to learn (self-evaluation)	1,947	2.42	0.90	1	4
Perform tasks with minimal effort	1,947	3.14	1.11	1	5
Mindset that I just need to get the credits	1,947	2.98	1.24	1	5
Class preparation and review	1,947	4.51	4.77	0	50
Study hours unrelated to classes	1,947	2.17	4.68	0	70
Humanities (reference)	1,947	0.21	0.41	0	1
Social science	1,947	0.27	0.44	0	1
Science course	1,947	0.27	0.45	0	1
Art	1,947	0.03	0.18	0	1
Liberal arts and science	1,947	0.04	0.20	0	1
Medical course (4-year)	1,947	0.09	0.29	0	1
Medical course (6-year)	1,947	0.05	0.22	0	1
Other faculties	1,947	0.03	0.17	0	1
Variable	Obs	Mean	SD	Min	Max
Female	1,947	0.46	0.50	0	1
Third grade	1,947	0.50	0.50	0	1
National school (reference)	1,947	0.27	0.45	0	1
Public school	1,947	0.09	0.28	0	1
Private school	1,947	0.64	0.48	0	1
First-choice	1,947	0.52	0.50	0	1
First-choice and satisfied	1,947	0.42	0.49	0	1
First-choice but dissatisfied	1,947	0.10	0.30	0	1
Not first-choice but satisfied	1,947	0.35	0.48	0	1
Not first-choice and dissatisfied (reference)	1,947	0.13	0.34	0	1
Tuition fee exemption	1,947	0.15	0.36	0	1
Grant-type scholarship	1,947	0.08	0.27	0	1
Education loan	1,947	0.34	0.47	0	1

4. Estimation results

In this section, I first examined the effects of passing the entrance exam for their first-choice university on study hours outside class. Table 4 presents the estimation outcomes using OLS. I used the time spent on class preparation and review as dependent variables in models (1) and (2). Compared with students at national universities, students

at private universities spend significantly less time preparing and reviewing. Because the coefficients of the science and medical course dummies (both 4th-year and 6th-year) are positive and statistically significant, science students and students aiming to obtain national qualifications (such as doctors and nurses) spend more time preparing and reviewing than liberal arts students.

The coefficient of the first-choice dummy is negative but insignificant. Being accepted by the first-choice university did not seem to increase university students' study time. In Model (2), I changed the types of dummy variables concerning first-choice universities. None of the coefficients were significant; therefore, at first glance, it appears as if there was no difference. However, the signs of first choice and satisfied and the sign of first choice but dissatisfied are the opposite. When I conducted the F test to determine whether these coefficients were equal, they were rejected at the 5% significance level. Thus, students who were admitted to their first-choice university but were dissatisfied with their university life spent less time on class preparation and review than those who were admitted to their first-choice university and were satisfied with their university life.

In Models (3) and (4), study hours unrelated to classes were used as the dependent variable. The coefficient of the third-grade dummy is positive and significant. Because study hours unrelated to classes include preparation for job hunting and graduate school entrance exams, and because this survey was conducted in November-December, third-grade students are likely to spend more time studying for unrelated classes than first-grade students (Note 5). National university students spent more time studying outside of class than other types of university students. Contrary to models (1) and (2), the coefficients of the science and medical course dummies (both 4-year and 6-year) are negative and statistically significant. These students have long class hours and long preparation and review classes; therefore, it seems that they do not have time for studies unrelated to their classes. In Model (3), the coefficient of the first-choice dummy variable is negative at the 10% significance level. This suggests that students admitted to their first-choice university may have a shorter time to study for unrelated classes than other students. In Model (4), the sign of the first choice and satisfied and the sign of the first choice but dissatisfied are the same. I conducted an F-test to determine whether these coefficients were equal and could not reject this hypothesis. Concerning study hours unrelated to classes, study time does not seem to have much to do with whether students enter their first-choice university or are satisfied with their university.

Table 4: Estimation results (spending time on study outside of classes as a dependent variable)

	Class preparation and review				Study hours unrelated to classes			
	Model (1)		Model (2)		Model (3)		Model (4)	
Independent variables	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. err.	Coef.	Std. Err.
Female	0.2139	0.2103	0.1915	0.2097	-0.3960 *	0.2189	-0.3870 *	0.2200
Third grade	-0.1143	0.2075	-0.1023	0.2075	1.1298 ***	0.2079	1.1396 ***	0.2079
Public school	0.1700	0.4961	0.2588	0.4984	-1.0610 ***	0.3363	-1.0737 ***	0.3366
Private school	-1.0142 ***	0.2707	-0.9415 ***	0.2726	-0.8003 ***	0.2939	-0.8062 ***	0.2891
Social science	-0.3279	0.2154	-0.3532	0.2150	0.3546	0.3263	0.3637	0.3263
Science course	1.7405 ***	0.2921	1.7350 ***	0.2921	-0.5755 *	0.3072	-0.5730 *	0.3081
Art	1.2515 *	0.6695	1.2538 *	0.6658	1.7360 *	1.0512	1.7437 *	1.0515
Liberal arts and science	0.7271	0.4746	0.7375	0.4685	-0.2151	0.4022	-0.2006	0.4045
Medical course (4-year)	1.6732 ***	0.4197	1.7056 ***	0.4202	-0.9117 ***	0.2702	-0.9030 ***	0.2696
Medical course (6-year)	2.8043 ***	0.7371	2.7311 ***	0.7335	-0.8338 *	0.4352	-0.7852 *	0.4449
Other faculties	0.7676	0.6502	0.7020	0.6415	-0.9453 ***	0.3379	-0.9184 ***	0.3394
First-choice	-0.0725	0.2133	-	-	-0.3825 *	0.1982	-	-
First-choice and satisfied [1]	-	-	0.4623	0.3517	-	-	-0.7506 *	0.4034
First-choice but dissatisfied [2]	-	-	-0.4336	0.3999	-	-	-0.8404	0.5138
Not first-choice but satisfied	-	-	0.4820	0.3575	-	-	-0.5310	0.4081
Tuition fee exemption	0.1018	0.3098	0.0941	0.3087	-0.1051	0.2641	-0.0924	0.2624
Grant-type scholarship	0.5840	0.4508	0.5672	0.4506	0.3789	0.3882	0.3863	0.3879
Education loan	0.0323	0.2316	0.0417	0.2311	-0.2293	0.2168	-0.2359	0.2161
Constant	4.2957 ***	0.3425	3.9019 ***	0.4391	2.8202 ***	0.3859	3.1928 ***	0.4678
Observation	1,947		1,947		1,947		1,947	
R ²	0.0657		0.0695		0.0368		0.0381	
F	-		4.46		-		1.91	
Prob > F ([1]-[2]=0)	-		0.0117		-		0.1491	

Note: Standard errors are robust.

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Next, I examined the effect of passing the entrance exam for their first-choice university on their periodic examination results, motivation to learn (self-evaluation), performing tasks with minimal effort, and the mindset that students just need to obtain credit. An ordered probit model was adopted for these estimations because the dependent variable was a discrete ordinal variable. In Models (5) and (6), the periodic examination result was used as the dependent variable.

Naturally, the results indicate that the longer students spend preparing and reviewing, the better their periodic examination results. Female students had better test scores than male students. The test results for third-grade students were significantly lower than those for first-grade students. This may be because third-grade students focus on job-hunting. Students belonging to the faculty of science and medical courses (both 4-year and 6-year) are supposed to spend a lot of time studying, but their grades are poor. These students may have to spend considerable time preparing and reviewing because it is difficult to earn credit. The coefficient of the tuition fee exemption is positive and highly significant. Students who scored sufficiently well to qualify for tuition exemptions on entrance exams also tended to score well on regular university exams. For the first-choice dummy variable, the coefficient is negative and significant at the 10% level. At first glance, it appears that students admitted to their first-choice universities were doing worse. In Model (6), I used dummy variables that are combinations of whether the university is their first choice and whether they are satisfied with it. I found that the sign of first choice and satisfied and the sign of first choice but dissatisfied were opposite. When a chi-square-test was conducted to determine whether these coefficients were equal, they were rejected at the 10% significance level.

Models (7) and (8) indicate the estimation results using the motivation to learn (self-evaluation) as the dependent variable. Students who spend a lot of time preparing and reviewing consider themselves highly motivated to learn. Students at national universities rated themselves as having high motivation to learn, while students at public and private universities rated themselves as having low motivation to learn. In Model (7), the coefficient of the first-choice dummy is negative and insignificant. On the other hand, the sign of the first choice and satisfied and the sign of the first choice but dissatisfied are the opposite. Moreover, the coefficient of the first-choice but dissatisfied dummy variable was negative and highly significant. This means that students with first-choice but dissatisfied have a lower self-evaluation of motivation to learn than students with not first-choice but are dissatisfied.

Table 5: Estimation results (students' motivation as a dependent variable)

Independent variables	Periodic examination results				Motivation to learn (self-evaluation)			
	Model (5)		Model (6)		Model (7)		Model (8)	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Class preparation and review	0.0328 ***	0.0069	0.0320 ***	0.0069	0.0378 ***	0.0057	0.0364 ***	0.0057
Female	0.2641 ***	0.0561	0.2592 ***	0.0560	0.1062 **	0.0531	0.0986 *	0.0531
Third grade	-0.2285 ***	0.0497	-0.2270 ***	0.0499	0.0068	0.0487	0.0136	0.0487
Public school	-0.2744 ***	0.0989	-0.2591 ***	0.0995	-0.2688 ***	0.0950	-0.2309 **	0.0960
Private school	-0.0556	0.0605	-0.0430	0.0608	-0.1570 ***	0.0597	-0.1281 **	0.0600
Social science	-0.1624 **	0.0735	-0.1679 **	0.0735	0.0253	0.0733	0.0146	0.0736
Science course	-0.1932 **	0.0777	-0.1944 **	0.0777	-0.0410	0.0761	-0.0412	0.0762
Art	-0.1490	0.1445	-0.1546	0.1446	-0.0670	0.1389	-0.0625	0.1402
Liberal arts and science	0.1728	0.1469	0.1801	0.1463	0.0485	0.1159	0.0579	0.1167
Medical course (4-year)	-0.1955 *	0.1009	-0.1891 *	0.1008	-0.1116	0.0987	-0.0932	0.0984
Medical course (6-year)	-0.4102 ***	0.1329	-0.4234 ***	0.1340	0.0582	0.1140	0.0398	0.1146
Other faculties	-0.3518 **	0.1485	-0.3657 **	0.1489	-0.1716	0.1554	-0.1980	0.1550
First-choice	-0.0986 *	0.0514	-	-	-0.0388	0.0496	-	-
First-choice and satisfied [1]	-	-	0.0167	0.0839	-	-	0.1311	0.0843
First-choice but dissatisfied [2]	-	-	-0.1403	0.1090	-	-	-0.2957 ***	0.1069
Not first-choice but satisfied	-	-	0.1149	0.0844	-	-	0.1147	0.0856
Tuition fee exemption	0.2208 ***	0.0742	0.2196 ***	0.0739	0.0835	0.0699	0.0834	0.0700
Grant-type scholarship	0.0249	0.0985	0.0214	0.0986	0.0700	0.0905	0.0661	0.0907
Education loan	0.0153	0.0529	0.0173	0.0530	0.0253	0.0511	0.0279	0.0512
Observation	1,837		1,837		1,947		1,947	
Pseudo R ²	0.0232		0.0241		0.0151		0.0204	
chi ²	-		3.09		-		25.27	
Prob > chi ² ([1]-[2]=0)	-		0.0786		-		0	

Note: Standard errors are robust.

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Table 6 presents the estimation results using students' laziness as the dependent variable. From the results of Models (9) and (10), it appears that male students tend to perform tasks with minimal effort compared to female students. In Model (10), the coefficient of the first-choice and satisfied dummies is negative and slightly significant, and that of the first-choice but dissatisfied dummy is positive. When a chi-square test was conducted to determine whether these coefficients were equal, they were rejected at the 5% significance level. This means that students who are satisfied with their university life are willing to strive to do better, but those who are dissatisfied with their university life tend to tackle tasks with minimal effort. Even within the same group of students who entered their first-choice university, there were differences in motivation.

In Models (11) and (12), the dependent variable was university students who attend class with the mindset of only acquiring the credits. The negative and significant coefficient of the female dummy means that male students tend to think that getting credit is sufficient. It can also be seen that third-grade students do not care about the quality

of their grades and tend to think that it is sufficient to obtain credits. The coefficient of the tuition fee exemption is negative and highly significant. Students who are exempted from tuition fees are concerned about the quality of their grades and remain eligible for tuition exemption. The coefficient of the first-choice dummy in Model (11) is insignificant. However, in Model (12), the coefficient of the first-choice and satisfied dummy is negative, and that of the first-choice but the dissatisfied dummy is positive and slightly significant. When a chi-square test was conducted to determine whether these coefficients were equal, they were rejected at the 1% significance level. Thus, students with first-choice but dissatisfied had higher levels of laziness than students with first-choice and satisfied. Surprisingly, students who did not get into their first choice but were satisfied seemed to be the most concerned about the quality of their grades out of the four groups.

Table 6: Estimation results (students' laziness as a dependent variable)

Independent variables	Perform tasks with minimal effort				Mindset that I just need to get the credits			
	Model (9)		Model (10)		Model (11)		Model (12)	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Female	-0.1866 ***	0.0515	-0.1820 ***	0.0515	-0.1224 **	0.0511	-0.1147 **	0.0512
Third grade	0.0617	0.0476	0.0598	0.0477	0.0956 **	0.0475	0.0917 *	0.0476
Public school	0.0432	0.0999	0.0244	0.1003	0.1721 *	0.0957	0.1405	0.0965
Private school	-0.0886	0.0573	-0.1039 *	0.0574	0.0724	0.0580	0.0468	0.0582
Social science	0.0211	0.0706	0.0269	0.0708	0.0828	0.0711	0.0923	0.0714
Science course	-0.0941	0.0724	-0.0929	0.0723	-0.0106	0.0742	-0.0081	0.0742
Art	-0.1068	0.1370	-0.1077	0.1378	0.0487	0.1309	0.0488	0.1312
Liberal arts and science	-0.2458 **	0.1174	-0.2478 **	0.1161	-0.0560	0.1249	-0.0603	0.1240
Medical course (4-year)	-0.0583	0.0982	-0.0644	0.0979	-0.0567	0.0996	-0.0689	0.0996
Medical course (6-year)	0.0531	0.1185	0.0711	0.1198	0.0948	0.1080	0.1213	0.1083
Other faculties	0.1067	0.1592	0.1222	0.1585	0.0916	0.1565	0.1170	0.1548
First-choice	-0.0070	0.0486	-	-	0.0740	0.0486	-	-
First-choice and satisfied [1]	-	-	-0.1349 *	0.0800	-	-	-0.1185	0.0816
First-choice but dissatisfied [2]	-	-	0.0462	0.1074	-	-	0.2052 *	0.1062
Not first-choice but satisfied	-	-	-0.1247	0.0811	-	-	-0.1735 **	0.0820
Tuition fee exemption	0.0288	0.0674	0.0309	0.0675	-0.1424 **	0.0697	-0.1403 **	0.0697
Grant-type scholarship	-0.1177	0.0926	-0.1147	0.0925	-0.0690	0.0901	-0.0634	0.0897
Education loan	0.0295	0.0501	0.0274	0.0501	0.0332	0.0502	0.0297	0.0501
Observation	1,947		1,947		1,947		1,947	
Pseudo R ²	0.0051		0.0063		0.0045		0.0078	
chi ²	-		4.23		-		14.08	
Prob > chi ² ([1]-[2]=0)	-		0.0397		-		0	

Note: Standard errors are robust.

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

5. Conclusion

In this study, using data on Japanese university students, I investigated whether those who passed the entrance exam for their first-choice university spent more time studying outside of class than those who did not. Second, I examined the effects of passing the entrance exam for their first-choice university on learning attitudes.

The estimation results regarding spending time on class preparation and review revealed that enrollment in a first-choice university had no effect on students' study hours outside of class at a glance. However, when I used dummy variables that are combinations of whether the university is their first choice and whether they are satisfied with it as independent variables, I found that the sign of the first-choice and satisfied dummy and the sign of the first-choice but dissatisfied dummy were opposite. The hypothesis that these coefficients are equal was rejected at the

5% significance level using the F-test. Whether students study is likely to be more influenced by whether they are satisfied with their university life than by whether they are able to get into their first-choice university.

For estimation results on students' learning attitudes, I found that students who can enroll in the first-choice universities but are dissatisfied with university life tend to think that all they need to do is get credits and not to care about the quality of credit, and to put minimal effort into studying. Surprisingly, students who did not get into their first choice but were satisfied seemed to be the most concerned about the quality of their grades out of the four groups.

The finding that the effect of satisfaction with university life is greater than that of enrollment in first-choice universities is important. In particular, students who passed their first-choice university but were dissatisfied with their university life had poor study times and attitudes toward studying. To increase the study time of university students, it seems important to deal with students who passed their first-choice university but were dissatisfied with their university life. Therefore, it may be necessary to introduce a curriculum that increases student satisfaction. Overall, it is true that Japanese university students spend less time studying outside of class. In the data used for the analysis, the average weekly preparation and review times were only 4 h and 30 min. This was approximately 38 min/day. It is clear that even students who are satisfied with their university life spend less time studying outside of class. Japanese university students' goal is to enter university, and they do not seem to take actions such as accumulating human capital subsequently. The Japanese government is implementing a policy to increase subsidies by increasing the capacity of its data science departments. Additionally, the Japanese government is attempting to enhance active learning subjects. Future research should verify whether such policies have a positive impact on increasing students' independent study time and on their independent learning attitudes.

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Notes

Note 1. See Ministry of Education, Culture, Sports, Science and Technology of Japan (2022a).

Note 2. *Ronin* means a high school graduate who has failed the university entrance exam and spends years outside of high school preparing for the next year's university entrance exam. According to Ono (2007), typically 30% of students choose the *Ronin* option. In recent years, the ratio of *Ronin* has been about 20%.

Note 3. Yajima (2005) pointed out that some students lack basic academic skills or are unable to keep up with classes because some universities are in a situation where there is no selection, such as a shortage of full numbers.

Note 4. A week has 168 hours. These questions do not include the minimum amount of time necessary for daily activities such as sleeping, eating, drinking, and bathing. However, if the total time spent on studying, club activities, leisure time, etc. exceeds 130 hours, then it is unlikely that the data is accurate because the time spent sleeping, eating, and bathing has not been considered.

Note 5. School in Japan starts in April. Many Japanese university students begin job hunting in their third year, and more than 80% have a job offer by the summer of their fourth year.

A Teaching Note on Contracts

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Abstract

This article is the last of a series of teaching notes in the area of contract law and topics in the legal environment of business, designed to assist instructors- particularly “newly minted” professors- in preparing materials for use in their classrooms. This article summarizes the elements of a valid contract based on references to the classic cases decided in various jurisdictions in contract law, as well as citations to recently decided cases provided for further research and study and may serve as a template or overview of the important topics making up a business law or legal environment of business course.

Keywords: Contracts, Agreement, Consideration, Legal Capacity, Legality of Subject Matter, Remedies

1. Contracts Overview

A contract may best be defined as an enforceable promise. A contract may be oral, or it may be found in writing. Professor Samuel Williston, one of the great contract’s teachers of the last century, noted: “A contract is a promise, or a set of promises, for breach of which the law gives a remedy, or the performance of which the law in some way recognizes a duty.” A promise is an undertaking that something either will or will not happen in the future. The term “contract” may also be used by both laymen and lawyers to refer to a specific document in which the terms of a specific agreement are written.

Every contract involves at least two parties: an **offeror**, the party who makes an offer, and an **offeree**, the party to whom the offer is made. The offeror promises to do or to refrain from doing something.

1.1. Elements of a Valid Contract

The following are the four basic elements of a valid contract:

1. An **agreement**, which consists of an offer and an acceptance. Whether by words or actions, or a combination of both, the parties must form or come to an agreement. A prerequisite to the formation of a contract is the mutual manifestation of assent (agreement) to the same terms. This is sometimes called the “meeting of the minds” or a “*consensus ad idem*” in Latin.

2. **Consideration**, which is defined as "something bargained for in return for a promise." Today, courts focus especially on the nature of a *bargain* between the parties in deciding if a particular promise will be enforced.
3. **Legal capacity** of the parties. Both the offeror and the offeree must have the capacity to enter into a contract. Contractual capacity involves issues such as age (so called *minors' contracts*) and mental state (e.g., persons suffering from senility or Alzheimer's disease), and may involve issues such as fraud, undue influence, or duress.
4. **Legal purpose**. A contract cannot be formed for an illegal or immoral purpose, cannot violate a statute, or be in violation of "public policy."

In addition, there are two "outside" factors that may make a contract unenforceable should one of the parties seek its enforcement in a court:

1. **The Statute of Frauds**, which requires that certain types of contracts must be in writing to be enforceable.
2. **The Statute of Limitations**, which prescribes the time period within which a party must sue for breach of contract or seek to enforce contractual rights.

1.2. Classifications of Contracts

1.2.1. Express Contract

An express contract is one in which the essential terms of the agreement are found in *words*, either *orally* or in *writing*. A brief word about oral contracts is appropriate. Strictly speaking, most contracts are *not required* to be in writing, unless the *Statute of Frauds* applies. However, attempting to enforce an oral contract provides certain proof problems for the litigants and for a court. Oral proof is often valuable and probative, and in many cases, may be the only proof available. However, if parties' oral testimony conflicts in the absence of written proof, a court may be required to decide a dispute on the basis of *credibility*, or believability of witnesses or the parties. The words of the humorist Will Rogers are quite appropriate: "*An oral contract is not worth the paper it's printed on!*"

1.2.2. Implied Contract (Implied in Fact)

An implied in fact contract is created by *conduct*, rather than words. An implied in fact contract exists where facts and circumstances indicate that a contract or an agreement has been entered into. The following four steps generally establish an implied in fact contract:

1. Plaintiff furnished some service, goods, or property to the defendant;
2. Plaintiff expected to be paid for the service, goods, or property;
3. Defendant knew or should have known that payment was expected; and
4. Defendant had the opportunity to reject the service, property, or goods and did not do so. [Case Reference (CR): *Day v. Caton* (1876); *Rhythm & Hues v. Nature's Law Care, Inc.* (2023)]

1.2.3. Implied in Law (Also Called Quasi-Contract)

An implied in law contract is not a contract created by the parties, but results from an obligation imposed on the parties in equity in order to "do justice" and to "avoid unjust enrichment." A quasi-contract may be imposed by the court where one person confers a benefit on another who retains the benefit, and under circumstances where it would be unjust not to require that person to pay for the benefit. Recovery is generally based on the reasonable value of the services received by the defendant — in some cases, not including the profit of the person conferring the benefit. This remedy is based on the concept of *quantum meruit*. [CR: *Lash v. Kreigh* (2023)]

1.3. Other Classifications

Bilateral and unilateral contracts: A contract is termed *unilateral* if the offer can be accepted by the performance of an act. A *bilateral* contract is one in which *both parties*, the offeror and the offeree, have made promises and are bound to fulfill obligations towards each other. For example, in a typical sales contract, the seller has promised to deliver goods, and the buyer has promised to pay the price. In a bilateral contract, each party is both the promisor and promisee, having made mutual promises.

Executed and executory contracts: A contract that has been fully performed by both the promisor and promisee is termed as an *executed* contract. A contract that has not yet been fully performed by either party is said to be *executory*. In some cases, a contract may be *partially executed* if a part of the contract has been performed.

1.4. Void, Voidable, and Unenforceable Contracts

A **void contract** is one that has no legal significance and results in the imposition of no legal obligation upon the part of either a promisor or promisee. A void contract generally cannot be enforced by a court. A contract to commit a crime or a tort (a civil wrong) or a contract that violates “public policy” is an example of a void contract. A **voidable contract** is a contract in which at least one of the parties has the power to elect to avoid his/her legal duty established in the contract by disaffirming the contract. In essence, one of the parties has the *option* or right to remove him/herself from the agreement with no negative legal consequences. If a party decides not to elect to remove him/herself from the contract, the contract will continue in force.

Examples of voidable contracts include agreements entered into by a minor, or a contract entered into as a result of fraud, mutual mistake, duress, or undue influence which is not disaffirmed by a party. [CR: *Shannon v. Smalls* (2022)]

An **unenforceable contract** arises when a court is legally constrained from enforcing a contract because of some *extrinsic* factor not connected with the elements of a valid contract discussed above. For example, an otherwise valid contract may not be enforced by the courts because of the operation of the Statute of Frauds or the Statute of Limitations. Whether or not a contract is unenforceable is usually determined at a very early stage of a case, as a “threshold question,” through a motion for a summary judgment, or through a motion to dismiss a lawsuit filed by one of the parties. [CS: *Strickland v. Foulke Mgmt. Corp.* (2023)]

1.5. Unconscionable Contracts

Under the early common law, courts would regularly enforce contracts entered into by parties under a principle known as *freedom of contract* — even contracts that appeared to be one-sided, unfair, oppressive, burdensome, or which may have been deemed unconscionable. This principle was embodied in the concept of “*caveat emptor*,” translated as “*let the buyer beware*.”

The modern basis for unconscionability appears in the Uniform Commercial Code § 2-302, which attempted to change the relationship between the parties from “*caveat emptor*” to “*caveat venditor*,” or let the seller beware! The purpose of the doctrine of unconscionability is twofold: “prevention of oppression (sometimes called substantive unconscionability) and unfair surprise (procedural unconscionability).” It should be noted that in fashioning § 2-302, the writers of the Uniform Commercial Code intentionally failed to provide a precise definition of the term “unconscionable” in the belief that to do so might be to limit and defeat the purposes of the rule.

Many legal scholars consider *Williams v. Walker-Thomas* (1965) as the seminal case in the area of unconscionability. Judge Skelly Wright added much to the understanding and development of this difficult concept and to interpreting the reaches of § 2-302. Generally, four major factors appear in cases that have dealt with the question of unconscionability, originating *Williams v. Walker-Thomas*:

1. The *absence of meaningful choice* (that is, a “take it or leave it” or “boilerplate” contract);

2. *Great inequality of bargaining power* (where there is only one or a very few sellers available in the marketplace causing a party to have no or limited bargaining power);
3. The inclusion of terms that would cause *unfair surprise, hardship, or oppression* (e.g., the inclusion of penalty clauses, forfeiture provisions, clauses which severely limit remedies, a “confession of judgment” clause); or
4. Circumstances where *race, literacy, language, ethnicity, economic circumstances, or education are significant factors in determining the nature of the bargain*, and the relationship between the parties.

In the case of *Jones v. Star Credit* (1969), the court extended the concept of unconscionability to the *price term* of the contract. However, in *Wille v. Southwestern Bell* (1976), the court refused to extend the concept of unconscionability to a contract entered into by a businessman with fourteen years of experience — indicating that unconscionability may not be available to all litigants. [CR: *Tadych v. Noble Ridge Constr., Inc.* (2022)]

2. The Agreement: Offer and Acceptance

An **offer** will be judged on the basis of three criteria:

1. There must evidence the *serious intent* on the part of the offeror to be bound by the terms of an offer;
2. *The terms of the offer must be definite or reasonably certain*; and
3. The offer must be *communicated* to the offeree.

Intention is measured by what is termed the “objective” or “reasonable man” test, which is showcased in the classic English common law case of *Carlill v. Carbolic Smoke Ball* (holding that an advertisement that appeared in the *Pall Mall Gazette* was an offer for a unilateral contract that could be accepted by anyone who performed its terms). The objective test states that an offer will be judged by the reasonable meaning of the words used — whether a “reasonable man would conclude that an offer had been made.” Under the objective or reasonable man test, the subjective intention of the parties is ordinarily irrelevant. However, an offer that is made in obvious anger, jest, or as the result of excitement will not generally meet the requirement of a serious offer under the objective test. Likewise, an offer must be distinguished from mere statements of intention to be bound at a later date, preliminary negotiations or discussions, inquiries, or invitations (solicitations) to make an offer. [CR: *Lucy v Zehmer* (1954); *Sy-Lene of Wash., Inc. v. Starwood Urban Retail II* (2002)]

2.1. Media Offers and Advertisements

At common law, an advertisement, a circular or flier, or a radio or TV commercial was not considered as an offer; rather, these forms of communications were considered as statements of intention or a preliminary proposal inviting an offer. Although most advertisements and the like were treated as invitations to negotiate and not offers, this does not mean that an advertisement could never be considered as an offer, binding a seller to a contract.

In *Lefkowitz v. Great Minneapolis Surplus Store* (1957), the court was called on to decide whether a newspaper advertisement announcing a “special sale” in a department store should be construed as an offer, the acceptance of which by Mr. Lefkowitz would result in a binding contract. Take special note of the test enunciated in *Lefkowitz*: *the offer must be clear, definite, and explicit, and leave nothing open for negotiation.*

2.2. Indefiniteness

Definiteness requires that the terms of an offer must be clear so that the offeree is able to make a decision whether or not to reject or accept the offer. In addition, if the terms of an agreement are too indefinite, a court will not be able to enforce the contract or would be unable to determine the proper remedy for its breach.

The common law required that an agreement should ordinarily contain the following material terms: (1) identification of the parties; (2) identification of the subject matter of the agreement; (3) a quantity; (4) the consideration (price) to be paid; and (5) the time for performance.

2.3. Relaxation of Rules Relating to Indefiniteness: The “Reasonableness” Standard

Even under the common law, courts began to relax rigid standards relating to indefiniteness and would imply or insert *reasonable terms* in a contract wherever possible, especially where both parties had manifested a clear *intention* to enter into a contract.

Under UCC Section 2-204, for example, a contract will not fail for indefiniteness if the parties clearly intend to enter into a contract and if a “reasonably certain basis” exists for granting an appropriate remedy by a court.

Open price: If nothing is said as to price, or the price is left to be agreed by the parties and they fail to agree, or the price is to be fixed in terms of some agreed market or other standard as set or recorded by a third person or agency and is not so set or recorded by that third party or agency, “the price is a *reasonable price* at the time for delivery” [Section 2-305].

If no **place of delivery** is specified, then delivery is to occur at the *seller's place of business* [Section 2-308 (a)], thus obligating the buyer to pay for freight, insurance, and delivery charges.

If the **time for shipment or delivery** is not stated, then the time shall be a *reasonable time* after the contract is formed [Section 2-309].

If the **time for payment** is not specified, then payment is due at the time and place of delivery [Section 2-310 (a)] and no credit arrangements are implied. Payment of a reasonable charge for interest may be implied.

While these terms may be found in the UCC, and thus apply to contracts involving the sale of goods (defined as “movable and tangible” items), their application is equally important in many other types of contracts.

In addition, terms that are omitted or unclear may be supplied by *custom and usage of trade or by prior or contemporaneous dealings between the parties*, subject to the parol evidence which states that a party **cannot contradict** the terms of a written contract intended to be the final expression of the intentions of the parties. However, a party to a contract may attempt to introduce consistent additional terms which “**explain or supplement**” the terms of a written agreement.

2.4. Communication of the Offer

Under the third criterion, ***the offer must be communicated to the offeree*** so that the offeree knows the terms of the offer. An offer cannot be accepted by an offeree who is unaware of the offer or who has not become apprised of it.

2.5. Termination of an Offer

It should be recognized that an offer creates a power or right in the offeree to transform the offer into a binding contract through an acceptance. However, an offer will not remain in existence indefinitely. The offer can be terminated through the operation of law, actions of the parties, the occurrence of a stated condition, or by its own terms, normally through the lapse of a period of time stipulated in the contract.

2.6. Lapse of Time

Where the time specified in the contract for an acceptance has passed or an event or condition stipulated in the contract which would terminate an offer has occurred, the offer is terminated.

Should no time be specified in the offer itself, the offer will terminate at the end of a *reasonable time*, determined by such factors as the subject matter of the contract (an offer to buy or sell perishable goods would involve a relatively short period of time) and other relevant market and business conditions and circumstances. [CR: *Corcoran v. Lyle School District No. 406* (1978); *Barajas v. BCN Tech. Serv.* (2023)]

2.7. Operation of Law

An offer may also be terminated through *operation of law*. For example, *the destruction of the subject matter of the contract through no fault of the party* will terminate an offer.

The death or incompetency of the offeror or offeree in a personal service contract also terminates an offer. In a personal service contract, since the contract is considered personal to both the offeror and the offeree, an offer will be automatically terminated if the offeror or offeree dies, becomes incapacitated, or is ruled incompetent by a court of law. The death or incapacitation of a party in a personal service contract may also terminate a contract.

Where *a statute or court or administrative decision makes an offer illegal*, the offer will be terminated. These circumstances — destruction of the subject matter of the contract, death or incompetency of a contracting party, or the operation of a statute — are sometimes viewed under the doctrine of "*objective impossibility*" and may also be used as a defense to a claim of breach of contract or as an excuse for non-performance of a party where a contract has been made illegal by a statute or a court or administrative decision. [CR: *SVAP III Poway Crossings, LLC v. Fitness Internat., LLC* (2023)]

2.8. Action of the Parties

An offer may also be terminated by actions of the parties, such as:

Revocation of the Offer by the Offeror

Revocation is a withdrawal of the offer by the offeror before the offeree accepts the offer. A notice of revocation is not generally effective until it is received by the offeree or by the offeree's agent. Generally speaking, an offer made to the general public or to persons whose specific identity is unknown to the offeror (for example, an offer made in a newspaper advertisement or in a TV or radio ad), may be revoked only by using the same medium or at least by using "the best means of notice reasonably available under the circumstances" that would give equal publicity to the communication of the revocation as the communication of the original offer. Certain types of offers, called "firm offers," may not be revoked by the offeror under certain circumstances — one of these circumstances being where the offeree has paid consideration for an option or where the promise has been made in a "signed writing" under UCC § 2-204 (the "Firm Offer Rule"). [CR: *Amazon.Com Servs. LLC v. Paradigm Clinical Rsch., Inc.* (2022)]

An offer is also terminated if the offeree rejects it or if the offeree makes a counteroffer.

Rejection by the offeree terminates an offer. There may be a fine line between a rejection of an offer and an inquiry about trading on different terms than those contained in the original offer. Suppose that a party were to respond to a friend's offer to buy his antique car: "That seems a bit low; I'll just bet that you can do a lot better than that." Is this communication a rejection of his friend's offer or a mere inquiry which will not terminate (destroy) his friend's offer?

A **counteroffer** by the offeree also terminates the original offer. Generally, a counteroffer is a rejection of the original offer and the making of a new offer by the offeree which can then be accepted or rejected. Offers and counter offers often characterize the negotiations between parties.

2.9. The Acceptance

An acceptance is an unconditional assent by either words or conduct by an offeree that manifests agreement to the terms of the offer. The acceptance is usually made in the manner requested in the offer where the offeror has stipulated an express, authorized means of acceptance. Under the common law, the acceptance was required to be the “mirror image” of the offer or it was considered as a rejection and a counteroffer, resulting in what was termed as “the battle of the forms.” The “mirror image rule” has been modified in UCC Section 2-207, termed the “different and additional terms” rule which is applicable to contracts for the sale of goods.

The acceptance must be unequivocal — that is, it may not impose or add new terms or conditions or tamper with the terms of the offer or a court might conclude that a rejection and a counteroffer has taken place. A unilateral contract can only be accepted by the offeree’s performance of the required act or by a prompt promise to perform. A bilateral contract can be accepted by an offeree who promises to perform the act or the actual performance of the requested act.

Silence as Acceptance

Generally speaking, silence is not considered as acceptance of an offer even if the offeror has stated “your silence indicates your acceptance of this offer.” There are, however, circumstances where an offeree’s silence may constitute acceptance of an offer. Such situations arise where there is an affirmative “duty to speak” on the part of the offeree. A court might impose a duty to speak where *a duty arises out of a contract itself* (i.e., record or book club contracts frequently require that a member send back a card with a rejection of the month’s selection, or the selection will be automatically shipped and an obligation to pay will arise). [CR: *Land v. IU Credit Union* (2022)]

A second circumstance where silence may amount to an acceptance occurs where *prior dealings between the parties* give the reasonable expectation of a reply. For example, a retailer has ordered goods from the manufacturer on numerous occasions and paid for them when they arrived. Out of convenience, the manufacturer then began to ship the goods on a recurring basis, simply sending the retailer a “confirmatory invoice,” noting that the goods would be shipped on the eighth of each month. Whenever the retailer received a shipment of the goods from the manufacturer, he would simply sell them at retail and send a check to the manufacturer for the amount due. The manufacturer would only hear from the retailer if the retailer did not wish to place an order for that month. The last shipment of the goods is the subject of controversy as the retailer now refuses to pay for them, claiming that his “silence” on the matter cannot create a contract. Because of the prior dealings between the parties, the retailer’s silence (failure to notify the manufacturer) will be construed as an acceptance of the manufacturer’s offer to ship. The retailer will be bound by contract and must pay for the last shipment of the goods. [CR: *Fairstead Cap. Mgmt., LLC v. Blodgett* (2023)]

3. Consideration

Consideration may be defined as “something bargained for in return for a promise.” Some promises have little or no legal significance because the element of bargain is missing. For example, if a person promises to make a gift to another person, a court would not generally impose an obligation to complete the gift because the bargain element is missing. Gifts are legally classified as *donative transactions* and are not enforceable as contractual promises — they are considered as gratuitous and not supported by consideration.

In a *bilateral* contract, the consideration for the promisor’s promise is a *promise* made by the promisee. In a *unilateral* contract, the consideration for the promisor’s promise is the *act* of the promisee. A *forbearance* on the part of the promisee (which is defined as the giving up of a valid legal right) may also provide consideration. Finally, consideration may be found in the *creation, modification, or destruction of a legal relationship*. (Example: I promise to pay you \$500 if you will agree to release me from my apartment lease/revise my employment contract.) [CR: *Hamer v. Sidway* (1891); *Nicholson v. Moon Ridge Homeowners Ass’n* (2023)]

3.1. Moral Obligations and Past Consideration

A promise based on a moral obligation, a sense of honor, or love or affection is generally not enforceable. Likewise, a promise based on past consideration is not enforceable, since any supposed detriment had already been incurred.

3.2. The Rules of Consideration

There are two general rules that supply the basis for an understanding of consideration:

First, a court will not usually question the *adequacy of consideration*; that is, courts are not generally concerned if the transaction was a “good bargain” or a “bad bargain” in an *economic sense*, only that there in fact was a bargain! This rule has one major exception: where a bargain is made between parties within a fiduciary or confidential relationship, a court of equity may be concerned with the adequacy of the bargain and will carefully scrutinize such a bargain in order to assure that any consideration was adequate. Courts will also inquire if a contract was entered into under fraud, whether the contract was unconscionable, or whether the interest charge amounted to usury – charging more than the legal rate of interest.

The second general rule may be stated as follows: *Once parties enter into an agreement, they are bound by the terms agreed upon*. Any attempt to change the terms of the agreed-upon bargain, “hold out” or renegotiate a “better deal,” pressure a party into change the contract terms (especially the compensation), or remove a party from a contract, will be met with a “consideration problem” found in the application of what is known as the *pre-existing duty rule*.

3.3. Pre-Existing Duty Rule

The pre-existing duty rule states: where a party does or promises to do what he or she is already legally bound to do or promises to refrain from doing or refrains from doing what he or she is not legally permitted to do, he or she has not incurred legally sufficient detriment. There is no consideration for the underlying promise. The pre-existing duty may arise in the context of a prior contract or may be imposed by a statute or law. [CR: *Gililand v. Sw. Or. Cmty. Coll. Dist.* (2022)]

3.4. Rescission

It is possible that the parties can *mutually agree to terminate an existing agreement* if the agreement is executory and has not yet been performed. The surrender of rights under the agreement by each party is the consideration for the mutual agreement of rescission.

3.5. Unforeseen Difficulties

During the performance of a contract, a party might encounter unforeseen and substantial problems or issues that could not have been anticipated at the time the contract was entered into. These problems must be of the type and character that are “entirely beyond the contemplation of the parties.” However, unforeseen difficulties would ordinarily *not* include occurrences such as strikes, labor shortages, inclement weather, or an increase in the price of components or goods. These types of “difficulties” indeed should have been foreseen and provided for in a contract as risks ordinarily and normally found in an “arms-length” business relationship.

While a plea to a court on grounds of “unforeseen difficulties” might be successful on a first occasion, most courts find that such a plea would not be appropriate or successful on a subsequent occasion. However, in the face of a severe and unexpected increase in price, some courts have held that the contract has been “frustrated” and will permit an increase in the price or will permit a party to remove him/herself from a contract. [CR: *F.J.O. v. M.I.O.* (2022)]

3.6. *Special Aspects of Consideration*

3.6.1. Accord and Satisfaction

There may be a circumstance where a party to a contract has a dispute with a creditor that the debtor wishes to resolve by making a payment to resolve the dispute. In this case, a debtor may attempt to discharge the debt through an *accord and satisfaction*.

An accord and satisfaction is an attempt by a debtor to legally extinguish a debt by paying or tendering a lesser amount than that stipulated in the contract or that is demanded by a creditor. The *accord* is defined as the agreement whereby one of the parties undertakes to give or perform, and the other to accept, in satisfaction of a claim, something other than that which was originally promised or agreed upon. *Satisfaction* takes place when the accord is executed (often when a party agrees to accept the lesser amount in satisfaction of the debt). The creation of an accord and satisfactions will bar further attempts to collect on a debt. [CR: *A.G. King Tree Surgeons v. Deeb* (1976); *Constr. Consulting, Inc. v. Dist. Bd. of Trs.* (2022)]

3.6.2 Substitutes for Valuable Consideration

Some promises may be enforced without consideration, either on grounds of public policy or in the exercise of a court's equitable jurisdiction. These include:

1. A *composition of creditors' agreement* is an agreement between a potentially insolvent debtor and his/her creditors under which the creditors will accept either a specified amount or a percentage of the amount owed. Such an agreement is fully enforceable without consideration. These agreements frequently are substitutes for a filing of a petition in bankruptcy and are favored by courts. [CR: *Shanefelter v. Hood* (2023)]
2. The doctrine of *promissory estoppel*: This equitable doctrine may be applied where a promisor makes a promise, often involving a promise to make a gift. The parties are not bargaining for anything in a true commercial sense. [CR: *Hoffman v. Red Owl Stores, Inc.* (1965); *Pavelka v. Shadursky* (2023)]

Promissory estoppel is based on the *reliance* on the part of the promisee and is found in Section 90 of the Restatement of the Law of Contracts which states:

"A promise which the promisor should reasonably expect to induce action or forbearance of a definite and substantial character on the part of the promisee and which does induce such action or forbearance is binding if injustice can be avoided only by enforcement of the promise."

One final point. In enforcing a promise based on promissory estoppel, a court may only enforce the promise to the extent of the *reasonable reliance damages* of the promisee.

4. Contractual Capacity

Contractual capacity is the third element of a valid contract. A contract entered into by a party who lacks the requisite capacity may be either void or voidable. If one of the parties to a contract has been adjudged incompetent or insane by a court after conducting a competency hearing, that contract will normally be judged "*void*" by the court. In other cases, a party may allege and will be required to prove that he or she lacked the ability to enter into a contract for one or more of the following reasons: the contract was entered into under the influence of drugs or alcohol; mental incompetence (perhaps the onset of senility or Alzheimer's disease); mental retardation; intoxication; the side effects of medication; temporary delirium deriving from physical injuries sustained in an accident; extreme confusion; etc.

Generally, unless there has been an adjudication of incompetency by a court, contractual capacity is *a question of fact* for a jury. In order to set aside a contract on grounds of lack of capacity, it is necessary to show that a party did not "understand the nature or consequences of the transaction" or that "by reason of mental illness or defect..."

[a party] is unable to act in a reasonable manner in relation to the transaction and the other party has reason to know of this condition.” Thus, upon such a showing, a party may exercise its option to disaffirm or remove him or herself from a contract. The contract is *voidable*.

4.1. *Minor's Contracts*

A minor is defined as any person who has not yet attained the required "age of majority" as determined by a given state. The age of majority (usually 18, but in some states the age may be 21) may or may not be the same age as the age for voting, getting married, or purchasing or consuming alcoholic beverages. Each state by statute determines its own "age of majority" for entering into a contract.

The word "minor" may be synonymous with the word "infant." In some states, if a minor becomes *emancipated* (that is, the minor is considered to be "on his own") that minor will be treated as an adult for the purposes of entering into a contract. Examples of minors who may be considered emancipated are those who are married, who are serving in the armed forces, who make significant incomes, or who live on their own. Emancipation is a question of fact for a jury.

An adult who enters into a contract with a minor has no right to terminate the contract. Only the minor enjoys the right to disaffirm the contract. If both parties to a contract are minors, then each of the parties will have the right to disaffirm the contract.

A contract entered into by a minor is an example of a *voidable* contract. There are three rules that generally apply to minors' contracts.

4.2. *Majority Rule*

A minor may, at any time prior to reaching his/her age of majority, and for a reasonable time thereafter (usually no more than 30 days), disaffirm a contract, return the consideration in his/her possession or under his/her custody control at the time of disaffirmance in whatever form it is currently in, and receive back his/her full consideration.

4.3. *New York Rule*

A minor may disaffirm the contract, but the minor is responsible in either quasi-contract or under a theory of restitution for the depreciation, wear and tear, damage, fair use, or reasonable rental value of the items under his/her care, custody, or control.

4.4. *Third Rule*

A minor may only disaffirm a contract if he/she can return the consideration in its exact original form. This third rule will especially apply to so-called "layaway" contracts, or where goods remain with the seller until they have been fully paid for.

In all cases, no particular form of language or conduct is required to effectuate a disaffirmance as long as the minor makes his/her intention clear. [CR: *Harvey v. Hatfield* (1959); *Taylor Morrison of Tex. v. Skufca* (2023)]

4.5. *The Necessaries Doctrine*

It is now well settled that a minor is liable for the reasonable value of necessities furnished him/ her under the theory of quasi-contract. While there is no one universally accepted definition of a necessary, necessities generally include those items furnished to a minor for his/her "life, health, or safety." A list of necessities include such items as food, clothing, shelter, medical, and educational expenses.

Two special aspects of the necessities doctrine must be considered. First, there has been a tendency by courts to expand the category of items that would be considered as necessities. For example, the purchase of life or health insurance, automobiles, sporting goods, audio equipment, or a college loan may be considered as necessities if these items are used in connection with one of the traditional categories under “life, health, or safety” for a minor. Second, a court will often look to both the value of the item in question and the station or status in life of the minor to determine if a contract is for necessities. Thus, a \$25 cloth coat may be a necessary item for all minors; but a \$5,000 mink jacket would only be considered as a necessary for someone of unusual means.

Finally, most courts will apply the New York rule to contracts where a minor has been furnished a *personal service* (i.e., dance or karate lessons; babysitting jobs; employment assistance), on the theory that the minor cannot return the service already rendered to him or her. [CR: *Gastonia Personnel Corp. v. Rogers* (1970); *Apollo Medflight, LLC v. Nelson* (2023)]

4.6. Ratification

Ratification is an act or an expression in words by which a minor, after having reached his or her age of majority, indicates an intention to be bound by the contract entered into during minority. An effective ratification cannot take place prior to the attainment of majority by the minor.

Ratification may be *express*, that is, a minor may give actual notice that he or she will be bound to the contract. The notice may come in the form of a letter, a telegram, or a phone call. Ratification may also be *implied* from conduct, such as making a payment on account after reaching the age of majority, retaining, or continuing to use property after attaining majority. Ratification might also result from a minor literally “doing nothing” after reaching his/her age of majority, although courts remain divided on the issue of silence and its effect on the issue of ratification. [CR: *In re Express Delivery Enter. LLC* (2023)]

4.7. A Minor’s Misinterpretation of Age

Suppose that in asking a minor about his/her age, the minor lies (misrepresents) and states that he/she is over the age of majority and is no longer a minor. According to the majority rule, a minor may still disaffirm the contract, even though he/she has misrepresented his/her age. There are several other rules that jurisdictions may follow. These include:

- If a minor misrepresents, he/she may not disaffirm. This represents a minority view on the matter.
- If a minor misrepresents, he/she will be prohibited (*estopped*) from using minority as a defense. This view affords practically no protection at all to the minor who has misrepresented his or her age, unless he/she can return the consideration in its exact original form.
- Some courts will permit a minor who has misrepresented his/her age to disaffirm but will then allow the minor to be sued in tort for fraud, resulting in an effective “set-off” of any amount of disaffirmance.

5. Genuineness and Reality of Assent

Questions relating to the genuineness of assent are usually raised *after* a contract has been entered into, either as a defense to a breach of contract or in an attempt by a party to rescind a contract, whereby a party asserts that some problem existed at the formation of a contract that may have precluded genuine assent.

5.1. Mistake

There may be a case where one or both of the parties to a contract claim that a mistake has been made in the formation of an agreement which would preclude the existence of a true “meeting of the minds” between the parties. It may also be alleged that the words of a contract do not convey the real intention of the parties.

There are two types of mistakes. A *unilateral* mistake is a mistake made by *one party* in a contract; a *bilateral* or *mutual* mistake is made by *both parties* in the contract. A mistake may be made as to facts or may be made as to the subject matter of the contract, a matter of judgment as to the value of an item, or the quality of an item. Generally speaking, only a mistake as to a matter of fact, and not a mistake in judgment — sometimes called “buyers’ or sellers’ remorse” — will permit a party to rescind a contract on the ground of a mistake.

A frequently cited example of a *unilateral mistake* involves a bid made by a contractor, sometimes caused by a computational or mathematical error or a misunderstanding of the terms found in the invitation to bid. In general, a unilateral mistake does not afford a party any right to rescind the contract in these circumstances unless the other party knows or has reason to know that a mistake has been made; unless enforcement of the contract against a party would be oppressive; or unless enforcement might result in an unconscionable result and rescission of the contract would impose no substantial hardship on the innocent party.

Under a modern view, however, exceptions to the general rule have been recognized. Many courts will not apply the unilateral mistake rule generally when the other party to the contract knows or should have known that a mistake was made, or where the mistake was the result of an inadvertent computational or mathematical error, and not as a result of gross negligence. Thus, the “blundering party” will be permitted to seek to reform or rewrite the contract, seek its rescission, or to assert a defense against enforcement of the contract. Remember, however, that the mistake must be palpable; that is, the mistake must be known or obvious to the party receiving the bid.

Where both parties to a contract share a common assumption about an important fact upon which they have based their bargain and that assumption turns out to be false, the bargain may be avoided on the basis of a *mutual mistake*. The classic case of a mutual mistake of fact involved a ship named "Peerless" that was scheduled to leave Bombay with a shipment of Surat cotton goods. [CR: *Raffles v. Wichelhaus* (1864); *Hardy v. Wiggins* (2023)]

5.2. Duress

Duress involves a claim of the use of coercive force or a threat of force against a party to a contract. Duress may be used either as a defense to an action for breach of contract or as grounds for rescission of a contract. In determining duress, a court will evaluate the *nature of the threat* against a party to a contract. Two types of duress were recognized under the common law: *simple duress*, also called economic duress or “duress of goods,” and *actionable* duress.

Generally, a threat to file a civil suit where there are "good grounds" for the suit (e.g., where a breach has actually occurred or where a required or timely payment has not been made), would *not* constitute actionable duress and would be classified as simple or economic duress.

Actionable duress, on the other hand, includes a threat of physical violence or force ("*I'm going to make you an offer you can't refuse*"); a threat to initiate a criminal suit or a threat of arrest, criminal prosecution or criminal imprisonment; wrongful seizing or withholding of property, or wrongful threats to seize or to withhold goods or land; or “other wrongful acts” that are in some way *improper, illegal, immoral, or unconscionable*.

Economic duress will not generally be found where one of the parties is in desperate need of the subject matter of the contract or is being economically pressured into “making a deal,” and the other party takes advantage of that need or desire in order to drive a very hard, even one-sided bargain.

However, an abusive or oppressive threat to deploy pressure has been recognized by some courts as constituting economic duress if the parties were truly “mismatched” and the victim's willpower was "overmatched" depending on the circumstances of a case, [CR: *Set Envtl., Inc. v. Power Cartage, Inc.* (2022)]

5.3. Undue Influence

Closely related to the concept of duress is that of undue influence. The defense of undue influence originated in a court of equity as a ground for setting aside a transaction that was imposed by a dominant party over a subservient party. Undue influence involves the deployment of over-persuasive bargaining tactics designed to overcome the will of a party. There are two broad classes of undue influence. In the first instance, Section 497 of the Restatement notes that undue influence may occur where one party uses a dominant psychological position in an unfair manner to induce the subservient party to consent to an agreement to which he or she would not otherwise have consented. In the second instance, a party uses a position of trust and confidence to unfairly persuade the other party to enter into a transaction. The party being taken advantage of does not exercise free will in entering into a contract. Many allegations of undue influence arise after the death of the person alleged to have been unduly influenced where relatives or potential beneficiaries of the deceased seek to set aside a will or an *inter vivos* (living) transfer or gift of property.

Generally speaking, two conditions must be present in order to prove undue influence:

- *Susceptibility*, that is, the person allegedly being influenced must be open to the influence caused by conditions such as old age, infirmity, mental or physical weakness, handicap, psychological dependency, etc.; and
- *Opportunity*, that is, a special relationship of trust and confidence exists between the parties. This relationship may encompass a number of traditional or non-traditional fiduciary or confidential relationships: attorney-client, parent-child, trustee-beneficiary, guardian-ward, administrator-legatee, husband-wife, physician-patient, nurse-patient, pastor-parishioner, or even a good friend-aged or confused individual.

The following elements, found in *Odorizzi v. Bloomfield School District* (1966) are common circumstances leading to a finding of undue influence:

1. Discussing the bargain at an unusual or inappropriate time;
2. Consummation of the transaction at an unusual place;
3. Insistence that the transaction be concluded at once, with extreme emphasis on the risks or disadvantages of delay;
4. The use of multiple persuaders;
5. The absence of any independent third party advice;
6. Statements discouraging a weaker party from consulting an independent advisor.

Once the prima facie elements of *susceptibility and opportunity* are shown, the burden of proof is then shifted to the dominant party to prove, by clear and convincing proof, that:

1. There was no abuse of confidence;
2. The transaction was done in "good faith";
3. The gift or will was made in a manner that was free, independent, and voluntary.

The usual remedy in equity was cancellation of any instrument procured by undue influence, avoidance of the transaction, and what a court of equity would term, "restoration of the status quo ante." [CR: *Estate of Paxton v. Owen* (2022)]

5.4. Misrepresentation and Fraud

The existence of fraud or misrepresentation affects the issue of the genuineness of a party's consent or assent to the contract. In cases involving fraud or misrepresentation, the defrauded party alleges that he/she has been deprived of the "benefit of his/her bargain" and the existence of fraud will be sufficient to permit a disaffirmance of the contract.

There are three types of fraud found under the common law. *Fraud in the execution* has the effect of preventing a party from realizing that a contract has been entered into. It is a “real” or universal defense rendering a contract void. A second type of fraud occurs in the circumstance *when an oral contract has been reduced to a writing*. Here, the alleged victim of fraud relies that the oral agreement will be reduced faithfully to the written expression of their agreement. Acting on the assurance that this has been done faithfully, the victim signs the writing without reading it. Depending on the jurisdiction, the innocent party may be permitted to assert the personal defense of fraud, ignoring the fact that the fraud could have been uncovered had the victim taken the step to read the document before signing it.

The third type of fraud, *fraud in the inducement*, or *contract fraud*, occurs where consent to a bargain is induced by lies, misstatements, or half-truths. Fraud in the inducement is a personal defense, which renders the contract voidable at the option of the innocent party.

The basic distinction between fraud and misrepresentation lies in the presence or absence of *scienter*, which is defined as the *intent to deceive*. *Scienter* arises either from the knowledge of falsity by a party or the reckless disregard of the truth of a statement. Sometimes the term “innocent misrepresentation” may be used to describe the situation where a party has committed a misrepresentation but has not done so with “*scienter*” or intent. The misrepresentation is “innocent” only in the sense that it was not done with *scienter* or intent. It is still actionable.

If a court finds that either fraud or misrepresentation was committed, the innocent party may be permitted to rescind the contract and may be restored to the original, pre-contract condition. Alternatively, the innocent party may enforce the contract and seek compensatory damages for the difference between the value of the item as promised in the contract and the value of the item received by the innocent party. In addition, in some circumstances, an innocent party may seek punitive damages to punish the party who committed fraud for their bad behavior. Depending on the jurisdiction, if an innocent misrepresentation has occurred, the innocent party can rescind the contract, but may not be able to seek damages for the innocent misrepresentation.

Four elements are necessary to prove contract fraud. Contract fraud involves: 1) a false representation or statement of a material fact; 2) *scienter*; 3) justifiable reliance; and 4) damages.

A material fact is defined as any fact that is important in inducing a party to enter into a contract. According to Section 470(2) of the Restatement, materiality exists whenever “the misrepresentation would be likely to affect the conduct of a reasonable man.” There are four special aspects or rules concerning this first element of proving fraud.

5.5. *Misrepresentation of Fact*

Relief may be granted for misrepresentation of fact, and not for erroneous statements of opinion. However, the distinction between fact and opinion is sometimes unclear. Statements or representations of a future fact, a prediction, or a statement of an opinion are generally not actionable as fraud. It is recognized that a seller may be permitted to employ a certain amount of “*sales puffing*” or “*trade talk*” without incurring liability for fraud. However, a statement of opinion given by an expert (a disinterested professional) to an unsophisticated purchaser may give rise to a cause of action for fraud. This opinion may become one of fact depending on the circumstances of the case. [CR: *Vokes v. Arthur Murray, Inc.* (1968); *John v. Elefante* (2022)]

5.6. *Statements of Quality, Value, or Commendations*

Statements of quality or value or commendations, using such adjectival phrases as “good,” “adequate,” “great,” “successful,” “the best,” “the finest quality,” etc., are generally not actionable. However, there may be circumstances where such statements may be actionable, as where the parties are not “acting on equal footing” or where one party has superior knowledge about the true facts of a situation. In such a case, a court may find that

the “opinion line has crossed into the law of fact.” [CR: *Sellers v. Looper* (1972); *DLC Labs v. Res. Label Group* (2023)]

5.7. Concealment

Concealment occurs where a party, through conduct, conceals the true nature of a situation. Actions such as turning back the odometer of a car, adding oil to the crankcase of a car where the oil would have otherwise run out and the engine would have seized, painting over cracks in the ceiling or wall, and gluing together pieces of a set of china all amount to active concealment. This is often termed the “half-truths” rule since a party to a contract will often disguise the true and complete nature of a transaction.

5.8. Misrepresentation of Law

Under the common law and in the absence of a fiduciary relationship, a statement made by a person concerning a matter of law was not actionable as fraud because of a rule that “everyone was presumed to know the law.” The rule established was that a statement of the law governing a given set of facts is merely the expression of opinion. No person ought to rely on such an opinion without further research.

The case of *Puckett Paving v. Carrier Leasing* (1976) exemplifies the common law rule concerning statements as to a matter of law. However, the court stated that a different result might have been obtained had there been a fiduciary relationship (a special relationship of trust and confidence) between the parties.

As times changed, a new rule has developed. Today, most courts would hold that a professional who gives an opinion as to a matter of law in a professional setting, would be responsible for the truth of the statement made. Professionals such as professional lessors, architects, financial planners, real estate brokers, tax professionals — those professions which require a greater or more substantial knowledge of the law than possessed by a layperson — would fall within the rule of law found in the case of *Yorke v. Taylor* (1969). [CR: *Prometheus Innovation Corp. v. Huntington Learning Ctrs., Inc.* (2022)]

5.9. Scienter

The second element of a cause of action for fraud is that of *scienter* — either knowledge of falsity or reckless disregard of the truth. *Scienter* requires an intent to deceive or a “guilty mind.” Without proof of *scienter*, a plaintiff will only be able to prove misrepresentation and will not be eligible to receive punitive damages.

In most cases, *scienter* will be found in the *words* or *actions* of a party. An important question arises: When might *silence* constitute the basis of an action for fraud? Under the common law, in a typical “*arms-length*” contract negotiation, neither party had the positive duty to come forward with facts and disclose them to the opposite party. Because the parties were operating “at arm’s length,” no “duty to speak” existed. Parties were expected to take steps to protect their own interests.

This common law rule has been supplanted in many cases by decisions that have established a “duty to speak.” Some of the circumstances establishing a “duty to speak” include:

- a. In the sale of a home or other real property, the seller must disclose material “latent defects,” that is, any defect that would not be readily discovered upon an inspection and which is known by the seller. The application of this rule depends on state law.
- b. If a serious defect or serious potential problem is known to the seller (i.e., a crack in the engine block that might cause a serious steering problem), but could not reasonably be discovered by the buyer, some courts may impose a “duty to speak.”
- c. Where a *fiduciary relationship* exists. A fiduciary relationship is a special relationship of “trust and confidence” between parties. Examples of a fiduciary relationship include lawyers and their clients,

partners in a partnership, a broker and a client, directors of a corporation and their shareholders, and a guardian and his or her ward.

d. To correct a prior statement which, although true when made, has now become false or untrue due to a change in facts or circumstances. [CR: *Bergeron v. Dupont* (1976); *Evolve Growth Initiatives, LLC v. Equilibrium Health Sols. LLC* (2023)]

5.10. Justifiable Reliance

The third element of proving fraud is that of "justifiable reliance"; that is, the party claiming that he/she has been defrauded must prove reasonable or justifiable reliance upon the misrepresentation in entering into the contract. The question of reliance is a question of fact. The plaintiff need not prove that the false statement was the sole factor in entering into the contract; rather, that it was an *important element* in inducing him/her to enter into a contract.

It is recognized that a certain amount of "sales puffing" or "trade talk" may be expected in a sales contract. The common law noted that it was the duty of every person "to take notice of obvious facts and to investigate the truth of representations." Thus, if a statement was obviously or patently false, a plaintiff could not say that he/she justifiably relied upon it. Ironically, sometimes the more outrageous a statement, the less likely an action for fraud could be maintained; although, it must also be recognized that "the law will afford relief even to the simple and credulous who have been duped by art and falsehood." This is ordinarily an issue for the jury to decide.

Similarly, if a party knows the truth of a statement, he/she may not later claim justifiable reliance. Is there a requirement of investigation or inspection of goods or property by a purchaser? Generally, yes, especially if an inspection or investigation would not require the services of an expert, the expenditure of considerable time or money, or any special training or expertise. However, if a defect is *latent* (not readily seen) or hidden, the buyer would be justified in relying on statements or representations of the seller, and no inspection would be required. [CR: *Arwood v. Arwood* (2022)]

5.11. Damages

Finally, the innocent party must suffer some pecuniary or monetary injury or damage as a result of the fraud or misrepresentation. If the plaintiff is attempting to rescind or cancel the contract, the court will not require proof of monetary damages. However, if the plaintiff is seeking damages in the form of money, proof of an injury is required.

6. Writing and Form of a Contract

6.1. The Statute of Frauds

The Statute of Frauds is based on the subject matter of the contract. If the subject matter of the contract *falls within* one of the categories under the Statute, the ability to collect monetary damages, enforce the contract, or to seek specific performance is conditioned on proof that a signed writing exists. In general, four types of business contracts "*fall within*" the Statute of Frauds, and are thus required to be in writing:

1. Contracts involving the sale of land, an interest in land (an easement, mortgage, or life estate) or a lease of real property which extends for more than a certain period of time (usually one year);
2. Contracts that by their terms cannot be performed within one year of their formation;
3. The promise to answer for the debt, miscarriage, or default of another (so-called secondary or collateral promises);
4. Under the Uniform Commercial Code, contracts for the sale of goods for the cumulative purchase price of \$500.00 or more.

The Statute of Frauds requires that the writing must evidence the agreement of the parties. Unless a specific format for the writing is required, for example, the form of a deed, the writing may be in any form. It may be a receipt, a telegram, a letter, an exchange of correspondence, the records of a business, an acknowledgment, a memorandum, or even a letter that purports to repudiate a contract. For contracts involving the sale, interest, or lease of land, the writing must contain the legal description of the property — often the lot and block number.

6.2. *The Part Performance Exception*

There is a major exception to the application of the Statute of Frauds relating to the sale of land. The "part performance" exception may be applicable when an oral contract for the sale of land has been partially performed. If the court finds sufficient part performance, an oral contract will suffice, and the court may grant specific performance of the oral contract. Courts are especially prone to find part performance where the parties cannot be returned to the *status quo* because of the substantial actions undertaken by a party claiming that a contract or agreement existed for the sale of the real property. [CR: *Lauron Industries v. Holman* (1972); *616 Inc. v. Mae Props., LLC* (2023)]

The three examples of proof of part performance are: (1) where the buyer pays a part of the purchase price and has taken *actual and exclusive possession* of the property; (2) where the buyer has made *permanent, valuable, and substantial improvements* to the property with the consent of the seller; and (3) where the buyer has given consideration to the seller in a greater amount than that usually paid by a lessee under the terms of a lease. Whatever proof is offered under the theory of part performance must point "unmistakably and exclusively" to the existence of the oral agreement. [CR: *Miller v. McCamish* (1971)]

6.3. *Performance Beyond One Year*

The Statute of Frauds as originally found in the common law of England provided that a writing was required for "an agreement that is not to be performed within the space of one year from the making thereof." Probably no section of the Statute of Frauds is least favored by courts and has been subject to more interpretation. In order for a particular contract to fall within the Statute of Frauds, the performance of the contract must be *objectively impossible* to perform within a year from the date of the formation of the contract. The issue is one of *possibility*, not probability or likelihood that the promise can be performed within a year.

A contract entered into for an *indefinite* period of time by definition falls outside the Statute of Frauds and is not required to be in writing.

6.4. *Promises to Answer for the Debt of Another*

A "promise to answer for the debt, miscarriage, or default of another" is an example of a secondary or collateral promise and must ordinarily be found in writing. A contract or promise of guaranty or *suretyship* is such a promise. A secondary promise may also be called a "triggered promise," since its performance only comes into existence or is "triggered" by the failure of the primary party to pay or perform.

The "main purpose" doctrine exception (also called the "leading object rule") applies to certain types of secondary or collateral promises. The main purpose doctrine exception provides that while the promise to answer for the debt of another generally must be in writing under the Statute of Frauds, where the secondary promisor has "some purpose of his own" (generally to secure some personal monetary or pecuniary gain or some personal benefit), the Statute of Frauds does not apply, and no writing will be required. [CR: *Howard, Weil, Labouisse v. Abercrombie* (1976); *Kuker Marino Winiarsky & Bittens, LLP v. NuevoModern, LLC* (2023)]

6.5. *Contracts for the Sale of Goods - UCC § 2-201*

The Statute of Frauds under the Uniform Commercial Code generally applies to a contract for the sale of goods for the purchase price is \$500.00 or more. This is a cumulative requirement, that is, the "sale" is a total purchase

concept. Even though no one item may meet the \$500.00 requirement, if the total or *cumulative* purchase meets or exceeds \$500.00, the entire transaction falls within the Statute of Frauds and must be found in a writing. [CR: *Nazari v. La Handyman* (2022)]

Having met these threshold requirements, the Statute then requires:

- a. *Some writing* sufficient to show an agreement (i.e., “that a contract for sale has been made between the parties”);
- b. *Signed by the party against whom enforcement is sought* (“the party to be charged”) or by his/her authored agent or broker.

Under the UCC, a writing is not insufficient because it omits or incorrectly states a term agreed upon, but the contract is not enforceable beyond the *quantity* of goods shown in such writing. The UCC is much more lenient on the question of the sufficiency of the writing than was the common law, which required all of the “important terms” of a contract to be contained in the writing (i.e., price, quantity, parties, time for performance, etc.). Under the UCC, there are only three “definite and invariable” requirements as to the writing. First, it must evidence an *intention* to enter into a contract; second, it must be “*signed*,” which includes any authentication that identifies the party to be charged; and third, it must specify a *quantity*.

The UCC requires either a written contract or some form of a written memorandum. However, the emphasis under the UCC is clearly on “*some writing*” — that is, a confirmation, sales slip, check, note, order slip, telegram, letter, etc. The signature or “signing” is not required to be at the end of a document and can be placed anywhere on the writing. A signature can consist of a stamped name, a symbol, or a party's initials, if a party so intends.

The UCC requires that a quantity be stated, and even the quantity need not be stated “accurately,” so long as the writing reflects the intention of the parties. However, the contract is not enforceable beyond the quantity stated in the contract.

6.6. *Exceptions under the U.C.C.*

There are three main exceptions to the UCC Statute of Frauds provision. An oral contract will be enforceable to the extent that a seller accepts payment or to the extent that a buyer accepts delivery of the goods contracted for (“*goods paid for/accepted*” also called the “*partial performance*” doctrine.)

Where goods are to be *pecially manufactured* or custom made for a buyer and are of the type not “ordinarily sold in the regular course of the seller's business,” if the seller has either begun their manufacture or incurred obligations for their manufacture, no writing is required. [CR: *Challenge Mfg. Co., LLC v. Metokote Corp.* (2022)]

Finally, if the defendant in his pleadings, testimony or otherwise has *admitted* that a contract for sale was made, the Statute of Frauds will not apply.

The UCC also provides for a *substitute* for the writing and signature requirements of the Statute of Frauds termed the “*memorandum substitute*.” When merchants have concluded an oral contract, it is common for one party to send to the other a letter of confirmation, a purchase order, or perhaps a printed form of the contract for their review and perhaps “counter-signature.”

However, *between merchants* (that is, if *both* parties are merchants), a contract for the sale of goods is enforceable without the “signature of the party to be charged” if a party to the contract within a reasonable time of the making of the oral agreement sends a written confirmation containing the essential terms of an oral contract to the other party, and the party receiving the communication or memorandum has “reason to know” its contents and does not provide written notice of objection to the confirmatory memorandum within 10 days.

Note that the *memorandum substitute* is the proper method to provide protection to a merchant whenever an oral contract or order is made for goods over \$500.00. It would also be wise to send the memorandum by registered or certified mail in order to later prove that the other party “had reason to know its contents” or the notification of objection as well. [CR: *AA Supplies of St. Thomas v. Sugar Bay Club & Resort Corp.* (2019)]

6.7. Interpretations of Contracts

Whenever parties to a contract cannot agree on the terms of their agreement and go to court to litigate the issue, the court will apply certain basic principles of *construction and interpretation* to the agreement in order to determine and then give the proper effect to the *intention* of the parties. Generally speaking, courts will give a reasonable meaning to the words used in a contract. In applying this principle, courts will utilize the “plain meaning rule,” that is, if a writing appears to be plain and unambiguous on its face, its meaning must be determined from the “four corners” of the instrument itself without resort to extrinsic evidence. In pursuit of “plain meaning,” courts will use an objective standard, the expressed intention of the parties, rather than any secret or hidden intention in interpreting a contract. In doing so, courts will read and interpret a contract in its entirety so as to give effect to all of its parts.

Certain problems may arise which may result in intervention and interpretation by the courts:

- When a contract is partly written and partly printed, the written part will prevail if there should be a conflict. If an amount is expressed in conflicting words and figures, the words will prevail. For example: “three thousand dollars” (\$300) - the correct sum will be three thousand dollars.
- Usage of trade and customs of a community can be used to explain the meaning of unclear or ambiguous language found in a contract. This is especially true under the UCC.
- Actions of parties occurring after executing a contract but prior to a controversy may be used by a court to demonstrate the intentions of the parties to an agreement.
- Language in a contract that is either unclear or ambiguous will be interpreted most strongly against the party who prepared the contract or the party who caused the confusion. An example exists in a provision of an insurance contract, which may be capable of more than one interpretation. Such ambiguity will be construed against the insurance company that prepared the contract.

6.8. The Parol (Oral) Evidence Rule

When a contract is reduced to a writing, it is logical to assume that the written contract contains all the terms agreed to by the parties. The *parol evidence* rule states that oral testimony is generally not admissible to vary the terms of a written contract when such oral testimony relates to statements made prior to the signing of the contract or to statements made at the same time [contemporaneous] the contract was made, if the parties intended the “four corner” of the agreement as the final expression of their agreement. There are several important exceptions to the parol evidence rule:

- a. Where the words in a contract are ambiguous, that is, where words are capable of more than one meaning, oral or parol evidence may be offered to *explain the ambiguity* in the contract.
- b. When a written contract is obviously incomplete (as where a detail is omitted or a blank is not filled in), oral or parol testimony is admissible to supply the missing term.
- c. The failure of a condition precedent. If parties to a written contract orally agree that a contract will not be effective unless or until a certain event or condition takes place, the court will permit oral testimony to show that the condition precedent was or was not fulfilled. In this case, the party offering the oral proof is not trying to vary the terms of the written agreement; rather, the introduction of the oral proof is offered to show that the agreement never came into existence or that the agreement did come into existence.
- d. Changes, modifications, or additions to a contract are not covered by the parol evidence rule, since the parol evidence rule only applies to provisions made before or at the time of the signing of the

written agreement. Note, however, that other provisions, such as the Statute of Frauds requiring a writing or rules concerning consideration might apply to keep oral proof from being introduced.

It is also settled that the parol evidence rule does not prevent a party from using contemporaneous or prior negotiations or expressions to indicate that the writing was never intended to be a final expression of their agreement. [CR: *Worsham v. Worsham* (2022)]

7. Legality of Subject Matter

Generally speaking, a contract which involves the performance of an act in violation of a statute or which is against public policy is not enforceable by a court of law. Such a contract is void or is a nullity. Likewise, should the subject matter of a contract involve criminal activity or the commission of a tort or a civil wrong, the contract is also void and unenforceable.

When only a part of a contract is deemed illegal, and the illegal provision or portion does not involve serious moral turpitude, the illegal portion of the agreement may be disregarded, and the legal part of the contract may be enforced. The contract is said to be *divisible or severable*. However, if the entire contract is so completely integrated that the parts cannot be separated, the entire agreement may be void and unenforceable.

7.1. An Agreement Contrary to Public Policy

Public policy is an important rationale used to strike down or refuse to enforce a contract or a clause of a contract on grounds of immorality, unconscionability, economic policy, unprofessional conduct, and other criteria. At the outset, it must be recognized that “public policy” is a very vague area of the law. Even though a contract or an agreement does not violate a formal statute or law, a contract may still be unenforceable if it violates public policy. Public policy is determined by assessing the policies underlying a statute, court and administrative decisions, and public attitudes and perceptions about the nature of law and society. It is essentially a “legal value judgment” concerning the nature and type of contractual relationships a society will recognize and enforce. [CR: *Laos v. Soble* (1972); *Davis v. Flight Fit N Fun* (2022)]

7.2. Licensing Statutes

Every state has adopted certain vocational and professional licensing statutes that regulate the professional and business conduct of certain groups or individuals in society.

A *regulatory license* regulates the standards of conduct of certain professionals. In order to procure a regulatory-type license, certain baseline qualifications must be met. Qualifications may include possessing special skills, special knowledge, special training, or meeting a minimum educational level. In addition, the party seeking a regulatory license may be required to demonstrate that he/she has passed a professional certification or licensure examination.

A *revenue license* is often no more than an occupational tax. The purpose of revenue license is to raise the revenue necessary to monitor the underlying activity by a regulatory authority. Any applicant will generally be granted a revenue license upon the payment of the proper fee. A revenue license is also called a ministerial license. In deciding whether a particular license is regulatory or revenue in nature, it is important to assess the legislative intent and legislative history of the underlying statute.

If a court concludes that a regulatory license is required, a party seeking enforcement of any underlying contract must prove that the proper license was in force *at the time the contract came into existence*. Failure to possess a regulatory license at the time any consideration is furnished prevents a court from enforcing an agreement concerning that professional activity or conduct. Where the purpose of the licensing statute is merely to raise revenue, an underlying contract may still be enforced, even though the required license had not been obtained. The

individual, however, may be required to procure the proper license before any judgment is entered by the court. [CR: *Markus & Nocka v. Julian Goodrich Architects* (1969); *Agl Brentwood v. Cbre, Inc.* (2023)]

7.3. Covenants (Promises) Not to Compete

A covenant not to compete may be found in two general types of business contracts:

1. A promise made by the seller of a business to a buyer wherein the seller agrees not to open or be involved in a similar business in a specified geographic area for a specified period of time;
2. A clause which is part of an employment contract which restricts an employee from discussing or divulging so-called "trade secrets" (special or limited insider information) or which restricts or completely forbids the employee from engaging in competition with the former employer or from going to work with a competitor when an employment contract is terminated.

Many American courts do not favor such covenants and consider them to be in "restraint of trade." However, a covenant not to compete is enforceable if it is reasonable and properly drawn covenants are enforceable and provide important protections in business relationships. Under a strict common law interpretation, if a covenant "failed" in any respect (i.e., the court concluded that a covenant was unreasonable as to either time or area), the court could not enforce any part of the covenant.

In an employment situation, the covenant must be a part of a larger contract of employment, supported by consideration, or it may be termed as a "naked covenant" and will be denied enforcement by a court. A covenant not to compete in a contract of employment will be closely scrutinized by courts and will be strictly construed when enforcement is sought. The burden of proof is placed on the party seeking to enforce the covenant. Some of the criteria used by the courts in determining whether such a clause in a contract of employment will be enforced are:

1. Is the restraint reasonable and no greater than necessary to protect the legitimate business interests of the employer in such areas as protection of trade secrets or other confidential information?
2. Is the restraint unreasonable in terms of time or area?
3. Would the employee's work for a competitor irreparably injure or harm the employer's business or threaten such irreparable injury (especially with regard to an intangible such as "good will")?
4. Is the employment of a unique, extraordinary, or unusual type?

A promise made by the seller of a business will be enforced if it is reasonable in terms of both time and area. When the area is too broad or extensive or the time is too long for the reasonable protection for the buyer, a covenant not to compete may not be enforced by a court.

In certain jurisdictions, an agreement by a person to refrain from engaging in his/her trade or profession may be viewed as being illegal and contrary to public policy because it is "inimical to the interests of society in a free and competitive market and to the interests of the person restrained in earning a livelihood."

In certain jurisdictions, courts are reluctant to enforce a covenant where the public will be denied a necessary or essential service such as the services of a medical professional. In this case, the court might prefer to award monetary damages for the breach of the covenant instead of issuing an injunction or a restraining order against the employee.

In recent years, several courts have become more proactive concerning restrictive covenants. Several courts now follow the "*blue pencil*" rule, which permits the court to "strike out" any unreasonable provisions from an agreement and modify the time or area to provide reasonable protection to the parties. The "blue pencil" rule has its origins in the doctrine of severability as applied to illegal contracts.

For example, a court might re-write (reform) a provision of a contract in order to make a provision reasonable (i.e., twenty-five miles is unreasonable for a restaurant — ten miles is reasonable; five years is unreasonable for a barber—six months would be considered reasonable), although the “blue pencil” rule would put the court in a position of actually writing a contract for the parties, subjecting them to an agreement they had not actually made.

It should be noted that in a few states (most notably, California), an employer cannot restrict a regular employee, not in possession of any specialized information or “trade secrets,” from engaging in employment, holding that such restrictions are void and a violation of public policy as a matter of law. [CR: *Frederick v. P.B.M.* (1976); *Intertek Testing Servs. NA v. Eastman* (2023)]

7.4. Usury

Usury involves a contract or agreement that carries an excessive and illegal rate of interest. Most states regulate the rate of interest that can be assessed by a specific statute. Such statutes typically provide for a “legal rate” where no rate has been stated in a contract, and a maximum rate that is the most that can be legally charged under law under all circumstances.

If a court determines that an agreement is usurious, a number of remedies are available. A majority of states today will deny recovery of any and all interest on usurious loans. Some states require the forfeiture of both principal and interest; other states permit the borrower to recover double or triple the interest previously paid. Still other states may permit the charging of a “legal rate” where the interest rate charged “inadvertently” surpassed the legal rate. [CR: *Shannon v. Smalls* (2022)]

7.5. Exculpatory Clauses

An exculpatory clause is a provision of a contract that relieves a party of liability for its own negligence. Exculpatory clauses will be strictly construed against the party writing them.

At common law, courts would enforce exculpatory clauses on the ground of “freedom of contract,” especially where a contract was entered into by two private parties, and no gross negligence, fraud, willful injury, or violation of a law was involved. Later, courts modified their views and began to refuse to enforce an exculpatory clause in an employment relationship, so that an employer would be liable to employees for its negligence, despite the existence of an exculpatory clause releasing the employer from liability.

However, where there is a public interest involved, an exculpatory clause may be held to be *void* and against *public policy*. A public interest is established where one of the parties is a public institution — one owned or operated by the government or some subsidiary or branch of the government, i.e., a public hospital, a public school, or a municipally owned parking facility — unless the institution is protected under the doctrine of “sovereign immunity.”

In recent years, some courts have significantly narrowed the number of parties or institutions who may exculpate themselves from liability and have created a new category, termed a “quasi-public” institution, *which cannot exculpate itself from liability based on its own negligence*. A quasi-public institution may be defined as a private party or business entity that:

1. Deals with a large number of people;
2. Solicits the public business;
3. Deals in a necessary and/or vital service (i.e., transportation, education, banking, etc.). [CR: *Hy-Grade Oil v. New Jersey Bank* (1975); *Estate of Blakely v. Stetson Univ.* (2022)]

8. Remedies for Breach of Contract

A *breach of contract* occurs when a promisor fails, without any legal excuse or cause, to perform any of the obligations, undertakings, or promises stipulated in the contract. In such a case, the non-breaching party, also called the aggrieved party, is entitled to seek a *remedy* against the breaching party. In most cases, this involves a suit for money damages.

Interestingly, prior to 1854, there were almost no rules of contract damages. Assessment of damages was generally left to the discretion of the jury. In 1854, the important case of *Hadley v. Baxendale* (1854) was decided. The court laid down two important rules, applicable generally to the area of contract damages. First, the aggrieved party may recover those damages “as may fairly and reasonably be considered... arising naturally, i.e., according to the usual course of things, from such breach of contract itself.” Second, the aggrieved party may recover damages “such as may reasonably be supposed to have been in the contemplation of both parties, at the time they made the contract, as the probable result of the breach of it.” Under the first rule, for example, cover or resale damages under UCC § 2-712 or UCC § 2-706 naturally and obviously flow from the breach. Under the second rule, “special” or “consequential” damages (described below) may be deemed to be within the contemplation of the parties, but only under well-defined “special circumstances.” [CR: *Hadley v. Baxendale* (1854); *Mil-Spec. Indus. Corp. v. Expansion Indus., LLC* (2022)]

8.1. Compensatory Damages

Damages that are awarded to compensate the non-breaching party for the loss of the bargain are called *compensatory damages*. Compensatory damages are also known as “general damages” or “benefit of the bargain” damages. For a breach of contract, “the law of damages seeks to place the aggrieved party in the same economic position he would have had if the contract had been [fully] performed.” In a contract for the sale of goods, at least two possibilities exist. If the seller commits a breach and fails to deliver the goods called for in the contract, one measure of damages is the difference between the contract price and the market price of the goods at the time of the breach. [CR: *8 Enters. v. Green Leaf Lotus, LLC* (2022)]

In other cases, the buyer may avail him/herself of the remedy of “cover”; that is, the buyer may go into the marketplace and make “in good faith and without any unreasonable delay any reasonable purchase or a contract to purchase goods in substitution” for those due from the seller. The buyer may then recover from the seller the difference between the cost of cover and the contract price, plus any incidental or consequential damages, less any expenses saved. The remedy of cover is found in UCC § 2-712 and is the preferred action for an aggrieved buyer under the Code.

Under UCC § 2-706, a seller may elect to resell the goods which a buyer has wrongfully rejected them or where the buyer has refused to take delivery. Here, the seller may recover the difference between the resale price and the contract price (together with any incidental damages under UCC § 2-710, but less any expenses saved). All elements of the resale must be reasonable, and in some cases, notice of the resale must be given to the breaching party.

8.2. Incidental Damages

Incidental damages [UCC § 2-715] are any reasonable expenses incurred in effecting cover (i.e., transportation charges, freight charges, phone calls, etc.) or expenses incurred in the resale of the goods [UCC § 2-710].

8.3. Consequential Damages

Consequential damages are caused by special circumstances where damage, loss, or injury does not flow directly and immediately from the act of the breaching party, but from some of the consequences or results of such an act. In order for a court to award consequential damages (often in the form of lost profits), the breaching party must

know that “special circumstances” will cause the non-breaching party to suffer an additional loss. In practical terms, the non-breaching party may have to give the breaching party "notice" of the special circumstances.

A second type of special or consequential damages occurs in cases where a defective product causes personal injury. Compensation for personal injury would be an example of consequential damages. [CR: *Covington v. State Farm Fire & Cas. Co.* (2021)]

8.4. Punitive Damages

Punitive damages are also called *exemplary* damages. Punitive damages are designed to punish a "guilty" party for intentional, malicious, willful, or wanton wrongdoing and to make an example of the breaching party. The purpose of awarding punitive damages is to deter the wrongdoer from similar conduct in the future, as well as to deter others from engaging in similar conduct. Generally, punitive damages will not be awarded in cases of simple breach of contract, except for a category of cases involving contract fraud, due to the presence of "*scienter*," or the intent to deceive. The court may add an additional amount (in some cases, three times the actual damages, called *treble damages*) in order to punish the breaching party for this wrongful conduct.

The United States Supreme Court entered the debate concerning punitive damages in 1996 and held in *BMW of North America, Inc. v. Gore* (1996) that under the Due Process Clause of the Fourteenth Amendment the amount of punitive damages awarded by a jury cannot be “grossly excessive” and must bear some reasonable relationship to the actual damages sustained. There have also been attempts by several state legislatures to limit or even abolish punitive damages in a wide variety of tort cases. [CR: *Romo v. Shirley* (2022)]

8.5. Nominal Damages

Where a party has suffered no true or provable damage, a court may choose to award only nominal damages for breach.

8.6. Liquidated Damages

While parties are not generally empowered to provide for penalties in the event of a breach of contract, a contract may specify an exact dollar amount or a formula for calculating damages that are to be paid in the case of a default or a breach. Such a clause is called a *liquidated damage* clause. Under the common law, a court would enforce a liquidated damage clause if two criteria were met:

1. The amount set as liquidated damages in the contract a reasonable estimate of the probable loss; and
2. The parties must intend to provide for damages rather than a penalty. [CR: *Seymour v. Hovnanian* (2022)]

8.7. Attorneys' Fees

In the United States (as opposed to Great Britain, which has adopted a modified “*loser pays*” view), an award of damages will not ordinarily include reimbursement of the successful party’s attorney’s fees. Attorney’s fees should be viewed in light of the prior discussion of consequential damages. However, it has become common practice for commercial and residential leases, commercial paper, and contracts for sale of real estate to contain a clause providing for the award of “reasonable attorney’s fees” in case of default. A majority of courts uphold such agreements, permitting recovery of an amount in excess of the damages that would accrue, provided that the amount demanded for the attorneys’ fees is reasonable. [CR: *McDermott Brandon Props. v. Wheeler* (2023)]

8.8. The Remedy of Specific Performance

The remedy of specific performance is an extraordinary remedy developed in courts of equity to provide relief when the legal remedy of damages was inadequate to put the non-breaching party in as good a position had the contract had been fully performed. The remedy of specific performance is most appropriate when the non-breaching party is not seeking monetary damages; rather, the non-breaching party desires performance of the promises in the contract and asks the court to issue a decree ordering a party affirmatively to carry out contractual duties (called a *mandamus* action).

In the case of a contract for the sale of goods, monetary damages will normally be deemed adequate, since substitute goods may be readily available in the marketplace through the remedy of cover. However, under the common law, if the goods were *unique*, a court of equity may issue a decree of specific performance. Such "unique" items included antiques, objects of art, racehorses, stock in a closely held corporation, and, by definition, all land.

Courts are very reluctant to grant specific performance in personal service contracts because public policy considerations discourage what would amount to involuntary servitude. In addition, as a practical matter, courts do not generally desire to monitor a continuing personal service contract to assure that it is carried out. [CR: *Tower City Grain v. Richman* (1975); *Diener v. Brown* (2023)]

Tower City Grain provides a discussion of specific performance under the UCC. Although the UCC liberalizes the availability of the remedy of specific performance by adding the phrase under "proper circumstances," such relief remains the extraordinary rather than the ordinary remedy. In order to show the existence of "proper circumstances," there must first be a showing of the unavailability of the good in the market.

One case in which the court expressed a view that specific performance would be appropriate is *Campbell Soup Co. v. Wentz* (1948). However, note that the court ultimately refused to issue the decree for specific performance because it ruled that the underlying contract was unconscionable. Campbell Soup's petition for an injunction and for specific performance was denied by both the trial court and the Court of Appeals. The appellate court recognized that if the contract had not been unconscionable, specific performance would have been available to the company. The unique nature of the product involved meant that there was no adequate legal remedy. However, since specific performance is an equitable remedy, the petitioner must come to court "with clean hands." It has often been said: "*He who seeks equity must do equity.*"

8.9. The Requirement of Mitigation

In a situation where a breach of contract has occurred, the non-breaching party may be required to lessen or mitigate damages. A party who has suffered a wrong by a breach may not unreasonably sit by and allow damages to accumulate or worsen. The law will not permit the aggrieved party to recover from the breaching party those damages that he "should have foreseen and could have avoided by reasonable effort without undue risk, expense, or humiliation." [Restatement, Contracts § 336(1)].

Application of the principle of mitigation requires reasonable efforts by the non-breaching party to mitigate or lessen damages. However, the wronged party is not required to mitigate damages if the cost of mitigation would involve unreasonable expense or if the suggested performance is not of the same type or character as that found in the original contract. [CR: *Parker v. Twentieth Century Fox* (1970); *Busch v. Gorbachevskiy* (2023)]

There is a split of authority in real estate leasing cases, although a modern view would indicate that the lessor must at least attempt to mitigate damages in case of a breach by a lessee.

In case of an alleged breach of an employment contract, the burden of proof is on an employer who has improperly terminated an employee to prove the existence of an alternate job and to prove that the employee could have been hired — that is, that the employee had failed to mitigate his or her damages by failing to accept suitable employment.

9. Concluding Comments

A thorough knowledge of the core principles of contract law is an essential tool for the businessman in order to understand the implications of this important area of law. This article outlines the main elements of a contract including: the agreement (offer and acceptance); consideration; legal capacity of the parties; and legal subject matter. In addition, the article discusses the implications of the Statute of Limitations and the Statute of Frauds, as well as outlining the various remedies available for a breach of contract. The article has cited several of the classic or traditional cases explaining these various elements, as well as providing updated case references for further study and analysis from twenty-two jurisdictions.

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The Influence of Teachers' Wages on Student Performance in Mathematics and Reading at Urban and Rural Primary Schools in Burkina Faso

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Abstract

This paper aims to analyze the influence of public teachers' wages on student test scores in mathematics and reading. A linear model was estimated using endogenous variables on data from the 2014 Programme for the Analysis of Educational Systems survey in Burkina Faso. Teachers' wages have differentiated, mixed, and heterogeneous influences on student performance in urban areas and negative influences in rural. Good academic performance requires accounting for geographical aspects when setting teachers' wages. This study will determine the effects of teachers' non-wages earning activities combined with other factors on academic performance.

Keywords: Achievement, Inequalities, Rural, Scores, Urban, Wages

1. Introduction

The balance between teachers' wages and student academic performance is a concern for education systems (Britton & Propper, 2016; Hanushek, 2002). Wages comprise a significant portion of school resources (Hanushek & Etema, 2017). Teachers' wage aims at the quality of education of better student performance with less heterogeneity.

The influence of different factors on educational outcomes is determined by establishing the link between the resource inputs¹ with educational outcomes.² Smaller class sizes and a teacher's educational background, rather than boosting student performance, often have negative effects. Shrinking class size increases the demand for teachers, while credentialing requirements, which do not ensure quality, limit the supply of candidates. The combined effect is that the teachers of school districts who end up hiring are often low-performing (Cabrera & Webbink, 2018).

¹ Examples include pupil-to-teacher ratios, technology, amount of homework, teacher experience, teacher education, teacher salary, school expenditure, teacher/pupil ratio, and class size.

² Such as reading and math test scores, CGPA, and the Scholastic Assessment Test (SAT).

Teachers' credentials, responsibilities, experience and qualifications differentiate wages; however, these factors are weak predictors of student learning outcomes (Neal, 2011; Aaronson, Barrow, & Sander 2007). Thus, pay-for-performance is an often-suggested solution (Bond & Mumford, 2018). However, this leads to heterogeneities in student performance and exacerbates inequalities (Filmer, Habyarimana, & Sabarwal, 2020). Likewise, teachers' certifications show little evidence for suggesting a strong relationship between teacher quality and student achievement.

The differences in the academic performance of students linked to a school are limited to the extent of the size of the class, heterogeneity of the pupils, and initial pedagogical training of the teacher. However, differences in factors that influence the teacher effect have a far greater influence on student performance (Mingat, 1991). However, teachers who elicit academic gains from their students are not rewarded for their achievements. Borgen, Kirkeboen, Kotsadam, and Raaum (2021) found their effects on the student's perspective; however, they were not substantial enough to induce any meaningful effects on academic outcomes. Coleman et al. (1966) found that school differences did not explain differences in achievement once the family background was controlled for. Nevertheless, urban and rural educational inequalities are pervasive. This begs the question, do public teachers' wages influence student performance at the same level in school urban and rural areas?

Teachers' wages have positive effects on student achievement in English-speaking countries in Africa (Wachira, 2018). Francophone teachers' pay is considered low (Farges, Guidi, & Métais, 2018). The variability in students' primary school performance indicates a 'teacher effect' (Mingat, 1991). Over 4% of GDP in Francophone African countries is attributed to the education sector. Also, wage expenditures account for up to 60% of the budgets of educational ministries in these countries.

In Burkina Faso, 73.7% of the population lives in rural areas (INSD, 2020). Rural students represent 71.9%³ of the primary school students and teachers in rural areas comprise 77.09% of public employees (MENAPLN/DGESS, 2021). The wage bill for education staff is 41% of the national budget and salaries reach nearly 65% of the budget of the ministry in charge of national education (IMF, 2018). Public school teachers' wages are a constant controversy in Burkina Faso because protests and strikes suggest that pay is low, while comparisons to the average national income per capita suggest that it is high (Evan, Yuan, & Filmer, 2022). In 1996, the minimum level of proficiency for primary students was 44% for reading and 46% for mathematics. These levels are 37.4% and 36.8% in mathematics from 2008 to 2018, and in reading 58.8% and 56.9% in the same period (PASEC, 1996; Global Partnership for Education, 2019).

Understanding the influence of public-school teachers' wages on student academic performance according to area is crucial, as it contributes to education quality improvement and wage reform. However, there has been no research on the relationship between primary school teachers' wages and student achievement in Burkina Faso. Educational policy officials must make relevant wage decisions in primary schools under the threat of teachers' strikes, with wage increases often at the centre of demands in the context of financial and fiscal constraints. Research in other countries has found that wages can have a positive or negative influence on student academic performance (Britton & Propper, 2016; Hendricks, 2014). However, the estimated models in these studies suffer from data limitations and omitted endogeneity variables. Furthermore, the studies did not consider the locations of the schools (i.e., urban or rural areas).

This paper analyses the influence of public school teachers' wages on student performance in mathematics and reading at urban and rural primary schools in Burkina Faso to account for omitted variables and endogeneity. The assumption is that teacher wages positively influence student performance in rural settings and negatively in urban ones. Using data from the 2014 Programme for the Analysis of Educational Systems (PASEC) survey, a general linear model with endogenous variables is created. The results show that teachers' wages have differentiated, mixed, and heterogeneous influences both within and between areas according to levels of pay. In addition, academic performance is influenced by variables linked to the family, classroom, student and teacher gender, etc.

³ There were 3,289,736 primary students in 2021.

This performance is the result of the interaction between students, teacher wages, family, school, and educational policies from theoretical and methodological perspectives.

The remainder of this paper is organized as follows. Section 2 is a literature review that focuses on the effect of teachers' wages on educational outcomes. Section 3 reports on the wages of public school teachers in Burkina Faso. Section 4 explains the estimation strategy. Section 5 presents the results and discusses them. Last, Section 6 provides concluding remarks.

2. Literature review

Providing better educational outcomes is the duty and responsibility of educators; wages factor greatly into this. Several meta-analyses indicate that only 20% of studies establish a statistically significant positive relationship between teachers' pay and students' performance, while 7% are negative, and 73% are non-significant (Hanushek, 2006, 2003, 1997).

2.1. Teachers' wages positively influence student performance

Several experimental or quasi-experimental studies have found a positive effect of teachers' wages on student performance. For example, Hendricks (2014), Dolton, Marcenaro-Gutierrez, Pistaferi, and Algan (2011), and Woessmann (2011) found a positive influence of teacher compensation on student achievement. This indicates that increasing teachers' pay improves students' performance through incentive effects. High pay helps retain effective teachers, increases their average experience, and attracts more talented teachers to public schools, thereby encouraging greater effort at work.

Individual wage 'redistributions, while being a source of motivation, recognition, and sustenance are a tangible reward for services performed' (Villanueva, and Gonzalez, 2005). Educational production functions estimated at both the individual student and country levels confirm this (Dolton et al., 2011; Menezes-Filho & Pazello, 2007). The magnitude of this positive effect varies between 0.6% and 25%. The range of results indicates differentiated influences by other factors according to country, student level, study period, salary adjustment, and years of experience of the teacher (Lafortune, Rothstein, & Whitmore, 2018; Glewwe, Ilias, & Kremer, 2010). However, the individualized and differentiated wage is less about the quality of education as measured by academic test achievement. The relative wage of teachers is a very good proxy for their average quality. In addition, the studies did not compare the performance of students in rural to those in urban areas and did not consider school materials, health, or the socioeconomic status of students' families.

2.2. Teachers' wages negatively influence student performance

Bond and Munford (2018) and Britton and Propper (2016) found negative effects of teachers' pay on educational outcomes. Large and unconditional wage increases do not lead to improved student performance in public schools with 'permanent' civil service employment contracts, under which teachers have a low probability of being fired for non-performance (De Ree, Muralidharan, Pradhan, & Rogers, 2018). In fact, wage dispersion increased in the non-teaching sector decreases teachers' abilities and failure to account for non-pecuniary job attributes and alternative wage opportunities that affect the cost of choosing to teach (Britton, & Propper, 2016; Loeb & Page, 2000). In addition, relative wage comparisons decrease teacher productivity and result in mixed student results. Therefore, performance pay is advocated.

2.3. Partial and inappropriate alternatives: pay-for-performance and financial transfer.

Pay-for-performance programs have yielded positive results in student performance for low-income and low-performing schools (Bond & Munford, 2018). However, students with very high socioeconomic status and those in already high-performing schools show no effect of these programmes. Thus, pay-for-performance programmes do not affect academic performance or have a little short-term effect on teacher productivity, as measured by

student performance on standardised tests (Glazerman & Seifullah, 2012; Matthew et al., 2010). The same is true of teachers' self-reported practices (Yuan, Williams, Fang, & Ye, 2012).

The inconsistent effects of these pay-for-performance programs show that teacher incentives create a culture of prioritizing 'teaching to the test' (Glewwe, Hanushek, Humpage, & Ravina, 2010). Unwanted externalities in India are the extension of positive impacts of incentives to non-incentivized subjects (Muralidharan & Sundararaman, 2009). Moreover, in middle- and high-income settings, pay-for-performance incentives induce cheating (Behrman & Vélez-Grajales 2015; Jacob & Levitt 2003). Systems that link teacher incentives to student outcomes could be corrupted in various ways (Jennings & Beveridge 2009; Jacob & Lefgren, 2007).⁴

Ultimately, the use of incentive pay systems as a means to improve school performance faces the challenge of identifying the causal effect. Moreover, the pay increase is a financial transfer to teachers without a discernible impact on student outcomes (De Ree, Muralidharan, Pradhan, & Rogers, 2018). Doubling teacher pay in Indonesian schools significantly improved teachers' income satisfaction and reduced their moonlighting and their self-reported financial stress. However, after two to three years, the pay increase did not lead to any improvement in teachers' subject knowledge test scores, nor did it increase their attendance or number of teaching hours. Student learning outcomes in language, math, and science in primary and secondary schools in the treatment group did not differ from those in the control group. In Gambia, providing a 30%–40% salary bonus to primary school teachers due to the difficulty or drudgery of the job in areas far from the capital did not affect average student achievement or student performance (Pugatch & Schroeder, 2014).

Therefore, increases in salary allowances increase the number of teachers but do not affect teacher characteristics or student test scores (Grieve, Pelletier, & Masshekwa, 2019). Hanushek (2003) reaffirmed the limited empirical support for the teacher pay system in influencing educational outcomes. Nonetheless, few studies have examined the influence of teachers' wages on student achievement test scores (math, language, and science) in developing francophone African countries, where most students live in rural areas, do not use their mother tongue to study, have low student competency assessment results and teachers demand higher wages.

2.4. Endogeneity and omitted variables are not often considered in the estimates

Most specifications do not consider possible endogenous variables (Menezes-Filho & Pazello, 2007). Given that education is cumulative and final exam scores depend on the education a student has received over all the years he or she has been in school, the long-run effect of payoffs likely has an omitted variable bias because education pursues cognitive, physical, moral, civic, social and cooperative goals (Imberman, 2015). Furthermore, most of the extant studies use the production function to understand the combination of school inputs that influence education outcomes (Espinosa, 2017). With few exceptions, schools are not considered profit-maximising firms, especially public or private non-profit ones. To analyse the effects of school input on outcomes in education, the regression used in this research includes parametric,⁵ non-parametric,⁶ and semi-parametric models.

Estimates of the effects used in cross-sectional data are usually plagued by problems of endogeneity and omitted variables. However, the socioeconomic level of a student's household is a factor that affects learning, which in turn affects test scores. These endogeneities are likely to bias the estimated wages upwards. Non-pecuniary characteristics of the job, such as the security of the school, working conditions, and the level of parental involvement also vary from school to school and account for the variation in the opportunity cost of teaching in a particular school. In addition, differences in school infrastructure, such as the existence of a school canteen,

⁴ This is because of the difficulties of assessing school outcomes, the difficulties of identifying who within schools is responsible for the variation in outcomes, and the high stakes involved in the process of assessing outcomes that create undesirable reallocations of resources between different types of learning activities within schools.

⁵ Linear ordinary least squares (OLS) regression model, Tobit, Heckman, and Double hurdle regression models, univariate probit and logit regression models, ordered and multinomial regression models, multivariate binary models, fixed effect regression, mixed model, random effects regression, generalized method of moments regression, regression model with count dependent data, multilevel regression model, structural equation model, latent class analysis, machine learning regressions, etc.

⁶ Kernel smoothing regression, locally weighted scatterplot smoothing (LOWESS), local regression (LESS), and robust weighted local regression relaxed the stringent assumptions of the parametric models.

lighting, or drinking water, all influence student learning. Teachers sometimes have other streams of income from one or more secondary activities that could lead to an underestimation of the effects of wages on test scores. Thus, the geographic variation in teacher wage levels that is typically used to identify the effects of teacher wages may not accurately reflect the geographic variation in the opportunity cost of choosing to teach.

If school differences in non-pecuniary characteristics produce offsetting differentials, then estimates of the effects of teacher wages that do not control for these characteristics will suffer from negative bias due to omitted variables (Kenny & Denslow, 1980).

Table A1 Appendix A summarises some of the research on the effects of teachers' salaries on student achievement, including authors, countries where the research was conducted, empirical methodologies used, and results obtained.

3. Teachers' wages in Burkina Faso

This study focuses on the wages of public primary school teachers and student test scores in mathematics and reading in Burkina Faso. In Burkina Faso, civil servant jobs are classified and divided according to their recruitment level into six categories⁷ designated in descending hierarchical order by the letters P, A, B, C, D, and E corresponding to diplomas, titles, or their equivalents (Appendix B). The categories A, B, C, D, and E are further divided into three scales designated in descending hierarchical order by the numbers 1, 2, and 3. Each post has a first, second, and third grade (Appendix C). For the same level of recruitment, the number of steps is the same for all categories.

This categorization of civil servants corresponds not only to the distribution of tasks but also to the remuneration awarded. Public school teachers are in categories B and C. The decision to regulate wages is most often made unilaterally by the government without consultation or participation of teachers' representatives or unions. Collective bargaining is used for wage adjustments. The government establishes and regulates the structure of teachers' pay grades and steps in relation to other public sector employees (directly or indirectly) to ensure equity. Primary school teachers' wages include basic salary, family allowances, residence allowance, housing allowance, technical allowance, duty allowance, responsibility allowance, civil pension, and one-off salary tax. For each teacher, this one is a predetermined succession of wage levels corresponding to different categories of the teaching profession, each subdivided into steps. Wages depend on the characteristics of the teacher according to predefined criteria such as diploma, level of qualification, certification, degree of responsibility associated with his or her position, number of years of experience, number of children (limited to 6), and living space (urban or rural).

Wages do not account for the size or level of the class taught or the academic results or efforts made. Only allowances awarded depend on the area (urban, semi-urban, and rural) and the category of the teacher while the more substantial basic salary is standardized according to category (Appendix D). Every two years, public teachers receive an indexed wage corresponding to their category, plus a promotion or seniority bonus based on a professional assessment by their line manager. Teachers also receive benefits in kind and one-off items such as a retirement allowance, incentive bonuses, and decorations. They are entitled to social security protection in the form of a pension and to social protection for occupational hazards, old age insurance, and health care. Female teachers are entitled to maternity leave for a total of 14 weeks, starting no earlier than eight weeks and no later than four weeks before the expected date of delivery.

4. Estimation strategy

This study uses a linear model to determine the influence of teachers' wages (quantitative independent variable) on student performance (quantitative dependent variable). It also examines how factors specific to the class and the school in the locality, and individual student characteristics (qualitative independent variable) affect this performance.

⁷ Burkina Faso/CNT, 2015

4.1. Econometric modeling

The relationship between student performance and teachers' wages is as follows:

$$Y = f(W, Z, G) + \mu \quad (1)$$

where Y = student academic achievement; W = teachers' wages, Z = student class-specific factors, G = individual student characteristics and μ = the random variable.

The linear function is as follows:

$$Y_{ijk} = \alpha + \beta W_{ijk} + \rho Z_{ijk} + \gamma G_{ijk} + \mu_i \quad (2)$$

where Y_{ijk} is the simple arithmetic mean of the reading and math test scores of the student i in class j in locality k ; W_{ijk} is the pay of teacher i in class j in locality k ; Z_{ijk} represents the class-specific factors j of school l in locality k ; G_{ijk} represents the individual characteristics of student i in class j in locality k ; and μ_i is the error term.

4.2. Variables

The dependent variable Y_{ijk} is the simple arithmetic mean of students' reading and math test scores. The independent variables are as follows:

- W_{ijk} : Average annual net wage received by the teacher in the class. The wage of teachers is a very good indicator of their average quality in relation to student performance on international assessments in OECD countries (Dolton et al., 2011);
- Z_{ijk} : Factors specific to the class and the school in the locality:
 - Z_1 : Classroom learning resource index;
 - Z_2 : School location;
 - Z_4 : School's pedagogical resources index;
 - Z_5 : School's infrastructure index;
 - Z_{10} : Teacher's gender;
 - Z_{11} : Management of classes;
 - Z_{14} : Index of the master's perception of social benefits;
 - Z_{15} : Seating for students;
 - Z_{17} : Classroom functionality;
 - Z_{18} : Latrines and toilets.
- G_{ijk} : Individual student characteristics:
 - Z_6 : Student's gender;
 - Z_7 : Reading textbook;
 - Z_8 : Mathematics textbook;
 - Z_9 : Student's family socioeconomic index;

- Z_{19} : Class repetition;
- Z_{20} : Medical visit: visual or auditory or visual and auditory;
- Z_{21} : Disability;
- Z_{221} : Feel hungry in class;
- μ_i : Random term.

Variable names, meanings and their expected effects are in Appendix E.

4.3. Data source

Data are from the 2014 of Programme for the Analysis of Educational Systems survey (PASEC) for public, private and confessionary schools in Burkina Faso, in which sixth-grade students from 182 schools were questioned. The sample is representative of the school population of the surveyed grades (PASEC, 1994). First, for sampling, schools are selected according to a systematic procedure where the probability of selection is proportional to the number of students enrolled in Grade 6. Second, for each selected school, a class of 6th graders was selected using a simple random procedure. Third, a sample of 20 students was randomly drawn from each selected class.

This study focuses on public schools because teachers' wages are formal, harmonised, and the legal framework is the same as other government public civil employees. Private and confessionary school teachers' wages do not have these characteristics. Public schools in urban and rural areas are the responsibility of the government and 80% are surveyed. The sample size of public-school students surveyed is 1353, of which 809 were from rural areas and 554 were from urban areas. The descriptive statistic of the variable is in Appendix F.

Indices were constructed based on several questions administered to students, teachers, and headmasters. The results of the indices are reported on an international scale with a mean of 50 and a standard deviation of 10 (PASEC, 1994).

5. Results and discussion

This section presents the results of the diagnostic tests and estimations before discussion.

5.1. Diagnostics tests

5.1.1. Correlation and covariance test

Correlation and covariance test results show positive or negative correlated variables and all variables have correlations of less than 60%. Some of them are significant at 5%. (Appendix G).

5.1.2. Heteroskedastic test

Table 1 reports the results of the Heteroskedastic robustness test and shows that the variance of the model residuals is constant in urban and rural areas.

Table 1: Heteroskedastic robustness test

Urban area	
Heteroskedastic linear regression	Number of obs = 544
ML estimation	
Wald chi2(19) = 167.94	
Log pseudolikelihood = -3051.826	Prob > chi2 = 0.0000
Wald test of lnsigma2 = 0 : chi2(17) = 50.11	
Prob > chi2 = 0.0000	

Rural area	
Heteroskedastic linear regression	Number of obs = 809
ML estimation	
Wald chi2(19) = 207.05	
Log pseudolikelihood = -4549.093	Prob > chi2 = 0.0000
Wald test of lnsigma2=0 : chi2(17) = 61.73	Prob > chi2 = 0.0000

Source: Author, 2023

5.1.3. Specification test

Table 2 reports the results of the specification test and shows that Hatsq is not significant. Thus, there is no specification error

Table 2: Linkage test of variable specification

Source	SS		Df		MS				Urban	Rural	
	Urban	Rural	Urban	Rural	Urban	Rural					
Model	656377.38	566704.42	2	2	328188.69	283352.21			Number of obs	690	1,046
Residual	3362679.29	5460772.26	687	1,043	4894.73	5235.64			F(2, 1043)		54.12
Total	4019056.67	6027476.68	689	1,045	5833.17	5767.92			F(2, 687)	67.05	
									Prob > F	0.0000	0.0000
									R-squared	0.16	0.09
									Adj R-squared	0.16	0.09
									Root MSE	69.96	72.36

Y	Coef.		Std. Err.		T		P> t		[95% Conf. Interval]			
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
hat	2.82	3.17	2.09	2.19	1.35	1.45	0.17	0.15	-1.28	6.91	-1.12	7.46
hatsq	-0.002	-0.00	0.002	0.00	-0.87	-0.99	0.38	0.32	-0.005	0.002	-0.006	0.002
cons	-552.38	-625.89	635.36	632.10	-0.87	-0.99	0.38	0.32	-1799.86	695.10	-1865.64	613.86

Source: Author, 2023

5.1.4. Omitted variables test

Table 3 reports the results of the omitted variables test and shows that the model omits relevant variables.

Table 3: Ramsey RESERT test of the powers of the fitted values of Y

	Urban	Rural
F(3, 671)	3.16	
F(3,1027)		1.43
Prob > F	0.02	0.23

Source: Author, 2023

The correction of these omitted variables used the minimum values of the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) of several models to obtain the lowest values of the information criteria. Thus, the model is as follows:

$$Y_i = \alpha + \beta_1 W_{ijk} + \beta_2 Z_1 + \beta_3 Z_4 + \beta_4 Z_5 + \beta_5 Z_6 + \beta_6 Z_7 + \beta_7 Z_8 + \beta_8 Z_9 + \beta_9 Z_{10} + \beta_{10} Z_{11} + \beta_{11} Z_{13} + \beta_{112} Z_{14} + \beta_{13} Z_{15} + \beta_{14} Z_{18} + \beta_{15} Z_{19} + \beta_{16} Z_{21} + \beta_{17} Z_{30} + \beta_{18} Z_{31} + \beta_{19} Z_{221} + \mu_i \tag{3}$$

5.1.5. Endogeneity test

The probability associated with the test $\text{Prob} > \chi^2 = 0.0000$ is less than 10% (Table 5). Thus, in urban areas, the independent variables Z_1 (Classroom learning resource index), Z_7 (Reading textbook), and Z_8 (Mathematics textbook) have respectively as instrumental variables Z_{13} (Index of perception by the teacher of working conditions), Z_{17} (Classroom functionality), and Z_{221} (Feel hungry in class) as instruments. About, rural areas, the instrument variables are Z_{13} (Index of perception by the teacher of working conditions), Z_{15} (Seating), Z_{17} (Classroom functionality), and Z_{18} (Latrines and toilets) respectively for the rural the independent variables Z_1 (Classroom Learning Resource Index), Z_4 (School's pedagogical resources index), Z_5 (School's infrastructure index), and Z_8 (Mathematics textbook).

Indeed, Teachers' perceptions of working conditions influence teaching resources used in the classroom. Thus, Z_{13} (Index of perception by the teacher of working conditions) affects Z_1 (Classroom learning resources index). As for reading and mathematics textbooks, the quantitative distribution is linked to the number of students in each school. The readiness of students to learn the contents of these books is conditioned by the nutritional state of students in a class (presence or absence of feeling hunger). Learning requires concentration, especially in mathematics where activities are preceded by comprehensive reading; a hungry student lacks the physical and mental energy to concentrate. Thus, Z_{17} (Classroom functionality) and Z_{221} (Feeling hungry in class) affect Z_7 (Reading textbook). Learning requires equipment such as student benches (Z_{15} [Seating]) which affects Z_4 (School's pedagogical resources index). Furthermore, Z_5 (School's infrastructure index) is influenced by Z_{17} (Classroom functionality) which also affects Z_7 (Reading textbook) and, in turn, Z_8 (Mathematics textbook) as reading comprehension is a prerequisite for doing mathematics work. In addition, math class is held in the late morning. At this time, students like to satisfy their sanitary needs; therefore, Z_{18} (latrines and toilets) has an effect on Z_8 (maths textbook).

The instruments used for robust estimation indicate that the model is globally significant and satisfactory. The distribution of the parameters estimated is very well approximated by its asymptotic distribution because correlations between the endogenous variables and the error term and between the endogenous variables and their instruments are reasonable. Thus, there is no problem with weak instruments.

Table 4: Instrumental variables (2SLS) regression

Instrumental variables (2SLS) regression	
Urban area	Rural area
Number of obs = 544	Number of obs = 809
Wald chi2(24) = 5659.73	Wald chi2(22) = 762.05
Prob > chi2 = 0.0000	Prob > chi2 = 0.0000
R-squared = 0.2131	R-squared ⁸ = .
Root MSE = 67.501	Root MSE = 167.77

5.2. Results

Table 5 reports the estimation results of the model.

⁸ The calculated R2 is negative at times for large samples that Stata does not report.

Table 5: Estimation results

Variable	Robust		
	Coef.		
	Urban	Rural	
Instrumental variables			
Classroom learning resource index (Z1)	4.25** (2.04)	12.61** (6.14)	
School's pedagogical resources index (Z4)	-0.9716** (0.41)	-8.72* (5.17)	
School's infrastructure index (Z5)	2.80* (1.57)	6.48* (3.93)	
Reading textbook (Z7)	-36.90 (77.027)	-185.69 (181.56)	
Mathematics textbook (Z8)	9.31 (53.79)	610.70 (546.67)	
Common Variables			
<i>Wages (W)</i>			
	25 \$ and 49 \$	33.59 (66.81)	0 (empty)
	50 \$ and 99 \$	84.81*** (30.35)	- 435.92*** (134.06)
	100 \$ and 149 \$	-18.23 (41.71)	-103.52** (52.06)
	150 \$ and 199 \$	-36.21** (18.08)	-35.42 (36.95)
	200 \$ and 249 \$	36.66** (16.80)	-49.63 (43.44)
	250 \$ and 332 \$	59.94*** (13.04)	-51.93 (41.17)
Student's family socioeconomic index (Z9)		1.40*** (0.46)	-2.08 (1.47)
Teacher's gender (Z10)	Man	5.93 (10.97)	57.53* (34.57)
Management of multigrade classes (Z11)	No	11.16 (11.55)	19.45 (32.65)
Index of perception by the teacher of social benefits (Z14)		-0.08 (.51)	-1.44 (0.98)
Student's gender (Z6)	Boys	28.07*** (6.82)	10.10 (12.15)
Seating (Z15)		0.39** (0.18)	
Latrines and toilets (Z18)	Yes	87.35*** (13.87)	
Class repetition (Z19)			
	Once	172.15*** (25.81)	-232.59 (244.96)
	Twice	204.64*** (21.82)	-129.87 (195.19)
	Three times	212.56 *** (21.81)	-134.19 (211.05)
Disability (Z21)	Yes	12.70 (15.44)	-33.7** (17.20)
Attended nursery school, kindergarten, or preschool (Z30)	No	18.59** (8.93)	37.82 (30.34)
Make homework (Z31)	No	-47.80** (22.03)	26.14 (60.74)

Variable	Robust	
	Coef.	
	Urban	Rural
Feeling hungry in class (Z221)	Yes	30.97* (18.83)
_cons		-93.11866 (135.30)

Note: ***, ** and * indicate statistical significance at 1%, 5%, and 10%, respectively. The numbers in parentheses are standard errors.

Source: Author, 2023

5.3. Discussion

The model is globally significant at 5% (Table 5). This study found mixed results regarding the influence of teachers' wages on educational outcomes. In rural areas, wages have a negative significant influence on the mean test scores at the 1% and 5% levels for wages between \$50 to \$99, and \$100 to \$149, respectively. The opportunity costs of identical experience and degree requirements in non-teaching professions (Southwick & Gill, 1997) or the presence of new teachers (Cabrera & Dinand, 2018) explain this negative influence. Rural school teachers are young with little teaching experience and lower wages, and most older teachers with little dynamism and higher wages. Indeed, Younger teachers need an adjustment period to become acclimated to the teaching profession and learn other aspects of the job (Hanushek, Kain, & Rivkin, 2004). After that, they are posted to the urban and news younger teachers for rural against. Meanwhile, older teachers are more concerned about preparing for their retirement and do not have adequate physical fitness. That is why wages have a negative influence on students' test scores.

In urban areas, wages between \$50 to \$99 and \$250 to \$332 have a positive significant influence at the 1% level. This result is in line with the Sousa (2022), and Gjefsen (2020) results. Urban areas require better performance because the high level of students' parents leads to competition between teachers. \$150 to \$199 wages have a negative and significant influence at the 5% level because teachers are mid-career and have other income-generating activities. The contradictory and heterogenous influences of wages are explained by inequalities of opportunities in the living environment, and professional seniority without the performance of wages categorization.

Students' family socioeconomic index has a positive significant influence on test scores in urban areas at the 1% level. It facilitates and encourages children's consumption of school knowledge (Belley & Lochner, 2007). The most disadvantaged students have very low achievement levels that prevent them from continuing their education and getting good jobs (Haycock & Hanushek, 2010). These students need the highest quality teaching; however, they receive the lowest quality. The geographical distribution of the socioeconomic index reinforces the inequality of student performance to the detriment of rural areas.

The classroom learning resource index has a positive influence at the 5% level in rural and urban areas. Teaching resources are linked to their availability and teacher quality (Rivkin, Hanushek, & Kain, 2005). However, a school's pedagogical resources index has a negative influence on test scores at the 10% level. The small amount of resources leads to competition between classes to use school resources. Thus, improving student outcomes through collective school resource policies offers little hope.

A school's infrastructure index has a positive influence on test scores in urban areas and a negative influence in rural areas at the 10% level. Rural schools are sometimes constructed out of precarious materials while academic performance should be improved by convenable infrastructure building to teach. Learning or self-sacrifice and commitment to learning in order to achieve better results evolve in the same direction as the psychologically considered value of the quality of the school infrastructure.

⁹Knowledge acquisition is conditioned by the Payments of schooling costs (clothing, meals, support courses, supplies, payment of the tutor, etc.) and the standard of living of the families depending on the living environment.

The availability of seats has a positive influence on urban areas. Seating is a primary condition for enrolment in a school in urban areas. However, in rural areas, schooling demand is low. In addition, latrines and toilets, attendance at a kindergarten or preschool, and class repetition influence positively test scores. They provide privacy and influence children's health, improve pupils' hygiene knowledge and behaviour, reduce absences due to diarrhoea, and instil the value of hygiene in pupils.

Contrary to the findings of Tazouti et al. (2011), this study found that no attendance at a preschool or kindergarten has a positive and significant influence on the test scores of urban students. Students from wealthy families are much more likely to attend preschool or kindergarten than pupils from poor families because of the high costs of attendance. Preschools or kindergartens have a possible short-term influence (1–3 years). Furthermore, they are almost non-existent in rural areas.

Regarding student gender, being male has a positive and significant influence on student performance at the 1% level in urban areas and a non-significant influence in rural areas. Perceptions of the value of a girl's education influence girls' investment and performance. Gender inequality is a more pronounced reality in urban schools than in rural schools and is to the disadvantage of girls. In addition, male teachers have a positive and significant influence on student performance at the 10% level in rural areas. However, their influence is not significant in urban areas. More men than women are teachers in rural areas. Meanwhile, in rural, the number of female students is increasing.

Disability and a history of medical visits concerning a visual and/or hearing disability have a negative and significant influence at the 5% level in rural areas. Health facilities, health specialists, and specialized educational facilities are concentrated in urban areas, while the school environment, curricula, and teaching practices are not adapted to visual and/or hearing impairment. Targeted health promotion programmes are needed to untangle the clinical challenges in rural areas.

Class repetition has a significant and positive influence at the 1% level in urban areas. Repeating has been widely used as a remediation tool for low achievers. The positive influences are consistent with the study by Aduda, Kodero, and Sichari (2019). An experience effect with regard to coefficients according to the number of repetitions is noted. However, class repetition consistently has a larger negative influence on rural students from disadvantaged backgrounds. Students who have repeated a year are driven by feelings of shame, anger, anxiety, and boredom, all of which are negative academic emotions that impact class attendance, learning, and exam preparation (Erhun, Jegede, & Ojelabi, 2022).

Not making students do homework has a 5% negative and significant influence on performance in urban schools while its influence is positive and insignificant in rural areas. Although consistent with the findings of Fernández-Alonso et al. (2019), the influence of homework is linked to teacher preparation and planning, homework adapted to students' ability, attention and skill levels, attention and motivation, and appropriate parental involvement. Homework time, free-time management, homework quality, student attitudes, teacher practices, parent abilities and resources, student psychology and parent attitudes influence test scores.

Not feeling hungry in class has a positive influence on test scores. Farzana, Bidisha, and Rohini (2019) show that hunger is a major barrier to well-being affecting a child's growth and development, including performance in the classroom. Hunger impacts health, learning, physical work, sporting activities, school attendance, and level of concentration. Improving short-term classroom attention and effort due to school-provided meals can improve learning outcomes in the longer term.

6. Conclusion

This study analyzed the influences of public teachers' wages on students' scores test in mathematics and reading in urban and rural public primary schools in Burkina Faso and examined the diverse influences between and within areas. Influences are mixed, heterogeneous, and differentiated according to experience and seniority. In rural areas,

teachers' wages have a negative significant influence on students' average mathematics and reading scores only for teachers with lower wages. In contrast, in urban areas, a significant positive influence is shown for low and high-wage earners. However, a negative influence is observed for teachers earning wages in the middle. The heterogeneous and differentiated influence of wages in rural and urban areas, between them, would require a readjustment and revision of wage criteria. Wages could be an incentive for young and old teachers in urban areas with close monitoring of practical pedagogical training.

The classroom learning resource index has positive significant influences in urban and rural areas. The socioeconomic index of a student's family has a positive significant influence in urban areas. Mathematics and reading scores tests vary based on the family's standard of living and income. No attendance at a preschool or kindergarten has a positive significant influence in urban areas because of the number of facilities and out-of-school support courses for families. The positive influence of class repetition shows a memory effect and a feeling or decision to have better performance than the previous year. In addition, seating, toilets and latrines, and infrastructure index support and facilitate learning and have a positive influence on scores tests. Not making students do homework has a negative influence on test scores in urban areas.

In rural areas, a school's educational resources index and disabilities have a significantly negative influence on student performance. However, not feeling hungry in class and male teachers show positive influences. This is due to a lack of gender inequality in the acquisition of academic performance because male students have a non-significant influence in rural areas. This indicates that female teachers are concentrated in urban schools.

The results of this study imply a complex interaction of several factors that influence students' performances. In rural areas, teachers' working conditions, and improving and developing school health care, and nutrition are factors in student performance. Preschool education should be prioritized to reduce inequalities in schooling. Thus, the impact of the 'no repetition' policy on school behaviour and achievement needs to be further investigated through geographical and socioeconomic research. Education quality achievement implies the provision of teaching materials to classes in rural schools and an equitable distribution of teachers throughout the country.

This study has some limitations. Data from scores taken before the 2014 PASEC survey are not available for comparison. In addition, the effects of stimulating or inhibiting, or incentives on the test announcement or information in advance were not considered. Furthermore, school governance the headmaster's management, and peer effects were not analyzed. These areas could be explored in future research.

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APPENDIX

APPENDIX A

Table A1: Some synthetic research on the effect of pay on educational outcomes

Authors	Countries	Empirical Methods	Results
Britton, Jack and Propper, Carol (2016)	England	Value-added method. Difference-in-differences.	A 10% shock to the wage gap between the local labour market and teacher wages results in an average loss of approximately 2% in average school performance in the key exams taken at the end of compulsory schooling.
Woessmann, Ludger (2011)	OECD member countries	Fixed effects model. Difference-in-differences.	Teacher salary adjustments for outstanding performance are significantly associated with math, science and reading achievement across countries. Scores in countries with performance-related pay are approximately one-quarter standard deviation higher.
Hendricks, Matthew D. (2014)	USA	Ordinary least squares. Difference-in-differences. Fixed effects model.	Turnover elasticity of -1.4 effect is the greatest for inexperienced teachers, declines with experience and disappears at around 19 years of experience. Paying teachers more improves student achievement through higher retention rates. No evidence that pay effects vary by the teacher's gender or subject taught.
Leigh, Andrew (2012)	Australia	Instrumental variables.	A 1% rise in the salary of a starting teacher boosts the average aptitude of students entering teacher education courses by 0.6 percentile ranks, with the effect being strongest for those at the median. More pay dispersion in the non-teaching sector lowers the aptitude of potential teachers.
Goldhaber, Dan and Walch, Joe (2012)	USA	Matching method.	Student achievement increased during the years Professional Compensation System for Teachers (ProComp) was implemented. However, but these gains were observed for students taught by teachers enrolled in ProComp's alternative compensation system as well as non-participating teachers. While the findings are not consistent across grades and subjects, there is some evidence that teachers voluntarily opting into ProComp are more effective than those who do not volunteer. Some ProComp bonuses were well targeted towards value-added measures of teacher effectiveness while others were not.
Hendricks, Matthew D. (2015)	USA	Value-added method.	A 1% increase in base salary for teachers of a particular experience level increases the proportion of the targeted teachers hired by 0.04–0.08 percentage points. Pay increases have the greatest effect on hire rates among teachers with 2–3 years of experience and the effect

			diminishes with experience. Higher teacher salaries provide a dual benefit of retaining and attracting a more effective distribution of teachers. Districts may also improve student achievement growth at no cost by reshaping their salary schedules so that they are increasing and concave to teacher experience.
De Ree Joppe, Karthik; Muralidharan, Menno Pradhan; and Halsey Rogers (2018)	Indonesia	Statistic comparison. Instrumental variable. Difference-in-differences.	Doubling pay significantly improved teacher satisfaction with their income, reduced the incidence of teachers holding outside jobs, and reduced self-reported financial stress. Nevertheless, after two and three years, the doubling in pay led to no improvements in measures of teacher effort and had no impact whatsoever on student learning outcomes. Large unconditional increases in salaries of incumbent teachers had no meaningful positive impact on student learning.
Imberman, Scott A. (2015)	developing countries and developed countries	Direct comparisons of the group and individual incentives.	Incentives can effectively improve student performance if they are designed well. In developing countries, paying teachers for student performance is highly effective at a low cost. Incentives based on the collective performance of small groups of teachers strike a balance between loss of effectiveness from free-riding teachers and gains in effectiveness from teachers cooperating. Innovative incentive mechanisms based on loss rather than gain or relative student performance show promise for high effectiveness but are yet to be rigorously evaluated.
Bond, Timothy N. and Mumford, Kevin J. (2018).	USA	Difference-in-differences.	Cohorts with more exposure are more likely to graduate from high school and earn higher wages as adults. The positive effect is concentrated in Grades 1–3 and on programmes that targeted schools with a higher fraction of students who are eligible for free and reduced lunch.
Hill, Andrew and Jones, Daniel B. (2019)	USA	Difference-in-differences.	Teachers respond to performance pay by allocating additional effort towards the students they (possibly mistakenly) perceive as high-ability to increase average class achievement.
Menezes-Filho, Naércio and Pazello, Elaine (2007)	Brazil	Differences-in-differences.	Raising the relative wages of public-school teachers improved the proficiency of public school students.
Cabrera, Maria José and Webbink, Dinand (2018)	Uruguay	Discontinuity regression.	The policy was especially successful in hiring experience from other schools but also increased tenure. However, the effect on student outcomes appears to be small. Keeping teachers appears to be more beneficial for students than hiring

			experienced teachers. The policy had a better effect on schools that replaced teachers with less than five years of experience.
Glewwe, Paul; Ilias, Nauman; and Kremer, Michael (2010)	Kenya	Model of productive and signalling effort.	The dropout rate was unchanged. Instead, exam participation increased among enrolled students. Test scores increased on exams linked to the incentives, but not on other, unrelated exams. Teacher attendance and homework assignments were unaffected, but test preparation sessions increased. The programme increased government exam participation. It did not increase scores in the first year, but treatment scores rose by 0.14 standard deviations (SDs) relative to controls in the second year. However, this improvement did not persist after the completion of the programme and there were no improvements on parallel low-stakes NGO exams.
Arain, Ali Amjad; Jafri, Iftikhar Hussain; Ramzan, Muhammad; and Ali, Hyder (2017)	PISA countries	Ordinary least squares.	A positive impact of teacher remuneration on students' performance was observed.
Filmer, Deon; Habyarimana, James; and Sabarwal, Shwetlena (2020)	Tanzania	Two-phased randomised control trial. Quantile regressions.	Incentives for teachers led to modest average improvements in student achievement across different subjects. Withdrawing incentives did not lead to a 'discouragement effect' (once incentives were withdrawn, student performance did not fall below pre-baseline levels). Impacts on learning were sustained beyond the intervention period. Incentives may have exacerbated learning inequality within and across schools. Increases in learning were concentrated among initially better-performing schools and students. At the same time, learning outcomes may have decreased for schools and students that were lower-performing at baseline. Incentivising students without simultaneously incentivising teachers did not produce observable learning gains.
Grieve, Chelwa; Pellicer, Miquel; and Maboshe, Mashekwa (2019).	Zambia	Fuzzy regression discontinuity.	Crossing the threshold increases the share of teachers obtaining the allowance by 40%. Because of some non-compliance with the allocation rule, the estimates are fairly imprecise. Focusing on provinces with better compliance, Grieve et al. find some, albeit weak, evidence that the allowance increases the stock of teachers. However, Grieve et al. find no effects on teacher

			characteristics or student tests effect of the rural allowance on student outcomes.
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Source: Author, 2022

APPENDIX B : Category and Qualifications for Access to the civil service job

Category	Scale	Degree
P		
	A	Doctorate or Ph.D. in Medicine, Pharmacy or Dentistry plus specialization diploma.
	B	Bachelor's degree plus 9 years of cumulative professional training.
	C	Doctorate or PhD plus 7 years of cumulative professional training.
A		
	1	Diplôme d'Etudes Approfondies (DEA) or Master II or Diplôme d'Etudes Supérieures Spécialisées (DESS) or equivalent recognised professional diplomas.
	2	Master's degree or equivalent recognised professional qualifications.
	3	Licence de l'enseignement supérieur or equivalent recognised professional qualifications.
B		
	1	DEUG II or DUT or BTS or equivalent recognised professional qualifications.
	2	Technical Baccalaureate or Technician's Certificate or equivalent recognised professional qualifications.
	3	Secondary education baccalaureate or BEP or equivalent recognised professional qualifications.
C		
	1	BEPC plus a vocational diploma requiring 2 years of training or any other title or diploma recognized as equivalent.
	2	State CAP or BEPC plus a vocational diploma requiring 1 year of training or any other title or diploma recognized as equivalent.
	3	BEPC or any other title or diploma recognized as equivalent.
D		
	1	CEPE and a vocational diploma requiring 2 years of training or any other title or diploma recognized as equivalent.
	2	CEPE and a vocational diploma requiring 1 year of training or any other title or diploma recognized as equivalent.
	3	CEPE or any other title or diploma recognized as equivalent.
E		
	1	Worker or skilled employee performing training tasks and involving responsibility.
	2	Worker or employee performing tasks requiring specialization acquired over at least 6 months.
	3	Worker without professional qualification.

Source: Law n°81-2015 on the general status of the civil service.

These posts in categories A, B, C, D, and E are divided into three scales designated in descending hierarchical order by the numbers 1, 2, and 3. Each job has three grades : first class, second class and third class (see Table 3). While the jobs in category P are designated in descending hierarchical order by the letters A, B, and C. For the same level of recruitment, the number of steps is the same for all categories.

APPENDIX C : Categories and the number of steps per grade for civil servants in Burkina Faso.

Category	First class	Second class	Third class
P	17	12	8
A	17	12	8
B	18	13	9
C. D et E	19	14	10

Source: Law n°81-2015 on the general status of the civil service.

Indeed every civil servant is entitled after service to a remuneration comprising a pensionable wage and residence allowance. The pensionable salary is defined by a coefficient known as the wage index assigned to each grade and step in the hierarchy of civil service posts. The annual amount of this salary is determined by applying the value of the index point to each of the indices of the wage scale. However, in the interests of equal treatment for equal levels of recruitment, the pensionable wage is the same for all posts.

For career development and capacity building civil servants are entitled to training, specialization and further training in accordance with the law and the need. Maternity leave is granted on the basis of a medical certificate issued by an approved doctor midwife or state midwife.

APPENDIX D : Allowances granted to teachers varying by category (\$)

Category	Housing allowance for teachers.	Hardship allowance for classroom teachers.			On-call allowance: for teachers in offices.
		Urban area	Semi-urban area	Rural area	
A					
B	33.33	21.67	25	33.33	33.33
C	14.17	20	20.83	25	14.17

Source : Décret n° 2008-909/PRES/PM/MEF/ MFPRE du 31 décembre 2008

APPENDIX E : Signification and expected effects of variables and in the model

Variable Name	Meaning	Expected effects
Y_{ijk} :	<p><i>students' performance</i></p> <p>Student's performance is the simple arithmetic mean of i student's reading and math test scores in the class j in locality k This dependent variable measures the quality of education and the country's expected development.</p> <p>The language or reading test measures comprehension skills of Informative texts (continuous texts. excerpts from textbooks dictionaries encyclopedias etc. from fifty to three hundred words) and Documents (discontinuous texts. excerpts from explanatory diagrams advertising posters, etc. up to one hundred words). The ability to extract information from literary texts as well as the decoding of words and sentences is also assessed to a lesser extent The mathematics test measures students' performance in arithmetic geometry and measurement. The main cognitive activities measured are knowing understanding applying formulas, and reasoning about a problem.</p>	Study variable/ Dependent variable
W_{ijk} :	<p><i>Wages</i></p> <p>The average annual net wage received from the public school teachers in the class is 14 terms.</p> <p>W_{ijk} is the wage of the teacher i in the class j in a professional residence setting k. It is the average annual net wage received from the teacher in the class which is paid by the government? The wage of teachers is very good for their average quality" on student performance on international assessments. Teachers with high salaries have pedagogical teaching qualities. Thus. salary and student performance are in the same direction of variation. The 14 modalities of the variable were taken from the estimates by the centers of the net salary received by classes.</p> <p><i>The 14 modalities of the variable taken from the estimates by the centers of the net wage received classes because the pupils in the classes covered by the study are taught by different categories of teachers whose wages are linked</i></p>	Rural (+) Urban (-)
Z_{jik} : Factors specific to the class and the school in the locality		
Z_1 :	<p>Classroom Learning Resource Index</p> <p>The availability and use of textbooks improve student achievement in developing countries but no such effect has been observed in high-income countries.</p>	Rural (+) Urban (-)
Z_2 :	<p><i>School location.</i></p> <p>The schools are either urban or rural. Urban and rural schools enjoy similar levels of infrastructure and services¹⁰. Rural students perform less well than urban students both at the beginning and end of schooling in language and mathematics. This is linked to the difficulties faced by the education system in reducing the disparities in performance between rural and urban schools. The value 1 is for urban and 0 for rural.</p>	
Z_4 :	<p><i>Schools' pedagogical resources index</i></p> <p>It is estimated on the basis of contextual variables: the number of mathematics and reading textbooks available per pupil the availability of textbooks teaching guides and reading and mathematics curricula for the teacher the availability of teaching materials (chalkboard chalk dictionary, maps of the world Africa and the country measuring materials such as square compass ruler, and clock) and the availability of classroom furniture (a desk and chair for the teacher a cupboard and shelves for books a reading corner and a sufficiently large number of benches and tables).</p> <p>Schools' pedagogical resources index. The availability and use of textbooks improve student achievement in low-income countries. Educational resources are supports that facilitate academic learning.</p>	Rural (+) Urban (-)

¹⁰ Measured by the spatial planning index based on the availability of the following goods and services : a paved road, electricity, a secondary school, a hospital, a health centre, a police station, a bank, a savings bank, a post office, a cultural centre or a library.

Variable Name	Meaning	Expected effects
	In low-income countries, the availability and use of textbooks improve student achievement (Keeves. 1995). Whereas no such effect has been observed in high-income countries.	
Z_5 :	<i>Schools' infrastructure index</i> The working conditions in the school must allow students to learn in a favorable environment. The infrastructure index is a set of contextual variables: the ratio of the number of functional classrooms to the total number of students the availability of certain facilities (a separate office for the head teacher a place to store materials a teacher's room a playground a separate sports field a fully fenced perimeter a first-aid box accommodation for teachers or head teacher running water a source of drinking water other than running water and electricity and the existence of latrines and toilets. The infrastructure index influences the academic performance of students Its value ranges from 0 to 1.	Rural (+) Urban (-)
Z_7	<i>Reading textbook</i> The availability of textbooks facilitates learning and positively influences the academic performance of pupils. The reading book contributes to the learning of the French language. especially in rural areas. Owning and using reading books improves student performance. Also, its availability facilitates the transmission of learning and also reinforces the pupil's spirit of openness. Owning reading books affects students' performance as they can practice reading. The modalities are 1 for detention and 2 otherwise.	Rural (+) Urban (+)
Z_8	<i>Mathematics textbook</i> Mathematics contributes to the structuring of the student's mind and strengthens his or her reasoning and stimulates thinking. Therefore if the pupil has a mathematics book at school the teaching of the subject is facilitated and influences academic performance. The modalities are 1 for detection and 2 for otherwise. Students' possession of a mathematics textbook with the modalities yes for detection and no otherwise. Owning and using reading books improves student performance.	Rural (+) Urban (+)
Z_{10} :	<i>Teachers' gender</i> The gender of the teacher influences school performance. Female teachers in primary schools have a positive effect on girls especially as they approach puberty. Teachers have a stimulating role with girls and limit relationship problems with male teachers. The modalities are 1 for Males and 0 for Females.	Rural (+) Urban (0)
Z_{13}	<i>Index of perception by the teacher of working conditions.</i>	Rural (-) Urban (0)
Z_{15} :	<i>Seating</i> Seating is one of the working conditions that allow students to be in a favorable context to perform better at school. The modalities are 1 for one seat for 1 student, 2 for one seat for 2 students, and 3 for one seat for three or more students.	Rural (+) Urban (+)
Z_{16} :	<i>Functional library</i> The availability and use of books in schools improve reading learning through a variety of media and enhance the reading habits of students especially those from less privileged families who often do not have books at home. Thus, the presence of a functional bookshop influences the academic performance of students. The modalities are 1 for its presence and 2 for its absence.	Rural (-) Urban (+)
Z_{17} :	<i>Classroom functionality</i> The educational system has three types of classroom organization: - Normal classes have one full-time teacher per class ; - Multi-grade classes where pupils from several schools form a single teaching group with a single teacher; - Double-shift classes where two teaching groups alternate in the same class. Classroom' functionality is with modality 1 for normal functioning classes (full-time teacher per class). 2 multigrade classes; 3 double flow classes.	Rural (+) Urban (0)
Z_{18} :	<i>Latrines and toilets</i>	Rural (+) Urban (+)

Variable Name	Meaning	Expected effects
	The existence of latrines and toilets allows students to contribute to a learning climate and retention of students. This in turn leads to improved school performance. The modalities are 1 for the presence of latrines and 1 toilets within the school and 2 for their non-existence.	
<i>G_{ijk} : Individual student characteristics that include</i>		
Z_6 :	<i>Student's gender</i> Inequalities between boys and girls are present in school performance. Differences in scores can exist to the detriment of one of the sexes. The modality 1 for male and 0 for female.	Rural (+) Urban (0)
Z_{11} :	<i>Management of multigrades' classes</i> Schools in rural areas make use of multigrade classes. which allow teachers to teach in a school where all classes exist. Knowing how to manage these classes facilitates the acquisition of students' knowledge and also helps to make annual recruitment. The modality is 1 for knowledge of class management and 0 for the opposite	Rural (+) Urban (+)
Z_{14} :	<i>Index of (teacher) perception of social benefits</i> Social benefits are a source of motivation. In rural areas. social capital is considered in the exercise of the profession and allows for good integration into the living environment. Thus, the teaching provided is well received by the pupils. Also, this social perception shows that the teacher beyond his or her profession is a model for society and especially for the pupils.	
Z_9 :	<i>Student's family socioeconomic index</i> Socioeconomic status influences students' performance as well as their educational pathways. The socio-economic index of the students' families is constructed by a model of response to the item using the students' statements in relation to the possession of a number of goods at home (number of books. Electricity, television, computer, radio, telephone, freezer, air conditioner, car, tractor, running water tap, latrine with running water, etc.). This index influences performance and schooling.	Rural (0) Urban (+)
Z_{19} :	<i>Classroom' repeating</i> Repetition is an issue that affects the quality of education. Consequently. it influences school performance. It does not allow pupils to achieve the same performance as their non-repeating peers. Also, it involves high costs to the education system Repetition is well established in pedagogical practices and has been a response to the learning difficulties of the education system. The modalities 1 for repeating and 2 for no.	Rural (-) Urban (-)
Z_{21} :	<i>Disability</i> A disability, regardless of its nature or severity has a negative impact on school performance. The modalities 1vis for a disability and 2 for no.	Rural (-) Urban (-)
Z_{20} :	<i>Medical visit visual or auditory or visual and auditory</i> Being healthy is a minimum requirement for a student to attend school for academic performance. The modality is 1 for having made a visit and 2 for no.	Rural (+) Urban (+)
Z_{221}	<i>Feeling hungry in class</i>	Rural (-) Urban (+)
Z_{30}	<i>Attended nursery school. kindergarten. or pre-school</i>	Rural (0) Urban (+)
Z_{31}	<i>Make homework</i>	Rural (+) Urban (-)

Source: Author, 2023

Appendix F: Descriptive statistic**Appendix F1 : Quantitative statistic variables**

Variables	Obs		Mean		Std. Dev.		Min		Max	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Test scores	544	809	618.21	563.85	82.57	78.07	375.28	323.55	880.53	816.85
wages (\$)	544	809	285	244	0.1%	0.1%	150	100	415	582
Classroom Learning Resource Index	544	809	54.74	53.47	7.44	6.72	44.32	42.59	79.23	79.23
School Learning Resource Index	544	809	50.12	47.17	7.55	4.87	45.657	45.66	74.59	68.16
School Infrastructure Index	544	809	53.50	52.51	4.82	5.41	40.88	36.76	62.40	62.40
Student's Family Socioeconomic Index	544	809	52.20	48.12	7.71	5.96	26.39	26.39	79.83	78.56

Source: Author, 2023

Appendix F2 : Qualitative statistic variables

Variables		Localisation		
		Urban	Rural	Total
Teacher gender	Women	12.94%	5.22%	18.16%
	Men	28.97%	52.87%	81.84%
Functional Library	Yes	2.03%	39.89%	41.92%
	No	3.98%	54.10%	58.08%
Classroom functionality	Yes	2.03%	3.98%	6.01%
	No	39.89%	54.10%	94.10%
Latrines and toilets	Yes	39.89%	52.87%	92.76%
	No	2.03%	5.22%	7.24%
Other sources of teachers' income	Yes	14.49%	7.25%	21.74%
	No	35.51%	42.75%	78.26%
Student Gender	Girls	21.25%	31.31%	52.56%
	Boys	20.67%	26.78%	47.44%
Reading textbooks	Yes	38.14%	58.00%	92.43%
	No	3.86%	3.72%	7.57%
Mathematics textbooks	Yes	37.68%	54.89%	92.57%
	No	4.30%	3.13%	7.43%
Disability	Yes	6.12%	7.36%	13.48%
	No	36.07%	50.45%	86.52%
Feeling hungry in class	Yes	28.51%	33.39%	41.97%
	No	13.45%	24.64%	58.03%
Classe repeating	Yes	20.49%	36.66%	57.16%
	No	21.42%	58.08%	42.84%

Source: Author, 2023.

APPENDIX G: Correlation and covariance test

Variable	Y	W	Z1	Z2	Z4	Z5	Z6	Z7	Z8	Z9	Z10	Z15	Z17	Z18	Z19	Z21	Z22
Average test scores	1.0000																
Average annual net wage (W)	0.2216*	1.0000															
Classroom Learning Resource Index (Z1)	0.2882*	0.2316*	1.0000														
School location (Z2)	0.3297*	0.1234*	0.1517*	1.0000													
Schools' pedagogical resources index (Z4)	0.1320*	0.0564*	0.1393*	0.2243*	1.0000												
Schools' infrastructure index (Z5)	0.2274*	0.2637*	0.4050*	0.1402*	0.0986*	1.0000											
Students' gender (Z6)	0.0643*	-0.0615*	0.0245	0.0227	0.0207	0.0572*	1.0000										
Reading textbook (Z7)	0.2032*	0.2226*	0.3177*	0.0282	0.0280	0.2482*	0.0395*	1.0000									
Mathematics textbook (Z8)	0.2236*	0.3004*	0.3285*	0.0060	0.0672*	0.2970*	0.0272	0.4463*	1.0000								
Students' family socioeconomic index (Z9)	0.2136*	0.0205	0.1548*	0.3427*	0.1469*	0.1129*	0.0126	0.1030*	0.1122*	1.0000							
Teachers' gender (Z10)	0.2092*	0.0268	0.0781*	0.2788*	0.0423*	0.0022	0.0017	0.0357*	0.0571*	0.1002*	1.0000						
Seating for students (Z15)	0.1314*	0.1891*	0.2845*	0.1574*	0.0546*	0.4848*	0.0505*	0.1509*	0.1929*	0.0574*	0.1065*	1.0000					
Classroom' functionality (Z17)	0.0611*	0.0279	0.1358*	0.0490*	0.5543*	0.0516*	0.029	0.0639*	0.0591*	0.0092	0.0215	0.1750*	1.0000				
Latrines and toilets (Z18)	0.1314*	0.1891*	0.2845*	0.1574*	0.0546*	0.4848*	0.0505*	0.1608*	0.2100*	0.0986*	0.1812*	0.2127*	0.0040	1.0000			
Classroom' repeating (Z19)	0.1410*	0.0116	0.0070	0.0218	0.0361	0.0076	0.0160	0.0548*	0.0317	0.0510*	0.0462	0.0588*	0.0187	0.0615*	1.0000		

Variable	Y	W	Z1	Z2	Z4	Z5	Z6	Z7	Z8	Z9	Z10	Z15	Z17	Z18	Z19	Z21	Z22
Disability (Z21)	-0.0716*	0.2471*	0.1059*	0.0617*	0.0040	0.0132	0.0015	0.0013	0.0086	0.0676*	0.0429*	0.0551*	0.1032*	0.0517*	0.4463*	1.0000	
Feling hungry in clas)s (Z221)	-0.0181	0.0552*	0.0883*	0.1119*	0.0121	0.0422*	0.0252	0.0181	0.0552*	0.0883*	0.1119*	0.0121	0.0422*	0.0252	0.0334	0.0496*	1.0000

NB : *Signifiant

Source : Author, 2023

The Effect of Problem-Based Learning Models on Improving High School Students' Learning Achievement

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Abstract

This study aims to determine the effectiveness of the problem-based learning (PBL) model in increasing high school student achievement. This research method uses a descriptive method with a quantitative approach. The research instruments that will be used in this research and development are Biology learning achievement tests and assessment rubrics. Data analysis used SPSS 26 software for testing one paired sample t-test. The results showed that the treatment of problem-based learning methods in student achievement for biology class was quite effective in increasing student achievement. This learning model emphasizes long-term learning, students are directly involved in various problems and problems of daily life, learning to understand and solve problems in life. Practical, interdisciplinary, and engaging students play a key role in the design, implementation, and reporting of results-oriented (student-centered) activities. In scientific subjects, practices involving students directly are needed. This study supports some of the results of research using the same method in the field of science and technology but contrasts with the results of research using the same method in the field of linguistics.

Keywords: Problem-Based Learning; Learning Achievement, High School Student

1. Introduction

State why the problem deserves new research. For basic research, the statement about importance might involve the need to resolve any inconsistency in the results of past work and/or extend the reach of a theoretical formulation. For applied research, this might involve the need to solve a social problem or treat a psychological disorder. When research is driven by the desire to resolve controversial issues, all sides of the debate should be represented in balanced measure in the introduction. Avoid animosity and ad hominem arguments in presenting the controversy. Conclude the statement of the problem in the introduction with a brief but formal statement of the purpose of the research that summarizes the material preceding it. Literature reviews as well as theoretical and methodological articles, also clearly state the reasons that the reported content is important and how the article fits into the cumulative understanding of the field.

Formal education is increasingly needed. This is due to the fact that the family environment is not able to introduce children to the world of science which is growing rapidly, however, the problems that occur in the world of education today are very complex in terms of relevance, quality, quantity, and others. In terms of quality, for example, many consider that the quality of our education is very low so efforts are needed to improve it (Abror, 2021; Ermayani, 2021; Yanti et al., 2021). As per the Law of the Republic of Indonesia (UUD) No. 20 of 2003 on the National Education System, the position of an educational teacher is a professional position. reflects that Indonesian education aims to develop students' potential to become almighty, creative, independent God-fearing, and trusting human beings and to become responsible and fulfilling democratic citizens. One of human rights, namely the right to education. On that basis, Indonesia implements the principles of democratic education both horizontally (everyone has the right to education access) and vertically (everyone has the right to the highest education according to ability) (Dzurrahmi et al., 2021; Hadiyanto et al., 2021; Ivan, 2021).

Education is a necessity for people all over the world. The learning process in this century is integrated between literacy, knowledge, skills, attitudes, and adaptation to changing technologies. New learning model need to be overhauled to meet the needs of the 21st century with the change in psychology, thinking patterns, and action models in other contexts of educational and learning performance (Irianto, 2017).

Teachers are the key and at the same time the spearhead of educational attainment and renewal, therefore teachers are in the middle of regulating, guiding, directing, and educating to achieve educational goals. The low quality of learning cannot be separated from the ability of teachers to carry out classroom learning (Aisiyah, 2021; Hadiyanto et al., 2021; Hasanah et al., 2021). But in reality, the learning process that the teacher brings in nowadays is still not running optimally, especially in mathematics. Often what happens in schools, learning mathematics is only oriented to mastery of the material as evidenced by learning outcomes in certain competencies. The teacher assumes that the task of teaching is to transfer information, knowledge, and books, the task of students is to receive, remember, and memorize information according to what is said. This is also done by the teacher every day so that students feel bored in receiving learning and finally students are lazy in learning. And rarely do teachers equip students with problem-solving in long-term life (M et al., 2021; Nursita, 2021; Rosyada et al., 2021).

Nowadays we need a learning model that can be realized if there is a shift in mindset, mental patterns, and patterns of action in various contexts of implementing the education and learning process. To become an educator who has the right strategy for the future (visionary) and is oriented towards the future, what must be understood is: changes in the conditions of students, views of students, profiles of students in the future, students' needs to adapt to changes, selection of suitable learning models and methods, creating learning conditions that support the selection and procurement of learning evaluation tools that are appropriate and contextual, and the quality of educators who are constantly improving (Gusty et. al., 2020).

In accordance with Regulation No. 22, 2016 of the Ministry of National Education on Standards of Primary and Secondary Education, the learning process in the educational unit is interactive, fun, challenging, and communicative, inspires, and influences students to actively participate, more creatively, promote initiative move, and independence through students' abilities, interests, talents, and psychological and physical development.

One of the problems facing the educational world today is poor learning. During the learning process, students are less motivated to develop intelligence. Therefore, to support this learning, it is almost obligatory to use a learning model that is appropriate to the conditions of the students in the school. The appropriate learning model is a problem-based learning model (PBL) (Susanto, 2014).

At present, a learning approach is urgently needed that is by the stages of students' intellectual development and can provide meaning for students. Learning does not always have to be done in the classroom, sometimes learning can also be done outside, in the surrounding environment, and in the open. Outside learning or in the surrounding

environment allows students to directly experience the concepts being studied and can develop students' logical reasoning. This is because learning material is summarized into activities that are close to students' experiences in their daily lives so that they become meaningful.

The learning process in schools today has a main problem, one of which is the low receptivity of students. Noticeably in the student's academic results who are always paid great attention by the school. This achievement is of course the result of classical conditioning. Based on observations in high schools, the authors gathered information from interviews with biology teachers that students have difficulty in learning to understand the subject of biology because, in the process of students, teachers present material that is not optimal. question due to limited time during the COVID-19 pandemic. What we mean here is less optimal: teachers rarely use subject-appropriate learning models for students, teachers only teach biological concepts and theories through teacher-centered activities, students do not actively participate in activities, and do not allow students to develop their thinking processes.

The learning this method, teachers have not fully developed their abilities, so most students do not have the necessary personal skills to demonstrate that they are engaged in further learning, which reduces students' learning motivation and leads to poor learning results. Solving educational problems with the current conditions in the field, the government has carried out various reforms, including conducting training, training and improving teacher competence, procurement of books and learning tools, etc. Therefore, teachers look forward to being prepared to improve the standard of education by choosing and using learning models according to student characteristics, basic competencies, learning objectives to be achieved and the material to be taught (Abror, 2021; Ivan, 2021; Munawwir & Nur Hanip, 2021).

The problem-based learning model (PBL) that uses the environment plays a good role in the learning process, as it can help students understand the learning material, and make decisions about the content, the environment, and the environment. learning opportunities, for students indoors and outdoors. classroom and can help define dynamic learning contexts that are constantly updated. In addition, Problem-based learning is a concept of learning that helps teachers link the teaching material to real-life situations and stimulate students to associate knowledge and application, utilization in daily life as a member of family and community (Kuo et al., 2021; Syamina et al., 2021). This PBL concept is expected to make better the learning outcomes and will be more purposeful to students.

The learning process occurs naturally in the form of student activities and experiences rather than the basic concept of knowledge transfer from teacher to student. A learning strategy is much more important than an outcome. Achievement motivation is a psychophysiological condition present in students that encourages them to perform certain activities in order to achieve a certain goal (Alifia & Pradipta, 2021; Fitriati et al., 2021; Nurwahidah et al., 2021). In addition, achievement motivation is the most important thing in a teaching and learning process, because achievement motivation is the encouragement or driving force of individuals in achieving success, and student behavior will be directed in behaving in accordance with abilities in the development of knowledge and skills, and achievement motivation considered as one of the most important variables in determining whether educational goals are achieved, especially if the individual concerned does have abilities that are not so encouraging, then without motivation it is difficult to expect good learning outcomes (Nurwanti, 2021; Susana et al., 2021; Wijayanti et al., 2021).

Nahdi (2018) argues that problem-based learning (PBL) is a learning innovation because, in PBL, students' thinking skills are enhanced through a group or group work process. systematically, so that students can empower, refine, test, and grow. their ability to continuously reflect. On that basis, there should be a thorough study of what and how problem-based teaching should be applied in the learning process in order to provide information, especially for teachers, about learning. work through the problem. Furthermore, Trianto (2014) argues that the problem-based learning model is a learning model.

Problem-based learning (PBL) is a learning model with an approach in which students learn from real problems so that they can acquire their own knowledge, develop skills, and have higher expectations, empowering students and boosting their self-confidence (Hosnan, 2014). A distinctive feature of this model is the use of real-world problems as what students must learn not only to acquire knowledge and awareness but also to practice and improve their critical thinking, problem-solving skills, and independent skills.

Problem-based learning (PBL) is a learning form modeled after constructivism, oriented towards the student learning process (student-centered learning). PBL (Problem-Based Learning) is a learning model that focuses on presenting a problem (real or simulated) to students, after which students are challenged to find a solution through a series of research and Investigations based on theories, concepts, and principles that students have learned from different scientific fields (multiple perspectives). Issues become the focal point, stimulating and directing the learning process. While teachers become facilitators and guides (Sari and Siregar, 2019).

The problem-based learning model (PBL) using the environment will play a good role in the learning process, as it can help students understand the learning material, and make decisions about the substance content, the environment. and learning opportunities, for students indoors and outdoors. outside the classroom and can help establish dynamic learning contexts (Schwartz, 2013). Problem-based learning (PBL) is an "active learning" method of teaching that uses complex real-world problems as a vehicle for teaching student concepts and principles, as opposed to passive, spoon-based rote learning based on teacher-designed lectures and didactic instruction typical of traditional curricula (Liu et al., 2019).

PBL stimulates students to recognize their knowledge capacity and skills and implement them in new circumstances or to combine and use prior knowledge and principles to achieve specific goals (Yaquinuddin, 2013), which distinguishes PBL from other student-centered approaches, such as project-based learning based on surveys and cases. Initially, PBL was designed to develop teaching methods for medical students (Goodnough, 2006). Since then, PBL has been used in many fields (nursing, medical, dental, pharmaceutical, pediatric, physical diagnostics, and even pharmacology) (Gao et al., 2016; Huang, Zheng, Li, & Yu, 2013; Imran et al., 2015; Kong, Qin, Chu, Mou, and Gao, 2014; Wang et al., 2016; Chu et al., 2016) and at all levels of university and higher education (Miller, 2003; Zhang et al., 2015).

Problem-based learning has been known since the time of John Dewey and is now starting to be accepted as a holistic approach to learning by providing students with authentic and meaningful problem situations that I can point out. opportunity to discover (Umanailo et al., 2019). Basically, mathematics, as a structured and systematic science, implies that mathematical concepts and principles are related. Therefore, when learning mathematics to gain meaningful understanding, students must have a range of mathematical associations, that is the ability to relate mathematical concepts between concepts within mathematics itself and relate mathematical concepts to concepts in other fields (Ruspiani, 2000).

Research by Ramadhani et al. (2019) examined the effectiveness of using the LMS-Google classroom-based reversible problem-based learning model during math learning at SMA Negeri Medan, North Sumatra, in Indonesia. This study was a semi-experimental study with a pre-trial and post-trial control group design. The sample for this study included 62 high school students from two schools. Research results were analyzed using SPSS 25.0 software with a two-way ANOVA test and LSD test. Based on analytical testing, we know that the average math performance of students who followed the Google Classroom LMS-based reverse problem-solving learning model significantly increased compared to conventional learning. The results of the study sheets also show that the students in grade II feel interested, motivated, and enthusiastic to participate in class learning. Digital learning with LMS-Google Classroom-based flip-flop learning provides a new experience for high school students by engaging in math learning in and out of the classroom.

Further research by Palupi et al. (2020) compared the effectiveness of guided learning (GIL) and problem-based learning (PBL). Some previous studies have implemented the GIL model in limited fields, such as science. Similar to the PBL learning design, previous research focusing on the application of the GIL model often aimed to compare it with traditional learning models. A sample of 162 students was selected by the multistage sampling method. Data in the form of students' explanatory writing test scores were analyzed using a one-way ANOVA. These results confirm that the GIL model is considered to be more effective than the PBL for narrative text because the student's age-specific activity still requires teacher-centered instruction to create text. This. In terms of conditions, the PBL model cannot be effective for narrative writing activities because this model focuses more on students' problem-solving abilities.

Silalahi's research (2021) examines the effectiveness of the cooperative problem-based learning (CPBL) model in static learning. The research method of the experimental class is experimental, in which the experimental class applies the CPBL model and the control class applies the conventional model. A simple random sample is taken for the experimental and control groups. The tool used is a test of academic achievement. The results show that the learning outcomes of students in the experimental group are better than those in the control group. Therefore, the learning outcomes of students under the CPBL model show an increase in static learning of very good quality. It is drawn to a close that applying the CPBL model is more sufficient than conventional learning.

Having that description in mind, the PBL or problem-based learning model by Ramadhani et al. (2019) and Silalahi (2021) has research gaps that can be found through some of the results of previous studies, their research is more effective in improving students' academic performance. Meanwhile, according to Palupi et al. (2020), the PBL model is not effective in increasing student achievement. Therefore, this study focuses on the level of validity and practicality of the Problem-based learning (PBL) model in improving high school student achievement in biology subjects using the pre and post-test t-test methods and then the n-gain method.

2. Method

This study using the quantitative descriptive research with a pre-experimental research type using a one-group pre-test-post-test design (Creswell, 2010). Following the research procedure used there are three stages, namely: (1) the preparation stage; (2) the implementation stage; and (3) the analysis stage. At the preparatory stage, what was done was observing the students who were the subject of the research. In this activity what is observed is the learning achievement of students. This research focuses on developing a Problem-based learning model to improve high school student achievement in biology subjects. This study examined the results of an assessment of biology learning achievement before and after applying a problem-based learning method using a one-group pretest-posttest design method.

The instrument that will be used in this study is a biology learning achievement test and an assessment rubric: In other words, biology learning achievement tests are used to measure a student's ability after participating in the learning process. The test is carried out with multiple choice questions in the number of 50 questions based on the test grid that has been given, the value range ranges from 0-100 with a score of 2 to 1 correct question. Data analysis used SPSS 26 software for testing one paired sample t-test.

3. Results and Discussion

Biology Output Standard Tests are used to assess students' abilities after going through the learning process. The student biology performance test used is a multiple choice test built from the construction of indicators to assess the level of achievement of identified basic skills, following that uses a benchmarked reference assessment (PAP) that is geared toward a student's level of proficiency. of all materials examined, so the scores obtained reflect the student's level of performance in biology. The stages of developing a test to test the skills of assessing learning

outcomes in biology are: (1) define test frameworks based on performance indicators of basic skills; (2) compile the tests; and (3) define grading guidelines. The test is carried out with multiple choice questions in the number of 50 questions based on the test grid that has been given, the value range ranges from 0-100 with a score of 2 to 1 correct question.

The following in table 1, data is presented regarding the minimum, maximum, and average values in the pre-test and post-test after implementing the PBL method.

Table 1. Descriptive Statistics result for Pre-test and Post-test

Criteria	<i>Pre-test</i>	<i>Pos-test</i>
Min	32	56
Max	84	100
Average	55.65	77.55

As you can see based on the table, in the pre-test column the minimum value is 32, while in the post-test column the minimum value is 56. The maximum value in the pre-test column is 84, while in the post-test column the maximum value is 100. Furthermore, the average value obtained an average value in the pre-test of 55.65, and in the post-test column obtained an average value of 77.55. Based on the descriptive analysis that was carried out in the pre-test and post-test groups, it can be concluded that the post-test scores have a higher average than the pre-test scores. This indicates that the problem-based learning method is effective in improving students' biology learning ability.

However, this is not the only effect of the problem-based learning model method in this study. It is necessary to look at the significance of the effect based on the pre-test and post-test data. Analysis was performed using SPSS 26 software using the paired sample t-test method. The SPSS analysis output shown in the following table.

Table 2: Paired Samples Correlations

Paired Samples Correlations		N	Correlation	Sig.
Pair 1	Pre & Post	40	.880	.000

The table above describes the relationship between pre-test and post-test data. Concluded from the SPSS results, the significance value (sig.) is found to be 0.000, which is under 0.05, which means that the data between the pre-test and post-test have a relationship. The correlation value is 0.88 (between the range 0-1), so it can be said that the correlation between the two data is very close. This is reasonable because it is one paired sample, which means that the respondents (students) who are tested on the pre-test and post-test are the same students.

Furthermore, there is an output that explains the effect of the PBL model on student achievement which is presented in table 3 below.

Table 3: Paired Samples Test

Paired Samples Test		Paired Differences		95% Interval Difference Lower	Confidence of the Upper	t	df	Sig. (2- tailed)
Mean	Std. Deviation	Std. Error Mean						

Pair	Pre	-	-21.90000	7.37216	1.16564	-24.25773	-19.54227	-18.788	39	.000
1	Post									

Table 3 indicates the effect of the PBL method on student achievement in biology class. This influence can be seen based on the significance value (sig.). The significance value shown in the table states that it is 0.000, which means it is below 0.05. This indicates that there is an influence between student achievement before and after the PBL learning method is used. Overall, on the sample t-test and descriptive analysis, it can be concluded that the PBL learning method is effective for increasing student achievement in biology lessons. This research does not stop here, a follow-up analysis, namely the analysis of how to do it, is carried out to see how effective the PBL learning method is.

In addition, in this study, the N-Gain Score test was administered to determine improvement in student achievement in biology. The trial in this study was a group pre-test and post-test, which is an experimental study design. The N-Gain test is performed by counting the dissimilarity between the value of pre-test and post-test.

Table 4: N-Gain Category

Limitation	Category
$g > 0,7$	High
$0,3 \leq g \leq 0,7$	Middle
$g < 0,3$	Low

Source: Meltzer (2003)

Table 4 shows that the grade of n-gain limit level is divided into 3 categories, namely low if the n-gain value is less than 0.3 or 30%. Average if the n-gain value is between 30 and 70% and high if the n-gain value is greater than 0.7 or greater than 70%.

Table 5: Category of N-Gain Improvement Interpretation

Category Interpretation of N-Gain Effectiveness	Interpretation
Percentage (%)	
< 40	Not Increasing
40 - 50	Less Increase
56 - 75	Enough Increase
>76	Increase

Source: Hake (1999)

In addition, Table 5 explains the type of explanation for the increase in n-gain. It includes four types of implementations according to Hake (1999). The interpretation category did not increase if the ratio was less than 40%, that is the intervention or control did not yield a significant increase compared to before and after the trial. The latter has less of an increase if the percentage increase n is between 40 and 50%, which means that the treatment or control did not improve results from the pre-test to the post-test. In addition, the third category, if it falls between 51 and 75%, is classified as moderately increased, meaning that treatment or control increases enough for pre-test to post-test results. Finally, 76% or more were classified as "increasing," meaning that the treatment or control was increasing between the pre-test and post-test results.

The results of the n-gain analysis on the experimental classes related to the pre-test and post-test values are shown in the following table:

Table 6: N-Gain Analysis Results

Number	Pre-test	Post-test	Difference	Ideal Score (100-pre)	N-gain	% N-gain
1	58	70	12	42	0.29	29%
2	82	90	8	18	0.44	44%
3	34	66	32	66	0.48	48%
4	64	96	32	36	0.89	89%
5	64	80	16	36	0.44	44%
6	52	68	16	48	0.33	33%
7	80	96	16	20	0.80	80%
8	48	76	28	52	0.54	54%
9	38	60	22	62	0.35	35%
10	36	62	26	64	0.41	41%
11	74	100	26	26	1.00	100%
12	74	94	20	26	0.77	77%
13	54	86	32	46	0.70	70%
14	44	62	18	56	0.32	32%
15	66	84	18	34	0.53	53%
16	52	78	26	48	0.54	54%
17	54	70	16	46	0.35	35%
18	54	78	24	46	0.52	52%
19	78	98	20	22	0.91	91%
20	34	62	28	66	0.42	42%
21	32	64	32	68	0.47	47%
22	60	74	14	40	0.35	35%
23	62	92	30	38	0.79	79%
24	46	70	24	54	0.44	44%
25	42	56	14	58	0.24	24%
26	74	96	22	26	0.85	85%
27	54	68	14	46	0.30	30%
28	58	68	10	42	0.24	24%
29	42	68	26	58	0.45	45%
30	32	66	34	68	0.50	50%
31	42	72	30	58	0.52	52%
32	40	68	28	60	0.47	47%
33	52	86	34	48	0.71	71%
34	84	100	16	16	1.00	100%
35	34	62	28	66	0.42	42%
36	82	92	10	18	0.56	56%
37	74	98	24	26	0.92	92%
38	62	78	16	38	0.42	42%
39	58	76	18	42	0.43	43%
40	56	72	16	44	0.36	36%
Average					0.54	54%

The table above showed that the average posttest scores were higher than the pretest scores. This indicates that children in the experimental class tended to improve their scores by correcting their mistakes through problem-

based learning. The mean N gain in the test class in this study was 54%, which was classified as moderate, and for effectiveness, it was included in the moderate gain category. This means that the use of problem-based teaching methods is quite effective in improving the learning efficiency of high school students in Biology.

Problem-based learning is a type of learning model in which students engage in an activity (project) to create a product. Student involvement begins with planning, designing, implementing, and communicating the results of activities in the form of products and performance reports. This learning model focuses on a long-term learning process in which students are directly involved in a variety of everyday life problems and learn to understand and solve related problems, be they industrial or practical, and engaging students as key actors in the design, implementation, and communication of the results of the activities (student focus). In scientific subjects, practices involving students directly are needed. With science and technology practices that have been implemented, it can make students better understand the real situation in science and technology learning which is not only based on theory. Biology lessons are no exception, for example, there is practice regarding organ systems through the torso. Thus students will increasingly understand how the condition of organ systems in humans, not just imagining it.

Problem-based learning (PBL) models help students find meaning in lessons by connecting academic material to the context of their daily lives (Firdaus et al., 2021; Putri and Taqiudin, 2021; Yulia Sari, 2021). They build meaningful relationships and create meaning by engaging in independent learning, working collaboratively, thinking critically and creatively, communicating with others, achieving high standards, and engaging with others. engage in learning tasks. Yennita and Zukmadini, 2021). As described by Elaine B. Johnson (2002). an educational process that work towards to help students understand what they are learning by relating the subject matter to everyday life situations, i.e., the personal and social contexts of individuals, societies, and cultures. To achieve this goal, the system consists of the following eight elements: making meaningful connections, doing meaningful work, self-study, collaboration, critical and creative thinking, personal development, high standards, and the use of authentic assessment.

If the problem-based learning method is implemented correctly it will make students better understand the real conditions of a subject. Indirectly it will attract the attention of students to increase their interest in learning more deeply. Thus, the problem-based learning method can empirically improve student achievement in the context of this study, namely science-based subjects, namely biology subjects.

Associated with previous research, this study supports the results of research by Ramadhani et. al. (2019), and Silalahi (2021), but is contrary to research by Palupi et. al. (2020). Research Ramadhani et. al. (2019) stated that the average learning outcomes of students who were taught using the Flipped-Problem-based learning model based on the Google Classroom LMS experienced a significant increase compared to conventional learning. The results of the questionnaire in learning also showed that class II high school students felt enthusiastic, motivated and enthusiastic about participating in class learning. Digital-based learning with the Flipped-Problem-based learning model based on LMS-Google Classroom provides a new experience for high school grade II students in participating in mathematics learning both in class and outside the classroom. The learning method used by Ramadhani et. al. (2019) is one of the developments of the problem-based learning method which has an influence on the enthusiasm of high school students. By influencing the enthusiasm of these high school students, they will be able to improve their learning achievement because they feel very enthusiastic about participating in a lesson, so this research supports the results of research by Ramadhani et. al. (2019).

Further research by Palupi et. al. (2020) compared the effectiveness of the Guided Inquiry Learning (GIL) and Problem-Based Learning (PBL) models. Palupi et.al research. al. (2020) the GIL model is considered more effective than PBL for explanatory writing activities because of the concrete operational age of students who still need teacher-centered guidance in producing explanatory texts. Judging from the conditions, the PBL model cannot offer effectiveness for explanatory writing activities, because this model places more emphasis on students' problem solving abilities. PBL model research is less effective in learning related to language areas such as writing

explanations, thus research by Palupi et. al. (2020) cannot be said to be directly opposite to this research because it is necessary to pay attention to several aspects such as research limitations in which fields. This research examines science and technology, especially biology subjects which state that the problem-based learning model is quite effective in increasing student achievement, while research by Palupi et. al. (2020) examines explanatory writing, which is the field of language and literature.

A further research by Silalahi (2021) examined the effectiveness of the cooperative problem-based learning (CPBL) model in static learning. The results show that the learning outcomes of students in the experimental group are better than those in the control group. Therefore, the learning outcomes of students under the CPBL model show an increase in static learning of very good quality. It is concluded that applying the CPBL model is more effective than conventional learning. This is consistent with this study, which found that the APP model is quite effective in improving student achievement because the fields of study are similar, namely science and technology.

Overall it can be concluded that the problem-based learning method can influence student learning achievement to be better (improve) in science-based learning. Thus it can be used as a reference to make the problem-based learning method to improve student achievement.

4. Conclusion

Based on the research findings reviewed, it was concluded that problem-based learning to help students succeed in biology is highly effective in improving student achievement. This learning model emphasizes a long-term learning process in which students learn to engage directly with and understand various problems and problems of everyday life and solve them in a practical, interdisciplinary manner, and involving them as key actors in the design, implementation, and communication of the outcomes of (student-centered) activities. In science subjects, practice that is directly related to the student is necessary.

This study supports several previous studies such as research by Ramadhani et. al. (2019), and Silalahi (2021), but contrary to research by Palupi et. al. (2020). Overall it can be concluded that the problem-based learning method can influence student learning achievement to be better (improve) in science-based learning. Thus it can be used as a reference to make the problem-based learning method to improve student achievement.

5. Suggestions

This research covers the scientific field which is specific to biology subjects. It has obtained support from research results in the same field, namely science, and technology, while there are studies that contradict the results of this research because the fields are different, namely language. Future research can examine science with other subjects such as mathematics, physics, or chemistry to confirm the results of this study. It can also be done for the application of problem-based learning methods to the social aspects of humanities such as history, economics, geography, etc. to broaden and sharpen theories about problem-based learning models.

The problem-based learning method at this time is very important to intensify because this learning method trains students to always think critically and be skilled in solving a problem, besides that learning activities run more conducive and effectively because students are required to be active. This learning method requires students to be active in solving problems and can be used as a provision for the future how a student can think critically in the conditions of the very volatile industrial era 4.0.

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Results of a Postgraduate Survey of Physiotherapists who Participated in an Undergraduate International Exchange Program

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Abstract

[Introduction] Our university and Fresenius University have been conducting short-term international exchange programs involving physiotherapy students since 2012. This study aimed to assess our international exchange program's impact on students in Japan who have worked as physiotherapists after graduation. [Methods] The subjects were 95 people (40 males and 55 females) who participated in this program when they were students. A questionnaire was administered to the subjects. The questionnaire consisted of 13 items that focused on the following three topics: (A) feedback about this project (three questions); (B) subjects' present circumstances (nine questions); and (C) interest in studying or working abroad (one key question). All items were answered on an 11-point numerical rating scale (0 [totally disagree] to 10 [totally agree]). "Interest" was the dependent variable, and the other items were explanatory variables. [Results] The exchange relationship nurtured through this program continued even after graduation. However, the graduates were not active in learning about international journals and other information related to physiotherapy. The items that were significantly related to the key question were the language aspect and the continuation of exchange. [Conclusion] Physiotherapists in Japan need to develop an international perspective; thus, it is meaningful for them to gain international experience during their undergraduate years. However, the country is still not oriented toward gaining international perspectives and experiences. Hence, education of international standards and education for improving communication skills are necessary for postgraduate students.

Keywords: Globalization, Germany, Short-Term Study Abroad, Questionnaire, Before the COVID-19 Pandemic

1. Introduction

In this era of globalization, education that can help people respond to diverse situations is required. Boguslavskii et al. (Boguslavskii & Neborskii, 2016) made the following comment: "The modern concept of the University has changed considerably. Education is becoming increasingly international with constantly growing numbers of foreign students." In the same way, in Japan, universities will have to establish a new and globalized education

system in order to survive in the face of the challenge of fostering global human resources. The Ministry of Education, Culture, Sports, Science and Technology (MEXT) is strongly promoting the use of international perspectives in higher education at universities (The Japanese Ministry of Education, Culture, Sports, Science and Technology, 2023). For medical and allied health professions, education at universities is becoming more common, requiring not only the acquisition of specialized knowledge and skills, but also education tailored to diverse world situations.

The same applies to the field of physiotherapy, and it is also very important to expand the possibilities of broadening one's horizons as a physiotherapist from the age of a student. Although it is easy to acquire knowledge on the internet, etc., there is a common understanding that it is meaningful to actually experience and feel the differences in international education, and acquires a sense of it. In Japan, it is difficult to build a curriculum, such as that for practical training in other countries across national borders, like in European countries. However, even under these circumstances, some Japanese physiotherapy universities are making use of their respective characteristics to conduct various international exchange programs with foreign countries (Sato et al., 2019, Nakazawa et al., 2012). Takasaki University of Health and Welfare has a memorandum of understanding (MOU) with several universities and facilities (Takasaki University of Health and Welfare, 2023). One of these universities is Fresenius University, and this university and our university have been conducting short-term international exchange programs involving physiotherapy students since 2012 (Nakagawa, 2015).

Fresenius University has campuses in eight cities in Germany (a total of nine campuses including virtual campuses, as of August 2023), and it has many faculties, such as the Faculty of Media, Faculty of Business, and Faculty of Pharmacy (Fresenius University, 2023). The Department of Physiotherapy is included in the Faculty of Health Sciences, which also includes the Department of Occupational Therapy, Department of Speech Therapy, Department of Osteopathy, Department of Ergotherapy, Department of Physician Assistant, and other departments (Fresenius University, 2023). Fresenius University has been expanding its international exchange with our university. It established an academic MOU with our university in May 2012. Our students visited Germany in September 2012–2019, and Fresenius University students came to Japan in February 2013–2019. The program was expected to develop further with plans for joint research and faculty exchanges among both universities; however, owing to the impact of the COVID-19 pandemic, the program was suspended in 2020. In 2022, online exchange resumed, and in February 2023, exchanges through actual visits resumed, with further development expected in the future.

The value of short-term international exchange programs, such as this one, is not debatable, and it is desirable that the students who have experienced this program are working with an international perspective, which means that this program has developed internationalization. Moreover, it would be meaningful to look back on past projects and reexamine what impact this program has had on the internationalization of physiotherapy students and the possible future issues for this purpose.

Thus, this study aimed to assess our international exchange program over 7 years before the COVID-19 pandemic and evaluate its impact on students in Japan who have worked as physiotherapists after graduation. We examined whether our project is contributing to the international orientation of postgraduates.

2. Method

2.1 Outline of Our International Exchange Program

The student exchange program is divided into the following two parts: a study visit to Germany in September and a visit to Japan in February.

Our students visited Fresenius University for about 10 days from mid-September to late September in 2012–2019. The sites were mainly in the towns where the university campuses of the Department of Physiotherapy were located, including Idstein, Frankfurt, Cologne, and Munich. The students who participated in the program were third-year students of the Department of Physiotherapy, Faculty of Health Care, and there were about 15 students

each year, although the number varied from year to year. Two or three faculty members from the Department of Physiotherapy or the International Exchange Affaires accompanied the students as teachers, serving as interpreters and coordinators, and they helped in exchanges and meetings with faculty members from Fresenius University. The students had already completed their basic physiotherapy education and could take more specialized courses, undertake graduation research, or start clinical practice. We conducted sufficient training sessions before and after the visit so that the students could share their knowledge and reconfirm their learnings.

Alternatively, Fresenius University students visited our university for about 10 days from mid-February to late February in 2013–2019. The site was Takasaki city, where the university is located, and tours of facilities in Tokyo were also conducted if the schedule allowed. Although the semester of enrollment of the visiting students varied from year to year, each year, about 15 students visited our university with one or two faculty members from the Department of Physiotherapy.

Although the content of the program varied from year to year, it mainly consisted of lectures, practical experience, group work, facility tours, etc. The program also included campus tours, cultural experiences, and student-to-student exchanges. In addition, students stayed at each other's homes or apartments, which deepened their friendship. The program was developed in such a way as to incorporate group work, presentations, lectures, and practical skill experiences among the students of both countries, with a specific theme chosen each year. Moreover, the program was developed in such a way that the visit of Japanese students in September and the visit of German students in February were connected, deepening their learnings.

2.2 Participant (Subject) Characteristics

The subjects of this study were 95 people (40 males and 55 females) who participated in this program when they were students. Participants from the year in which some parts of the program were canceled owing to COVID-19 were excluded from this study.

2.3 Questionnaire Methods

A questionnaire was administered to the subjects. The questionnaire (Table 1) was followed by the contents of the Japan Student Services Organization (JASSO), and it consisted of 13 items that focused on the following three topics: (A) feedback about this project (three questions; one was about total impression and two were about acquired skills); (B) subjects' present circumstances (nine questions; three were about academic issues, three were about language issues, and three were about international exchanges); and (C) interest in studying or working abroad (henceforth referred to as "interest"; one key question). All items were answered on an 11-point numerical rating scale (0 [totally disagree] to 10 [totally agree]). "Interest" was the dependent variable, and the other items were explanatory variables.

Table 1: Contents of the questionnaire

A: Feedback about the project	
A-1 Total impression	"Overall, are you satisfied with your participation in this international program?"
A-2 Competency 1 that participants believe they have learned	"Do you think this training has improved your ability to overcome difficulties on your own?"
A-3 Competency 2 that participants believe they have learned	"Did you deepen your understanding of Japanese culture and the current state of physiotherapy in Japan?"
B: Subject's present circumstances	
B-1 Academic	
B-1-1	"Are you actively studying knowledge and data in your specialized field?"
B-1-2	"Are you actively collecting foreign articles to understand the international academic level or standard?"
B-1-3	"Are you voluntarily participating in workshops or study meetings and trying to develop yourself?"
B-2 Language	
B-2-1	"Are you trying to improve your language skills?"
B-2-2	"Do you feel resistant to the conversation and communication when being spoken to by a foreigner?"
B-2-3	"Do you actively speak a foreign language or communicate with a foreigner?"

B-3 International exchanges

B-3-1 “Are you still keeping contact with German friends?”

B-3-2 “Would you like to work on something in cooperation with your German friends in the future?”

B-3-3 “Do you think that friendship and network with foreign people are very good things?”

C: <KEY QUESTION>

“Are you looking overseas for careers and employment?”

2.4 Analysis Methods

Statistical analysis involved multiple regression analysis. All analyses were performed using IBM SPSS version 29 (IBM Corp., Armonk, NY), and the significance level was set at 5%.

3. Results

3.1 Characteristics of the Respondents

The final analysis included 91 respondents (38 males and 53 females; 95.8% response rate). The survey period was from June to August 2021, and the subjects had between 1 and 7 years of postgraduation experience as physical therapists, with an average of 4.14 years of experience.

3.2 Questionnaire Results

The results of each question are shown in Table 2. Topic B-3 (“International exchanges”) showed generally good results, especially question B-3-3 (“Do you think that friendship and networking with foreign people are very good things?”), which had a very high score (9.26 ± 1.44). Conversely, question B-1-2 (“Are you actively collecting foreign articles to understand the international academic level or standard?”), question B-2-1 (“Are you trying to improve your language skills?”), and question B-2-3 (“Do you actively speak a foreign language or communicate with a foreigner?”) had low scores (4.63 ± 2.83 , 3.64 ± 2.63 , and 5.22 ± 2.53 , respectively). The key question of Topic C (“Are you looking overseas for careers and employment?”) had a very low score (3.38 ± 2.94), but there were ten respondents who provided a score between 8 and 10.

Table 2: The results of each question

A	A-1	9.41 ± 1.07	
	A-2	6.49 ± 2.02	
	A-3	8.36 ± 1.68	
B	B-1	B-1-1	6.81 ± 2.13
		B-1-2	4.63 ± 2.83
		B-1-3	6.46 ± 2.76
	B-2	B-2-1	3.64 ± 2.63
		B-2-2	6.63 ± 1.98
		B-2-3	5.22 ± 2.53
	B-3	B-3-1	6.58 ± 2.96
		B-3-2	6.48 ± 2.94
		B-3-3	9.26 ± 1.44
C		3.38 ± 2.94	

Scored by Numerous Rating Scale
(10=total agreed, 0=totally disagreed)

The results of multiple regression analysis are shown in Table 3. The following questions were identified as significant explanatory variables: “Do you make an effort to improve your language skills?” and “Do you still maintain the friendships you made during the project?” The items “I think it is very good to build relationships and contacts overseas” and “I think this project has broadened my perspective” had high scores but did not lead to a subsequent orientation toward working or studying overseas.

Table 3: Results of multiple regression analysis

		Valiance	p-value	95% CI	
A	[A-1]	-0.123	0.688	-0.731	to 0.485
	[A-2]	0.027	0.849	-0.258	to 0.313
	[A-3]	0.309	0.084	-0.043	to 0.661
B-1	[B-1-1]	0.293	0.078	-0.034	to 0.620
	[B-1-2]	0.054	0.597	-0.148	to 0.255
	[B-1-3]	-0.123	0.325	-0.370	to 0.124
B-2	[B-2-1]	0.304	0.023*	0.043	to 0.565
	[B-2-2]	-0.053	0.753	-0.390	to 0.283
	[B-2-3]	0.241	0.131	-0.074	to 0.555
B-3	[B-3-1]	0.282	0.013*	0.0622	to 0.501
	[B-3-2]	0.012	0.919	-0.226	to 0.250
	[B-3-3]	-0.140	0.557	-0.610	to 0.331

* = $p < 0.05$

4. Discussion

4.1 Interpretation of Results

Feedback on the program from graduates was positive, and it appears to be effective as an opportunity for international exchange. An exchange study is an enriching and personally transformative experience, sometimes with life-altering impact. Hande et al. reported about an exchange program in physiotherapy between Sweden and India, and they stated that it is a good way to gain both personal and professional growth (Hande, et al., 2022). We also found similar results in a domestic report by Sato et al., who mentioned that a short-term exchange program influenced students' awareness (Sato et al., 2019), and our previous research has also reported similar results (Nakagawa, 2015). McAllister et al. stated the following: "Professionals are increasingly being required to work in diverse, multicultural environments, and skills in intercultural practice are a prerequisite for success. Ensuring that these are developed is increasingly part of the core business of universities" (McAllister, et al., 2006). We completely agree with this opinion. It is meaningful to cultivate an international perspective as early as possible in one's pregraduation years, and it is essential for universities to be prepared to provide such opportunities. Kurunsaari et al. reported that different turning points exist in the professional development process of students and that they are very meaningful (Kurunsaari, et al., 2022). It is important that a variety of opportunities and possibilities exist, and it is quite possible that international stimulation may be an ignition factor. Schoeb et al. reported that physiotherapy students with globalized experience relied on their past educational exposure to provide meaning to their future (Schoeb & Chong, 2019). Therefore, it can be expected that these experiences will have an impact on subsequent activities as a physiotherapist.

It was gratifying to see that the exchange relationship nurtured through this program continued even after graduation. The subjects were very receptive to questions about what they would like to do together after graduation, and they actually held a postgraduation exchange event (Takasaki University of Health and Welfare, 2023). These connections are very valuable, and we have high expectations for their future development.

However, as professionals, the graduates were not active in learning about international journals and other information related to physiotherapy. While this is unavoidable in Japan, where there are few opportunities to encounter English in daily life, it is important in this era of globalization to keep one's eyes and ears open for international information, and this is an unfortunate situation for the physiotherapists who have graduated from our university. The key question of whether they are considering long term study or work abroad in the future had a low response. It may be a matter of debate as to whether this is a natural result, a poor result for those who studied abroad for a short period of time, or a positive result for those who expressed an interest. We could not ascertain the actual number of physiotherapists working as therapists, but according to available data, the number of physiotherapists staying and working long term has been reported to be 10,000 to 15,000 (The Japanese Ministry

of Education, Culture, Sports, Science and Technology, 2023), which is probably a very small proportion, considering the number of graduates from all universities. In such a situation, the finding that ten out of the 91 respondents were interested in going abroad seems to be a favorable result. We value their opinions and would like to continue to follow-up with students and graduates who are interested in such international activities.

The items that were significantly related to the key question were the language aspect and the continuation of exchange. De Brito et al. reported about a project in Denmark to actively incorporate international exchange, and mentioned that the project was associated with internationalization that led to physiotherapy students' professional development (de Brito Silva, et al., 2020). While the effectiveness of the program as a stimulant for pregraduates is as mentioned above, it is expected that such exchanges after graduation will lead to the expansion of international perspectives and the development of expertise as a physiotherapist. The university provides opportunities for postgraduate exchange, and this study highlights the importance of such opportunities. In addition, Broberg et al. reported the development of a conceptual framework for physiotherapy curriculum design under international collaboration and mentioned that this would stimulate an international discussion on physiotherapy education (Broberg C, et al., 2003). While an international curriculum is too large a topic compared with the topic of this study, it is hoped that the participation of both graduates and their professors in the exchange programs will lead to meaningful discussions that will be beneficial to the development of both universities.

Regarding the language aspect, there appears to be a need for continuous language training and stimulation via ongoing exchange. Lopes et al. reported that international exchange programs among higher education institutions and research centers in Portuguese-speaking countries have the potential to promote early exposure to international contexts and the development of skills for a more active and global professional role (Lopes AA, et al., 2023). The opportunity to interact in the same language, albeit from a different country and culture, seems to be very advantageous in terms of deployment. For Japanese people, language is one of the biggest barriers, and communication in English is essential for promoting international exchange. Smith et al. reported that "proficiency in English emerges as a dominant linguistic and epistemic model, increasingly viewed as a prerequisite to high-level employment" (Smith & Samuell, 2022). In the context of long-term studies and employment, improvement of English communication skills will continue to be an important perspective. The development of online communication has opened up a variety of possibilities to interact with each other in various ways, and it might be beneficial for universities to consider providing postgraduate exchange opportunities, as mentioned above, as communication opportunities.

4.2 Conclusion

Physiotherapists in Japan need to develop an international perspective; thus, it is meaningful for them to gain international experience during their undergraduate years. However, the country is still not oriented toward gaining international perspectives and experiences. Hence, education of international standards and education for improving communication skills are necessary for postgraduate students.

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Informed Consent Statement/Ethics approval: As an ethical consideration, eligible subjects from the alumni association's contact list were contacted simultaneously by e-mail and asked to respond after explaining the purpose of this study. The responses were made without a name on the form, and consent was obtained. The details of the research were published on the university's website, and the research adopted an opt-out approach. Approval was obtained from the Ethics Committee of our university (Takasaki University of Health and Welfare Ethics No. 2122).

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Analyzing Jeanne's Character and its Tragic Elements in *Une vie* from Hippolyte Adolphe Taine's 'Three Elements' Perspective

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Abstract

This paper, following Hippolyte Adolphe Taine's "three elements" theory, delves into the factors contributing to Aunt Jeanne's personality and her tragic fate. Commencing with an examination of Aunt Jeanne's familial and life context, alongside the historical backdrop and the experiences of female characters like Joanna and the Baroness, this study applies Hippolyte Adolphe Taine's "three elements" - race, environment, and era - to facilitate a systematic analysis. This approach enables a deeper exploration of Aunt Jeanne's character and the tragic elements within her story. The study uncovered Aunt Jeanne as a tragic figure embodying trait such as timidity, sentimentality, low self-esteem, and heightened sensitivity.

Keywords: Hippolyte Adolphe Taine's 'Three Elements', *Une vie*, Aunt Jeanne, Character Image, Maupassant

I. Introduction

As a historian and literary theorist, Hippolyte Adolphe Taine, initially proposed the "three elements" theory and authored the book titled "Philosophy of Art." This book, exemplifying the field of art, illustrates how race, environment, and era influence the evolution of art, considering aspects such as its origins, formation, and development. Nevertheless, Hippolyte Adolphe Taine's "three elements" theory extends beyond this and can also be employed for analyzing character traits in literary works. Being a representative work of naturalistic literature, *Une vie* emphasizes character individuality over typicality. Hence, building upon Hippolyte Adolphe Taine's "three elements" theory, it enables a more comprehensive examination of the character composition of the "transparent person," Aunt Jeanne, facilitating a deeper analysis of the factors contributing to her personality and tragic fate.

2. Literature Review

2.1 Hippolyte Adolphe Taine's "Three Elements" Study

As the founder of the philosophy of art, Hippolyte Adolphe Taine put forward the theoretical system of the three elements earlier, and this doctrine has been preliminarily explained in his early thesis "On the Allegory of La

Fontaine", which was comprehensively elaborated and analyzed in "Philosophy of Art". In this book, Hippolyte Adolphe Taine repeatedly mentioned the three basic concepts of "race," "environment," and "age," which provided examples and references for later studies of philosophical theories.

In his paper, Zhou Junping (1991) firstly distilled and summarized the "internal structure" outline of racial elements, pointing out that Hippolyte Adolphe Taine's emphasis on the formation and development of physiological and psychological structures lacks a scientific and objective theoretical basis. Secondly, when discussing the element of environment, he describes in detail the concept and classification of environmental elements proposed by Hippolyte Adolphe Taine, and argues the rationality of Hippolyte Adolphe Taine's "sum of external forces" and "spiritual climate" from three aspects, namely, the connection between the living environment and the character of each ethnic group, and the influence of different policies and civilizations. The rationality of "external forces" and "spiritual climate". Furthermore, as a result of the joint action of internal and external forces, the element of era has more similarities with the element of environment, but Hippolyte Adolphe Taine does not strictly divide the two, and there are many different interpretations of the definition of "era", which is obviously contradictory. Finally, Zhou Junping thinks that Hippolyte Adolphe Taine's "three elements" still has other shortcomings, "In him, the role, status and relationship of various factors are not clear, and sometimes even the cart is put before the horse, and Hippolyte Adolphe Taine has never found the most fundamental economic factors to unify them. As a socio-historical view this is an Achilles heel".

Yang Lixiang (2019) scholar summarizes the limitations of the three-factor theory into three points, arguing that it "ignores the economic situation of the society; ignores the subjective initiative of human beings; and lacks the internal study of the artwork". It points out that the ideology of superstructure and social economy complement each other, and takes the ancient Greek civilization as an example to elaborate the correlation between the developmental changes of the society and the productive forces and production relations. In addition, as the main body of social practice, human beings have rich emotional aspirations, and art works are the embodiment of the subjective emotions of the creators, while too much conceptualization and abstract analysis will lead to the reduction of the value of art itself, so exploring the intrinsic value and significance of art works is also very important.

2.2 A Study of the Portrayal of Women in Maupassant's *Une vie*

Maupassant's writings have always been widely explored and studied in the academic world, and there are 301 articles about such studies. This paper, however, searches the CNKI with one of Maupassant's writings, *Une vie*, as the keyword, and only 14 related articles have been published. This indicates that there is still a lot of space to be explored in the research on *Une vie*. Throughout the 14 studies, most of them focus on two aspects.

The first research theme is the study of its tragedy, "the essential attribute of tragedy is expressed in the tragic conflict, according to Hegel, tragedy is a kind of social conflict, because the irreconcilable contradiction makes the characters collide with the society, the environment, and themselves" (Zhang Lingxia, 2014). According to Xie Chun (2019), the tragedy of *Une vie* is rooted in "the turbulent social background of the nineteenth century and the widespread dissemination of pessimistic philosophical ideas" and the constant collision between Maupassant's own tragic experience and pessimistic ideas, which led Maupassant to transform his pessimism into the tragic life that landed on the protagonist.

The second theme is the study of the female figure, analyzing the heroine and the difficult situation of French women in the nineteenth century from different perspectives. Song Jun (1998) studied the heroine Joanna from the perspective of Sigmund Freud psychoanalysis, and believed that "a healthy personality requires the synergy of superego, ego, and self, and Joanna's overpowering superego power led to her spiritual loneliness and indulgence in fantasies; and the energy of her ego, which rested on irrational motherly love, led to the tragedy of being deserted by her son for the latter part of her life". Wang Ya and Yang Tingfang both started from the philosophical thought of Simone de Beauvoir, and believed that the influence of religion, the compulsion of custom and the suppression of male power were the root causes of the tragedy of women at that time.

Based on most of the articles that have examined the heroine Joanna and, by extension, most of the women, the study of the female figure of Aunt Jeanne in *Une vie* is the focus of our article. However, the studies in this direction still mainly analyze the tragedy briefly in the social context of nineteenth-century France. They believe that Aunt Jeanne, like most women, was influenced by religion, male power and formed a tragic image. It can be said that almost no scholars have analyzed the tragedy of Aunt Jeanne as a woman in detail from the point of view of Hippolyte Adolphe Taine's "three elements".

2.3 Purpose and significance of the study

As a historian and literary theorist, Hippolyte Adolphe Taine initially proposed the doctrine of the "three elements" and authored the book *Philosophy of Art*. In this book, Hippolyte Adolphe Taine takes the field of art as a representative, and argues the influence of race, environment, and era on the development of art from the perspective of origin, formation, and development. However, Hippolyte Adolphe Taine's "three elements" theory does not stop here; it can also be used to explore characterization in literary works.

Une vie is one of the most influential of all the novels written by Maupassant in his life, which demonstrates his superior creative ability in long novels. With a simple and delicate style of writing, the novel tells us about the bitter life of a woman in rural Normandy, which resonates with countless readers.

The purpose of this paper is to analyze the tragedy of the existence of Aunt Jeanne, a "transparent person", as the object of study. From the perspective of Hippolyte Adolphe Taine's "three elements", we will further analyze the reasons for the formation of Aunt Jeanne's character and explore the difficulties and tragedy of the existence of this kind of female characters. As a masterpiece of naturalistic literature, *Une vie*, what it promotes is the individuality of characters rather than typicality. Therefore, on the basis of Hippolyte Adolphe Taine's theory of "three elements", it will help us to have a more comprehensive view of the characterization of Aunt Jeanne, the "transparent person".

The significance of this paper is that it can integrate domestic scholars' research on Maupassant's *Une vie* and Hippolyte Adolphe Taine's "three elements", and analyze the composition and tragedy of female characters in *Une vie* on this basis, so as to make up for the blankness of the research on Aunt Jeanne's female characters in *Une vie*. In addition, it can also further appreciate the tragic fate of such women in the time and provide a new perspective for readers to read *Une vie*. At the same time, it also provides some references for thinking about women's situation in today's time.

3. Natural instincts formed under the influence of racial factors

In The Preface to the History of English Literature, the term 'race' pertains to innate and genetic inclinations (Taine, 1985). It can be inferred from this that Hippolyte Adolphe Taine categorized the concept of race into two components: innate and genetic. Innateness can be defined as an inherent trait that sets individuals apart from others. Heredity is a trait shared among individuals of the same lineage. The concept of race allows us to gain insight into the seemingly unremarkable character of Aunt Jeanne in 'One Life.' She possessed a timid and fearful disposition by nature and a sentimental inclination through her lineage. In the works of Maupassant, Aunt Jeanne's portrayal as the 'invisible person' vividly emerges from the pages.

3.1 Timid nature under innate influence

Aunt Jeanne was inherently unobtrusive and consciously maintained this 'invisible' persona throughout her life. As a child, Aunt Jeanne was neither attractive nor mischievous; instead, she appeared as an emotionless presence, to the point that no one showed her affection through hugs or kisses. Her ability to engage in social interactions was limited. Maupassant (2022) noted, 'She was extremely timid, even in the presence of her sister and brother-in-law.' Behaviorally, Jeanne consistently remained reserved and obedient, preferring the shadows. Her footsteps were always hurried and soundless, and she avoided touching anything to evade notice. It is notable that Aunt Jeanne was present in many situations, yet Maupassant succinctly captured this with the phrase 'hiding, hiding.'

When Joanna suspected Julien of feigning illness due to cheating, Jeanne, who wished to offer care, discreetly positioned herself by the hallway doorway; during Joanna's childbirth, both the cook and Aunt Jeanne silently concealed themselves at the doorway; and at her sister Adelaide's funeral, Jeanne, overwhelmed with grief, concealed herself behind Joanna. It was only when Joanna embraced her that Jeanne found solace in that brief hug. Without Joanna's embrace, Jeanne might have resumed her customary hiding in the shadows, as she did while silently observing her sister's funeral and leaving silently after Paul's baptism. When the topic of Paul's education arose, Aunt Jeanne was so frightened that she sought refuge in a dimly lit area. On the eve of Joanna's wedding, Aunt Jeanne, in her role as an aunt, should have offered verbal congratulations to Joanna's family, but her timidity led her to sequester herself in her room, suppressing her excitement as she meticulously prepared gifts.

Her timidity extended beyond merely being an unobtrusive presence; it bordered on a submissive disposition. Upon her father's demise, Aunt Jeanne did not move in with her sister and brother-in-law. Instead, she opted to reside in a convent, believing that she would burden others and therefore refrained from causing any inconvenience. Soon after, Julien and Joanna noticed Aunt Jeanne waiting for them in the cold weather. However, they chose to walk on the grass, disregarding her presence, until the cold air compelled them to return home. Aunt Jeanne, exhausted, refrained from making any demands and silently awaited the young couple. Nonetheless, the arrival of Paul drew Aunt Jeanne out of her 'corner,' and she became inseparable from him, assisting with recording Paul's growth, packing his clothes, and tending to trees and vegetables together. Nonetheless, despite Aunt Jeanne's efforts to bring joy to Paul, he remained oblivious to her intentions. For instance, while Paul readily expressed affection for his grandfather when seated on his knee, Aunt Jeanne felt deeply hurt by the minimal attention she received from Paul. The first time Paul left for school with the family, he forgot Aunt Jeanne entirely and failed to bid her farewell with a hug. It is evident that this 'transparent' disposition appears to be inherent in Aunt Jeanne, causing her to abstain from participating in social gatherings and inadvertently diverting people's attention away from her.

3.2 Family personality formed under genetic influence

From a genetic perspective, Mrs. Adelaide, Joanna, and Aunt Jeanne share a common trait: they are all sentimental. Adelaide brims with poetic passion. During her youth, she immersed herself in romantic tales, vividly recalling the romantic plots within them. She often daydreamed of assuming the role of the story's heroine, weeping alongside the protagonist. In her final days, she revisited 'Corina' and 'Collections of Meditation' repeatedly. 'Corina' recounts the story of a gifted, romantically inclined poetess who endures multiple love-related trials and eventually succumbs to melancholy. Such a passionate woman seemed to epitomize Mrs. Adelaide's idealized woman. This turbulent love story also evoked memories of her own intense and beautiful love affairs. She cherished love in her fantasies and longed for it in reality, and the 'souvenir' she frequently revisited was a testament to this.

Joanna also inherited her family's sentimental disposition, a trait that developed through both the Baron's personal ideals and her innate nature. As stated in the book, 'Although she differed from her mother in other aspects, she instinctively inherited this penchant for fantasy and sentimental temperament (Maupassant, 2022).' Joanna not only preserved her mother's antiques but also set aside her own as keepsakes. When she embarked on her first sea voyage with her father and Julien, her emotions mirrored the fish they encountered. The sight of fish filled her with a mixture of joy and sorrow, exhibiting 'primitive and childlike joy (Maupassant, 2022).' Yet, as the fish disappeared, a profound sadness overcame her. After arriving at Baiyang Villa, she became completely enamored with nature, experiencing unbridled happiness when in contact with it. Horseback riding outings with Gilbert's family moved her to tears, as the beauty of nature stirred deep emotions within her.

Aunt Jeanne also inherited the family's sentimentality. When Julien briefly remarked, 'Aren't these lovely and petite feet feeling cold at all (Maupassant, 2022)?' Aunt Jeanne, engrossed in her knitting, mistook his words as concern for her and was overcome with a sense of loss and sadness. She had never experienced such gentle care from anyone before. Even if it wasn't intended for her, she believed that no one had ever cared for her. Additionally, during the Baroness's passing, Joanna, Aunt Jeanne's junior, embraced her warmly, causing 'the old lady [to be]

so moved that she almost fainted (Maupassant, 2022).¹ Aunt Jeanne's sentimentality unconsciously magnified the emotions around her, often causing others to project their feelings onto her involuntarily.

In addition to sentimentality, there is an equally subtle family trait of timidity and cowardice. The Baron aspired for Joanna to become a 'happy, kind, upright, gentle, and affectionate woman (Maupassant, 2022)' from a young age. Consequently, Joanna spent much of her youth in a convent, remaining sheltered from the world and unprepared to navigate life's uncertainties. She repeatedly acquiesced to her husband's frugal arrangements at Baiyang Villa, ultimately trading her customary Normandy cake for plain toast each morning. When Rosalie fainted, she panicked and waited for Julien to resolve the situation, standing helplessly by. In the face of Lian's infidelity, she remained apathetic, leading the priest to chastise her for her cowardice and ineptitude. Aunt Jeanne, too, held a marginalized position within the family, evident in the alteration of her name. Originally bearing the beautiful name 'Liss,' it was changed to the inconspicuous 'Aunt Jeanne' since there was no prospect of her remarriage. As the Baron put it, 'Let Jeanne wait for them (Maupassant, 2022),' to which the timid Jeanne obediently complied. Fearful of others' judgments and religious constraints, she fervently persuaded Joanna to have Paul fulfill her religious obligations.

Hence, the inherited sentimentality from the family renders them, especially Aunt Jeanne, highly attuned to their surroundings and emotions, often leading to mixed feelings over trivial matters. Simultaneously, their timidity and cowardice hinder Aunt Jeanne from asserting herself against others' demands. Upon realizing the feelings of those around her, the timid and cowardly Aunt Jeanne amplifies her unmet need for love, seeking affection to no avail. In contrast, Aunt Jeanne's character ultimately leads her to a tragic fate.

4. Characters shaped by environmental factors

In his *Preface to the History of English Literature*, Hippolyte Adolphe Taine (1985) contends, 'Because man is not isolated; he is surrounded by nature and other humans. Chance and secondary inclinations obscure his innate tendencies, and when the material or social environment influences the essence of things, it intervenes or freezes. From this statement, we can infer that Hippolyte Adolphe Taine's 'three elements' of the environment can be broadly categorized as the physical and social environments. The physical environment encompasses factors such as climate and soil, while the social environment encompasses national policies, religious beliefs, and political structures (Dong Yunhan, 2005). Prolonged, unchanging environmental conditions exert a substantial and enduring pressure on human beings, who are inherently social creatures, thereby shaping and interfering with the environment. In Maupassant's *Une vie*, the character of Aunt Jeanne undergoes continuous molding and solidification under the influence of her surroundings.

4.1 The Influence of Political Situations on a 'Servant-Oriented' Personality:

Following the impact of the bourgeois revolution, France's political landscape underwent profound changes. The power of the extravagant, licentious, and selfish feudal aristocracy dwindled significantly but persisted in corrupting society, particularly the lower echelons. *Une vie* vividly portrays the images of these aristocratic classes, highlighting their corrupt and inept characteristics. For example, the Blisserville couple obsessively engaged in bureaucratic formalities, dedicating their days to correspondence with French aristocratic relatives. They meticulously discussed trivial matters as if they were matters of national importance. Within the upper class, even those with limited acquaintance considered weddings, funerals, and the births of renowned families as significant as major societal events.

These outwardly glamorous but inwardly hollow and unsightly groups oppressed not only the lower classes but also reinforced hierarchical divisions within the upper class. The higher a noble's status, the more they fixated on etiquette, concealing their thoughts, emotions, and speech behind a condescending façade (Maupassant, 2022). When Julien and Joanna visited the province's most distinguished aristocrats, Guthrie and his wife, their grand estate and a royal letter showcasing their status preceded their haughty and arrogant demeanor. Due to her lofty status, legitimate title, and considerable wealth, the Marquise considered herself the queen of Norman nobility. Her arrogance and hypocrisy in interactions with others were evident. When Joanna contradicted her internal

standards, she immediately turned cold towards Joanna, labeling her a 'traitor.' The Marquise even went so far as to politely suggest that anyone who believed in God, regardless of their financial situation, was considered 'sacred' in her eyes.

Money and status held paramount importance within the aristocratic class. Aunt Jeanne, devoid of both, became susceptible to bullying and manipulation. In *Une vie*, Aunt Jeanne features prominently in nearly every significant event, consistently lurking timidly in the shadows, unnoticed by all. Although she presented gifts, they were accepted as a matter of course. Her lowly status left her inferior even to her junior relatives. During Joanna's childbirth, while everyone anxiously waited indoors, Aunt Jeanne and the cook, Lydia Fan, remained concealed in the corridor, observing. Her low status resulted in her receiving indifference and orders she was expected to follow. When the baroness grew drowsy and wished to summon Julien and Joanna, the baron insisted they continue enjoying the splendid scenery. Aunt Jeanne was instructed to stay and await their return, with no consideration for her exhaustion or discomfort. Over time, she became accustomed to such treatment, culminating in the development of a 'servant-oriented' personality characterized by unquestioning obedience.

4.2 The Influence of Religious Belief on an 'Avoidance' Personality:

The 19th century marked a significant period of instability for France's political structure, with a series of political events exacerbating the oppression of the lower classes by the aristocracy. In *Une vie*, Father Torbjörg acknowledges, When the church and the manor cooperate, the inhabitants of thatched cottages will obey and fear us (Maupassant, 2022). The collusion between aristocratic and religious forces left those at the bottom subjected to ceaseless oppression and servitude, particularly disadvantaged women in a patriarchal society. Women, devoid of societal influence, faced greater constraints and oppression than men, a fate shared even by aristocratic women.

Religion offered women an outlet for their distress, providing solace through worship, prayer, and admonition. While offering momentary respite, religion imposed more formidable and authoritative shackles. The story of Adam and Eve illustrates how religion bolstered male dominance, with Adam declaring Eve 'bone of his bones and flesh of his flesh.' Religion posits that women are inherently subservient to men and destined to serve as tools for male rule and the perpetuation of male dominance. The Catholic Church of the time viewed 'all women as akin to Pandora, symbolizing God's curse. They were believed to bring evil and disaster to humanity, being vile, incomplete, and flawed individuals. To atone for their 'evil nature,' they must willingly submit to male control and dominance (Yang Tingfang, 2003).'

Aunt Jeanne was a devoutly religious individual. When Joanna ceased attending church due to the priest's cruel behavior, Aunt Jeanne experienced unease and emotional pain, as, in her eyes, forsaking church was inconceivable. When the baron refused to allow Paul to receive religious education, Aunt Jeanne panicked, viewing it as a breach of religious duty. Her fear of religious authority stemmed from her extensive societal pressure. Unlike the baron, who enjoyed greater societal tolerance as a man, Aunt Jeanne was more apprehensive due to the amplified societal pressures she faced. She had never married and held no power or social standing. She had been largely ignored since her childhood, with only the kind God providing solace for her pent-up sadness and dissatisfaction. The more disadvantaged women like her were, the more they trusted and feared religious authority. However, religion, steeped in patriarchal values, did not teach these marginalized women to challenge societal injustices. Instead, it encouraged them to accept their subordinate roles and to learn forgiveness for men's infidelity. Aunt Jeanne epitomized the powerless, lower-class women of her time who, under the combined oppression of religion and society, gradually developed an 'avoidance' personality.

4.3 The Influence of Family Environment on a 'Sensitive' Personality:

The family unit is a fundamental component of society, serving as the primary environment for human survival, development, education, and character formation (Cao Lixin, 2016). Aunt Jeanne's low self-esteem, sensitivity, and timidity evolved through her family's indifference. As a child, she failed to meet her family's standards for beauty and obedience, resulting in a lack of favor. Over time, she transitioned from seeking attention and affection

in the shadows to isolating herself within her bedroom. The prolonged confinement only deepened her self-doubt, intensifying her low self-esteem and introverted personality.

Parental attitudes and methods significantly shape a child's personality. In the context of the time, marriage held immense importance for women. However, Aunt Jeanne, having reached marriageable age, remained overlooked. She faced ridicule and escalating coldness. Unable to bear the psychological pressure, she decided to take her own life by the river. Her parents, upon rescuing her, displayed a lack of concern for her mental well-being and did not investigate the cause of her suicide attempt. Instead, they responded with anger and abuse, labeling her as 'insane.' This authoritarian and negatively extreme approach to education left an indelible mark on Jeanne's character, further exacerbating her pre-existing sensitivity and fragility.

Aunt Jeanne exhibited extreme fragility and submissiveness, yearning for care and affection from others. She would prepare numerous gifts and meticulously sew handkerchiefs for Joanna, seeking acknowledgment and praise. The slightest kindness would move her to the point of fainting, while even a trace of malice could plunge this vulnerable woman into an abyss of despair.

Therefore, growing up in an apathetic and extreme family environment, it is unsurprising that Aunt Jeanne developed a 'sensitive' personality.

5. Tragic personality born under the influence of time

Hippolyte Adolphe Taine's 'three elements' include the 'era' element, which posits that throughout history, mainstream concepts have consistently held sway, dominating the speech and thoughts of the masses. As these concepts gradually recede from historical prominence, new ideas emerge but remain inevitably influenced by prior societal concepts. Every line in *Une vie* underscores the prevalence of patriarchy and the suffering and vulnerability of women ensnared by the entrenched customs of feudal tradition. These enduring beliefs have deeply penetrated people's minds, serving as the breeding ground for the emergence of new misconceptions that corrode individual independent consciousness and exert a profoundly negative impact on society. Aunt Jeanne stands as a tragic figure, profoundly controlled by antiquated feudal notions.

5.1 The Formation of a 'Submissive' Personality under Patriarchy:

In late primitive society, productivity increased, and men's labor began to surpass that of women. With accumulated practical experience from hunting and labor, men developed enhanced social skills and robust physical prowess. They asserted their superior conditions, subsequently displacing women from their central family and societal roles. Women, in contrast, placed family at the forefront of their priorities, bearing the responsibility of maintaining family ties and supporting husbands and children. Over time, the gender gap widened, with men increasingly wielding power within the household and playing pivotal societal roles. Consequently, the belief in male superiority became deeply ingrained in society.

Compared to men of the time, women faced a plethora of constraints. In 19th century France, during the capitalist era, a culture of selfishness, hypocrisy, and extravagance permeated society. Behaviors such as Julien's multiple infidelities or the baron's dalliances with women remained largely uncensured. The priest rationalized these actions by citing human weakness and offered forgiveness, thus turning a blind eye to the mistreatment of women. Meanwhile, society expected women to serve men, rendering out-of-wedlock pregnancies trivial. Women were often reduced to the status of victims in the eyes of society. As a representative of lower-class women, the maid Rosalie fell under the spell of Julien's charisma. When faced with Julien's advances and possession, she opted for compromise and submission. Even after giving birth, Julien not only abandoned the child but also forcibly evicted Rosalie from Poplar Heights, vehemently opposing the 20,000 francs from the baron's family that had been intended for her.

Despite superficial respect for women, men retained absolute power. The baron, for example, projected the desire for Joanna to lead a content life publicly but secretly arranged her marriage and tightly controlled her existence,

confining her to a stifling cage. Julien, a symbol of patriarchy, exploited women at his whim, viewing Joanna as an object of desire during bouts of lust. His intolerance for any challenge to his authority underscored his belief in absolute power within the family. Upon discovering the priest and the baroness conspiring behind his back regarding Rosalie's future, Julien's sense of dominance within the family was shaken, leading to astonishment, unease, anger, and a need to reassert his authority. Similarly, Paul often requested money from Joanna through letters after running away from home. Despite Joanna's precarious financial situation, she did her best to provide for him, but Paul's reckless spending left her no choice but to sell her cherished Baiyang Villa to settle his debts.

The oppressive nature of patriarchy contributed to the gradual decline of women's social status, resulting in Aunt Jeanne's submissive and timid demeanor. When Joannas and Julien strolled through the woods, the baron instructed Jeanne to wait for their return. It was only after the baron and his wife had left the living room together that Jeanne dared to stand and declare, 'Set aside your sewing and enjoy the enchanting night scenery' (Maupassant, 2022). In many pivotal moments in Joanna's life, Jeanne silently stood by her side, receiving only neglect and contempt. Paul's arrival offered Jeanne newfound hope as she yearned for his care and warmth. She meticulously tracked Paul's growth each month, even laboring in the fields as a vegetable gardener to garner his affection. This deep longing drove her to despise a puppy for diverting Paul's attention away from her. Timid and lacking assertiveness by nature, Jeanne never dared to express her inner grievances or dissatisfaction. For Jeanne, religion remained a pious and inviolable refuge, but she only dared to quietly instruct Paul to respect and love God, emphasizing the need for discretion. When the baron discussed Paul's education, Jeanne, out of fear, retreated to a dark corner, avoiding any dissent. Her silence stemmed from both fear of contradicting the baron's remarks and the prospect of losing her only source of sustenance and support, plunging her back into solitude.

The emergence of patriarchal society inflicted pain and suffering upon women. It was within this environment that Aunt Jeanne endured torment, ultimately molding her 'submissive' personality.

5.2 The Formation of an 'Unsociable' Personality under the Influence of Customary Beliefs

Customs represent established behaviors and concepts within society, with violations of these norms subjecting individuals to condemnation and criticism. For instance, premarital pregnancy was considered an improper behavior scorned by society at large. When the extramarital affair between Julien and the maid came to light, the priest admonished Rosalie, cautioning that a merciful God would not easily forgive her, and without timely correction, she would face eternal damnation. Such 'unseemly' behavior, in the public eye, occurred with alarming regularity, even extending to children.

However, the social oppression of women transcended these boundaries. In French patriarchal society, marriage was an obligatory responsibility for women to gain respect and recognition. Women were viewed as existing primarily to care for their families and bear children. This societal framework reduced women to appendages of men, and dependency upon men became their only means of sustaining daily life. For instance, despite Julien's charming demeanor before marriage, he adopted deceitful and self-serving traits afterward, revealing the baron's lack of understanding of him. From the baron's perspective, he aimed to mold Joanna into an exemplary woman, yet in his ignorance, he offered his beloved daughter to Julien as a sacrifice. The message was clear: women were destined for marriage. Once wed, they could rely on their husband's family for property and status, but without marriage, they risked losing their livelihood. This concept also found embodiment in Joanna. Joanna, upon inadvertently discovering her husband's improper relationship with the countess, incurred Father Torbike's wrath for her submissive compliance. Yet, her cowardice and ineptitude prevented her from leaving Julien, fearing the loss of her financial support. Before marriage, her love for nature had fueled her curiosity about the world, but after marriage, she acquiesced to her father and husband's dictates, consistently negating herself and resigning herself to a life of misery and solitude.

For disadvantaged groups of women, such as Aunt Jeanne, remaining unmarried resulted in societal scorn. Jeanne, having never married and lost the possibility of marriage, violated societal norms, subjecting her to ridicule and contempt. Her once-lovely name was tarnished. Growing up without notice, Jeanne continuously lowered her own position, harboring great fear of all things. Despite her timid and submissive nature, she held hopes and happiness

tied to marriage. Witnessing the unmarried couple, Joanna and Julien, stroll together, she genuinely wished them a beautiful love story while lamenting her own unfortunate fate. The stark contrast between her reality and the visual spectacle before her exacerbated her loss and despair, prompting her to withdraw, becoming more cautious in an attempt to fill the void of loneliness in her heart.

These deep-seated, decadent, and obsolete societal customs function like thorny barriers, relentlessly constraining women trapped within this stifling cage. The disadvantaged group of women, as exemplified by Aunt Jeanne, evolved into an 'unsociable' personality under the yoke of this brutal oppression.

6. Conclusion

Based on a close reading of the text and an application of Hippolyte Adolphe Taine's "three elements" theory, Aunt Jeanne's character is analyzed to understand the factors shaping her persona. The origins and development of her character are intrinsically linked to Hippolyte Adolphe Taine's "three elements", which seemingly resemble the properties of sodium. Racially, Aunt Jeanne is portrayed as inherently timid and cowardly, yet deeply sentimental. Environmentally, her character has been influenced by a distorted political system that has hindered her ability to assert herself, misleading religious doctrines that promote escapism, and a detached familial setting that instilled in her an inferiority complex and heightened sensitivity. Historically, the advent of the patriarchal society subjected women to immense pain, and the entrenched, degenerating social norms further exacerbated their suffering. This research on Aunt Jeanne's character and her tragic narrative offers insights into the distressing destiny of women of that era, offering readers a fresh lens to view *Une vie*. It also poses pertinent reflections on the current state of women in society.

Data availability: The authors have included all the relevant data and the source of freely available data in the manuscript.

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A Study of the Problematic State of Teachers' use of Innovation in Teaching and Learning Management at Thailand National Sports University Chon Buri Campus

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Abstract

The objectives of this research were 1) to study and compare the opinions of instructors on the problems of using innovation in teaching and learning at Thailand National Sports University, 2) to determine a policy to promote instructors to further develop learning management. A questionnaire with a rating scale of 5 levels was used as a research instrument. The reliability was at 0.821. The data were collected from a sample group consisting of 47 males and 45 females resulting a total of 92 participants. The statistics used in data analysis were mean, percentage and standard deviation. The results revealed that 1) the instructors applied the innovation in teaching and learning without sticking to traditional teaching methods (96.7 percent) and constantly developing the innovation in teaching and learning (79.4 percent). Continuous innovation (45.8%) had a small part in the application of innovation in teaching and learning management. 2) When comparing opinions classified by gender of instructors, it was found that the overall picture was not statistically significant. When considering each item, it was found that acceptance and agreeing with the use of teaching and learning innovation and planning teaching using various innovations to participate in the lesson were statistically significant differences in opinion. 3) If classified by educational qualification, the overall picture was found to be statistically significantly different. Considering each item, it was found that the development of innovation in teaching and learning regularly and continually, and the participation in the teaching and learning innovation training on a regular basis with continuity had statistically significant differences at the level of .05.

Keywords: Teaching Management, Thailand National Sports University, Problem of Innovation

1. Introduction

In terms of innovation in teaching and learning “in the past, it was often developed for student development; in other words, educational innovations for learning according to the basic learning curriculum.” (Tabuena, 2021). Therefore, according to the Office of the Secretariat of the State of Education it has been explained that the development of teachers who will be able to adopt the form of educational innovation in teaching and learning will help teachers perform their teaching and learning duties with quality. In addition to this, it can create real benefits and correspond to the needs of the students. Teachers must be encouraged to develop themselves continuously especially those who teach higher education courses. This is because it emphasizes the learning

process that considers the learner to be the most important as well as the participation of the learner in decision-making and study plan as well as evaluating their academic performance independently to create quality works and learn from authentic environments. Moreover, the learners should have direct experience in working as a group to practice emotional intelligence and work together happily. Traditional learning processes and teaching methods focus on the teacher and the content is centered. It must be adapted to suit the current context; for example, learning processes and teaching methods must be reconfigured to ensure that learners achieve their goals and meet the needs attention ability and the practical application of the learners. Therefore, the teacher and the student must work together towards the achievement of education and human development. Thus, the teacher must take the role of a supervisor and a facilitator the learning of learners in accordance with the standards of the curriculum while learners have to adjust their roles from being receivers to seekers and learn by thinking with real practice. The meaning of additional teaching innovation also refers to the advancement in computer technology and telecommunication technology in the world today (Tabuena, 2021). Therefore, educators are trying to take advantage of these technologies in the production of a large number of new teaching materials, which results in five aspects of teacher development. It reflects the competencies and characteristics of teachers that should be developed in a total of 5 aspects, namely 1) competency in teaching and learning management 2) ability to create and apply the curriculum 3) ability in information and communication technology. 4) knowledge, understanding and skills in the learning management assessment process, and 5) teachers had a change in working behavior within themselves and among their peers.

Therefore, the results that the researchers aimed to develop in teachers were the most common. The development of teaching and learning management competency of teachers, which consists of having skills in organizing learning activities, managing teaching and learning systematically and efficiently and be able to evaluate the development and learning of learners.

The second most effective goal is the development for teachers to change working behavior within themselves and between fellow teachers. It is the general behavior of teachers. However, it will directly and indirectly affect the quality of learning management and student development. This may cause problems in teaching and learning in Thailand National Sports University Chon Buri campus. These problems included 1) teachers use teaching innovations that are inconsistent with the age of the learners, 2) teachers do not develop further innovations in learning management by sticking to the original method, and 3) teachers do not exchange techniques and learning management methods. This lead the researcher to be interested in confirming such a situation as information and applying the results of the research in conjunction with policy formulation of the university's educational management development for learners to be more effective.

2. Objectives

1. To study the level of problems toward the use of teaching and learning innovations in Thailand National Sports University Chon Buri Campus.
2. To study and compare the opinions of instructors on the problems of using innovation in teaching and learning management of the Thailand National Sports University Chon Buri Campus classified by gender and level.

Quantitative research method (survey) was utilized using a questionnaire as a tool for data collection. The details are as follows.

3. Population and sample group

The population consisted of 150 teaching staff at Thailand National Sports University Chon Buri Campus. The sample group was selected by using accidental sampling method. Thus, the sample group was comprised of 92 respondents. The number of the sample group was determined by (Krejcie & Morgan, 1970)

4. Research Instrument

The instrument used in this research was a questionnaire with a 5-level rating scale created by the researchers based on academic principles and theories on the use of educational innovation. The aim of the questionnaire was to identify the problems of using innovation in teaching and learning among the instructors of Thailand National Sports University Chon Buri Campus. The questionnaire was divided into 3 main components which were 1. Teacher factor 2. Factors promoting innovation in teaching and learning management and 3. The learner factor. Thus, the questionnaire consisted of a total of 30 questions.

5. Validity and Reliability

The researchers validated the research instrument by using 5 experts in the field of education and research measurement. After that the Index of Item objective Congruence (IOC) was calculated. Only the items with the IOC at .06 or higher selected. After that the reliability of instrument was examined. The questionnaire was tried out with 30 instructors from another university with similar characteristics to the sample group. Cornbrash's Alpha Confident was used to determine the reliability at the level of 0.7-1.00 [3]. It was found that the reliability of the instrument used in the study was at 0.821.

6. Research Procedures

1. The questionnaire was prepared for inquiring and interviewing. After that, it was validated by using IOC.
2. The data were collected at Thailand National Sports University, Chon Buri Campus.
3. The sample group was selected by accidental sampling method. They were informed regarding the objectives of the study together with the date, time and location for data collection. Also, the participants were briefed on the procedures. Finally, they were asked to sign a consent form.
4. The data were collected as planned.
5. The collected data were analyzed and interpreted.

7. Data Analysis

The data were analyzed based using a computer program. The statistics consisted of frequency, percentage, mean and standard deviation. Independent T – Test was employed in order to compare the opinions of the instructors of Thailand National Sports University on the problems when using educational innovations in their class. The criteria used for data interpretation was Likert Scale.

8. Findings

According to the general information of the instructors expressing their opinions on the problematic use of teaching and learning innovations of Thailand National Sports University Chon Buri Campus, it was found that was 51.1 percent of the respondents were male while 48.9 percent of the respondents were female. The majority of the respondents (80.4%) acquired graduate degrees. Only 19.6 percent had a bachelor's degree

Table 1: The Opinions of the Instructors on the Problematic Use of Teaching and Learning Innovations of Thailand National Sports University Chon Buri Campus in the Aspect of Instructor

Description	Level of Opinion		
	Mean	SD.	Interpretation
1. The teaching and learning innovation is suitable for the age of the students.	3.87	.73	High
2. The instructors always develop their teaching innovation.	3.93	.69	High
3. The instructors also further develop their teaching innovation continuously.	3.77	.77	High

4. The instructors accept and agree to implement teaching innovation.	4.53	.56	Highest
5. The instructors are not stick to traditional teaching method.	4.34	.70	High
6. The instructors always participate in training related to teaching and learning innovation.	3.50	.67	Moderate
7. The instructors continuously participate in training related to teaching and learning innovation.	3.53	.71	High
8. The instructors exchange knowledge regarding teaching and learning innovation.	3.74	.82	High
9. The instructors include the use of teaching and learning innovation in their lesson plans	4.03	.80	High
10. The instructors are fond of using teaching and learning innovation.	3.93	1.03	High
Total	3.91	.75	High

According to Table 1, it shows the results of the survey of instructor' opinions on the problematic use of teaching and learning innovations of Thailand National Sports University Chon Buri Campus, it was found that in most cases, instructors used innovation in teaching and learning. They did not stick with the traditional teaching method. This was in the highest level of opinion.

It was accounted for 86.9%. Secondly, the instructors were consistently developed and furthered innovation in teaching and learning management with the highest level of opinion (79.4%). It shows that teachers placed importance on continually developing innovations in teaching and learning. Furthermore, they participated in the continuous training on teaching and learning in innovation at the highest level of opinion (46.8%). It shows that less than half of the total number of instructors agreed that continual participation in teaching and learning innovation training is less important in bringing innovation to teaching.

Table 2: The Opinions of the Instructors on the Problematic Use of Teaching and Learning Innovations of Thailand National Sports University Chon Buri Campus in the Aspect of Promoting Educational Innovation

Description	Level of Opinion		
	Mean	SD.	Interpretation
1. The university has set a clear and concrete policy for educational innovation.	2.84	.684	Moderate
2. The university provides training to equip teachers with the knowledge of continuing education innovation management.	2.78	.810	Moderate
3. The university encourages personnel to create innovation for reaching materials annually.	2.75	.872	Moderate
4. The university allocates a budget for creating other materials for teachers.	2.03	.907	Low
5. The university provides various materials for teachers to choose from.	2.01	.734	Low
6. The university organizes a conference on managing innovation in education, introducing new innovations for teachers to continue to use in the classroom.	2.33	.866	Low
7. The university organizes meetings using all teachers to produce innovations and exchange presentations.	2.05	.717	Low
8. The university has installed computer and internet networks as well as equipment to support innovative educational media in the classroom.	2.92	.929	Moderate
9. The university has a plan to develop an educational curriculum related to educational innovation.	2.53	.907	Moderate
10. The university regularly invites lecturers to train and educate staff in order to encourage teachers to always learn and develop innovation.	2.39	.851	Low
Total	1.42	1.50	Low

According to Table 2, it shows the results of the opinion of instructors on the problematic state of using innovation in teaching and learning in terms of promoting innovation in teaching and learning of Thailand National Sports

University, Chon Buri Campus. The results demonstrated that most of the instructors expressed their opinions about the support and promotion of teaching and learning innovation from the university as in moderate to low level. The topics that had a low average were that the university provides various materials for teachers to choose from with the mean of 2.01. Moreover, budget allocation for making media for teachers was in the low level with the mean of 2.05. In addition to this, on the topic stating that the university organizes a conference on managing innovation in education, introducing new innovations for teachers to continue to use in the classroom was in the low level with the mean of 2.05. Further, on the topic stating that the university regularly invites lecturers to train and educate staff in order to encourage teachers to always learn and develop innovation was with the mean of 2.39. It shows that the instructors were interested in getting more support in innovation in teaching and learning at Thailand National Sports University, Chon Buri campus especially in terms of budget and training on new teaching innovations continuously.

An overview of instructors' opinions towards the use of innovations in teaching and learning management in terms of students of Thailand National Sports University, Chon Buri Campus was at a moderate level. Programs related to creating positive attitudes for students to work in teams affecting the effectiveness of educational innovation initiatives in each class were at a good level.

Table 3: The Comparison of the Opinions of the Instructors on the Problematic Use of Teaching and Learning Innovations of Thailand National Sports University Chon Buri Campus Classified by the Genders of the Instructors (n=92)

Description	Male (n=47)		Female (n=45)		t	Sig.
	Mean	S.D.	Mean	S.D.		
Instructors	3.89	.54	3.94	.38	-.56	.58
The Promotion of Teaching Innovation	2.57	.87	2.35	.76	1.27	.98
Learners	2.97	2.35	2.92	.92	.27	.72
Total	3.14	1.25	3.07	.68	.32	.76

* was statistically significant at the level of .05

The results from the comparison of the opinions of the instructors on the problematic use of teaching and learning innovations of Thailand national sports university chon buri campus classified by the genders of the instructors demonstrated that overall, the opinions of the instructors were not different with any statistical significance at the level of 05. It was found that the opinions of instructors on the promotion of teaching and learning innovation in terms of installation of computer networks and Internet networks, including equipment to support innovative educational media in the classroom and the educational curriculum development plan concerning the provision of educational innovation had different opinions at the statistically significant level .05. According to the results of comparing the opinions of instructors toward the use of innovation in learning and teaching management of students of Thailand National Sports University, Chon Buri Campus classified by instructor's educational background, it was found that overall there was a statistically insignificant difference at the .05 level and when considering items, it was found that there was a statistically insignificant difference at the .05 level.

9. Discussion

The study on "The Problematic State of Using Innovation in Teaching and Learning at Thailand National Sports University Chon Buri Campus" aimed to identify the problematic state of using innovation in teaching and learning at Thailand National Sports University Chon Buri Campus. It can be discussed as follows:

According to the objective to identify the problematic state of using innovation in teaching and learning at Thailand National Sports University Chon Buri Campus, there are three factors related to this issue. The three factors are instructors, teaching and learning innovation and learners.

1. Based on the aspect of the instructors, the results indicate that the instructors are insufficiently trained and developed on teaching innovation. Therefore, there should be training to learn how to use innovations such as

training on the production of new teaching materials, production of teaching materials to meet the needs of learners at different levels and the use of sustainable teaching innovations. This in line with Tabuena (2021) who concluded that building teachers' attitudes and skills related to educational innovation management will help support teaching and learning for learners to have knowledge and understanding faster because it improves skills. The instructor lack of information exchange between different learning groups causing problems in the integration of teaching and learning management that is quite difficult. Hence, when assessing outside the university, the assessment results were at a moderate level. Jana and Megan (2020) studied and examined the solutions to develop learner skills by exchanging learning skills in teaching and learning management of teachers. Therefore, every subject group should be encouraged to exchange information, discuss, suggest, integrate knowledge together in order to create a joint modern innovation, which is in line with the research on "Studies of Educational Innovation Management Approaches for Teaching and Research Development of Teachers" (Tabuena, 2021). It can be concluded that the steps to promote the management of educational innovation are most effective and beneficial. There must be a presentation stage to exchange knowledge and help each other between teachers or academic presentation stage and push for a policy to promote the use of innovation in the classroom or classroom innovation promotes. Administrators should pay attention in managing educational innovations and collaborate with teaching staff to understand the reasons and benefits of innovation and research. Research work and educational innovation should be considered to promote cooperation between the teaching staff to work together more (Singgram and Thanaiudompat, 2023).

Based on the aspect of teaching and learning innovation, the results showed that at Thailand National Sports University Chon Buri Campus, there is a shortage of equipment used to produce modern innovations and they are not in practical conditions such as television sets, loudspeakers, and computer connection cables. In addition, Thailand National Sports University Chon Buri Campus do not have an internet system and a wifi system that covers all classrooms. The equipment facilitating the use of innovation in teaching and learning that is out of date which equipment is conducive facilitating the use of innovation in the classroom. It was damaged due to uneven maintenance, probably because of the budget allocated to Thailand National Sports University Chon Buri campus. The equipment is not enough to meet the need for learning management innovation. According to (Tabuena, 2021), Jana and Megan (2020) who conducted a study on the problems and needs of managing an English class for learning disabilities in grades 2-3 and a study on educational innovation management approaches for use in teaching and research development of teachers, it can be concluded that university administrators must provide financial support. The budget for the purchase of media equipment is appropriate and sufficient for supervision. Regularly following up and recommending instructional management for students in learning should be implemented. Moreover, promoting and supporting equipment and technology including modern and appropriate information systems in each classroom is an important way to promote management of the use of innovation for education as well. This is also in line with Jana and Megan (2020) who studied that the development of teaching and learning innovation needs for the development of media and technology. It can be seen that the university needs to develop media and technology in educational institutions to meet the needs of teachers to support the use of educational innovation more efficiently.

It can be concluded that the university should allocate a budget for innovation in teaching and learning and recruit modern computers ready for use in the classroom. This can promote and support the teaching and learning style by using innovation to provide quality teaching and cause maximum efficiency for learners, including organizing training for teachers on developing and using management innovations. Continuous teaching and formulating a curriculum development plan on the use of teaching and learning innovations for teachers including encouraging teachers to have a positive attitude about teaching and learning innovation for students in the class by conducting a meeting to exchange the use of teaching innovation between learning groups and increase motivation about implementing teaching innovation by rewarding should be implemented (Thanaiudompat, 2023).

2. Based on the aspect of students, due to the system of Thailand National Sports University, Chon Buri Campus, students who are athletes are allowed to participate in online class. Many of the respondents suggested that there should be an e-learning platform to support this group of students. This is because the athlete students are usually to practice and train. Unable to attend the class might cause a negative result in their academic performance.

10. Recommendation

Recommendation for Implementing the Research Results

1. All departments of the university administrators are important people in promoting and listening to problems that arise in the process of creating educational innovation in the university. Universities should allocate budgets for innovation in teaching and learning and provide modern computers ready for use in the classroom. This should be done in order to promote and support the teaching and learning style by using innovations to provide quality teaching and learning for maximum efficiency to the students.
2. Encouraging teachers to change their attitudes is important to initiate initiatives to encourage teachers to have attitudes and feelings to understand the importance of using innovations in education and to want to change their own traditional teaching behavior. The practice initiating the use of various innovations should be in line with the needs of the students in the current situation with rapid changes in technology and various social conditions in the classroom. Building a model teaching team based on experience that effectively implements instructional innovations is another important factor in encouraging teachers to develop more teaching innovations. Moreover, the model educator can give educators good advice on creating interesting and effective innovations, making educators have a better attitude and understanding of the importance of using innovations for education than before.
3. Besides promoting the above aspects, the cooperation in creating educational innovations between teachers who teach together may include preparing a curriculum development plan for creating educational innovations, providing various experimental materials for teachers to choose from, organizing meetings about managing new innovations in education by introducing new innovations for teachers to use in the classroom. Furthermore, organizing meetings to produce innovations and share presentations should be conducted together with supervision and follow-up of instructors regularly to inspect and evaluate teaching. This should include the use of innovations in education. Teaching management can be another way that can encourage teachers to develop innovations in education to create a quality classroom between teachers and students effectively.

11. Recommendation for Future Research

In order to conduct more in-depth in the study of problem-solving on the use of educational innovations, the researcher should study the relationship in each sample group that is different in the subject, educational background, learning subject groups, ages and subjects responsible for teaching in different parts.

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Research on the Strategies for Cultivating College Students' Digital Innovation Abilities in the Context of the Digital Intelligence Era

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Abstract

In the era of digital intelligence, developing the workforce's digital innovation capabilities is essential for enhancing corporate digital prowess, fostering business transformation, and ensuring high-quality enterprise growth. College students, as future contributors to the labor market, must therefore be equipped with robust digital innovation skills. Currently, however, these skills among students in domestic institutions are broadly deficient, and both theoretical and practical research in this area remain underdeveloped. This gap threatens the sustainable progress of domestic businesses and necessitates urgent development of effective training strategies. Extensive review of international literature and current practices reveals that college students' digital innovation skill development is hindered by inadequate theoretical underpinnings, ambiguous training objectives, a scarcity of collaborative educational mechanisms, limited resources, and imperfect instructional systems. Addressing these issues requires a redefinition of digital innovation competencies tailored to college students, aligned with labor market demands. This paper advocates for the establishment of joint training ecosystems, the broadening of resource integration channels, the enhancement of dynamic interdisciplinary systems, and the reform of flexible pedagogical and assessment methods. These recommendations aim to fortify the framework for nurturing digital innovation capabilities among college students in China.

Keywords: Digital Intelligence Era, College Students, Digital Innovation Ability, Cultivation Countermeasures

1. Introduction

In the digital era, the swift emergence and expansive integration of digital technologies — notably "big intelligence, material, mobile, and cloud" — have catalyzed the creation of substantial new industries, business models, and practices, thereby invigorating China's economic expansion. The 2021 White Paper on China's Digital Economy Development indicates that in 2020, the digital economy's volume reached 39.2 trillion yuan, constituting 38.6% of China's gross domestic product (GDP) (China Academy of Information and Communications Technology, 2021). Consequently, the digital economy has emerged as China's fourth major economic phase, succeeding the agricultural, industrial, and information service economies (Sun & Ding, 2022).

However, the evolution of the digital economy has elevated data to a principal factor of production, ranking alongside land, labor, capital, and technology. This elevation necessitates comprehensive digital transformation across industries, encompassing the digitization of conventional products, operations, and managerial decisions (Xu et al., 2022). The "2021 China Enterprise Digital Transformation Index Research Report" reveals that a mere 16% of Chinese enterprises have significantly advanced in their digital transformation, with the majority encountering challenges. The fundamental issue is the lack of robust digital innovation capabilities, which entails leveraging digital technology for product development, organizational restructuring, and business model refinement, fundamentally requiring the synthesis of digital resources (Liu et al., 2020; Svahn et al., 2017). Enterprises such as Alibaba and Gree have successfully reconfigured digital resources to innovate their products, processes, organizations, and business models, thereby securing a competitive industry edge (Svahn et al., 2017; Tan et al., 2015; Yang et al., 2022). As a pivotal driver of digital innovation (Xu et al., 2022), fostering digital innovation competence is vital for corporate digital transformation.

In March 2022, the Central Internet Information Office, among other agencies, promulgated the "Key Points for Enhancing the Digital Literacy and Skills of the Entire Population in 2022," prioritizing the improvement of "workers' digital innovation, entrepreneurship, and creativity" (Ministry of Education, 2022). The document also sets forth objectives for developing elite digital professionals and fostering top-tier digital talent. As the epicenter of talent development in China, higher education institutions bear the critical responsibility of nurturing digital innovators aligned with contemporary societal needs. Thus, strategizing the enhancement of digital innovation skills among university students is an imperative and timely endeavor.

2. Literature review

2.1. Definition and dimensions of digital innovation capabilities

The concept of digital innovation capability varies across disciplines, leading to a lack of consensus within the academic community regarding its definition. The debate primarily revolves around two frameworks: the attributes of digital technology and the innovation ecosystem. From the digital technology attribute standpoint, Liu et al. (2020) contend that digital innovation capability is an organization's capacity to employ and allocate digital resources for innovation across various domains, including products, organizational structures, and business models. This capability is delineated into primary capabilities—digital connectivity, data aggregation, and intelligent analysis—and advanced capabilities—digital agility and restructuring innovation (p.198). Yang and Li (2023) through the development of an evaluative index and case studies, argue that for manufacturing enterprises, digital innovation capability involves the strategic allocation of digital resources to meet specific innovation objectives, such as business model enhancement. They identify five distinct capabilities: intelligent connection, digital integration, data analysis, digital operation, and value creation (p.4).

From the innovation ecosystem perspective, Shang and Yang (2020), Yang et al. (2022) posited that digital innovation capability is a symbiotic blend of innovation acumen and digital literacy, which is characterized by the proficient application of digital technology, products, and tools in specialized fields to fulfill the advanced requirements of industrial digitalization. This encompasses a broad and intricate knowledge base, data-driven innovation thinking, and digital-era entrepreneurship. Wu et al. (2022) noted that define digital innovation capability as the utilization of digital resources to devise new products, offer novel services, and generate fresh user value (p.10).

2.2. Factors influencing digital innovation capabilities

Digital innovation capability is shaped by a myriad of factors. Wang et al. (2023) through the construction of a "motivation-behavior/capability-output" model pertaining to data orientation and digital innovation capability reveals that data orientation substantially enhances the development and refinement of corporate digital innovation capabilities (p.20). Liu et al. (2021), Wei and Liu (2020) asserted that policy frameworks and market demands directly influence digital technology's evolution, while technological environment shifts serve as a catalyst for corporate digital innovation capability construction. Following the development of a corporate digital innovation

capability evaluation index, Li et al. (2022) through empirical research, deduce that human resources in digital innovation exert the most significant impact, with financial resources also being critical, whereas the effects of resource integration and economic infrastructure appear marginal (p.1). Other researchers suggested that digital technologies, devices, and other infrastructure form the foundational elements for nurturing corporate digital innovation capabilities (Gregory et al., 2020; Haefner et al., 2021). Wang and Velamuri (2020) posited that innovation awareness and behavior manifest when individuals perceive an environment conducive to innovation, and an open, inclusive culture fosters innovation drive and dynamism, essential for digital innovation capability (p.12).

In summary, while research on digital innovation capability has progressed, two critical gaps persist: First, the domestic theoretical underpinnings of digital innovation capability are not yet comprehensive. Homegrown scholarship primarily fixates on defining and identifying influential factors and, when benchmarked against more established international frameworks, lacks breadth and depth. Second, the scholarly lens remains focused at the organizational level, neglecting more granular inquiries. Contemporary studies on digital innovation capability are predominantly enterprise-centric, with limited recognition of the workforce's pivotal role—the primary agent of corporate innovation. Research on the digital innovation prowess of the workforce, particularly college students as the nascent labor force, remains scarce within academic institutions. This paper aims to advance the theoretical base and research perspectives, contributing novel insights to the field.

3. Interpretation of the current situation and problem analysis of the cultivation of college students' digital innovation ability

3.1. The theoretical foundation is not yet solid, and the orientation of cultivation remains unclear.

A foundational step in fostering digital innovation skills among college students is to establish a robust and scientific theoretical base for their digital innovation capabilities. This requires formulating a comprehensive and precise definition of these capabilities. There has been notable progress in this area by scholars such as Yang et al. (2022), Zhen (2023) and Adner et al. (2019), who have offered definitions from various disciplinary perspectives. Nevertheless, the research predominantly focuses on enterprises, with scant attention to defining digital innovation capabilities from the vantage point of higher education institutions. Moreover, these studies often take a narrow disciplinary approach, such as Zhen (2023)'s work in the realm of new business science, which may limit their applicability and generalizability.

Furthermore, there is a discernible absence of industry-wide standards for digital innovation expertise, resulting in an ambiguous talent cultivation orientation within the job market. This ambiguity hinders higher education institutions from effectively developing students' digital innovation skills. The deficiency in both theoretical structure and industry benchmarks contributes to a limited recognition of the value of digital innovation capabilities among university leaders and students alike, consequently diminishing the drive to enhance these skills in the digital age.

3.2. Lack of diversified collaborative education and insufficient conditions for training resources

Comprehensive training resources are crucial for the enhancement of college students' digital innovation skills. However, Chinese higher education institutions currently face a scarcity of such resources, primarily due to the absence of a multifaceted collaborative educational framework. The development of these skills is an intricate endeavor that necessitates cooperation and collective effort from various university departments and external entities (Wang, 2022). Yet, there are misalignments in value orientation among stakeholders and ambiguities in responsibility definitions, often leading to the misconception that universities alone should shoulder the responsibility for nurturing digital innovation. This misperception results in a lack of engagement from other participants and diminishes the potential collective impact, leaving universities to contend with minimal outcomes from their isolated efforts.

From an industry standpoint, the corporate pursuit of profit maximization impedes the intrinsic motivation for investing in talent development, viewed as non-lucrative. Consequently, there is insufficient collaboration between businesses and educational institutions, limiting the integration of advanced digital technologies and practical training resources in student education. Regarding governmental involvement, there is a notable deficiency in orchestrating a cohesive multidimensional education system, resulting in uncoordinated stakeholder functions and interests and inadequate policy and fiscal incentives to support student innovation capabilities. This gap intensifies the financial burden on universities and undermines the practical implementation of digital innovation training.

Furthermore, higher education institutions themselves grapple with the high demands of personalized and elite training programs, which elevate the barriers to developing digital innovation competencies. The current academic workforce is predominantly single-discipline oriented, leading to a shortfall in 'professional + digital' educators. The dearth of faculty capable of imparting a blend of professional expertise, digital literacy, and innovative aptitude — a tripartite skill set essential for contemporary digital innovation education — severely constrains the advancement of such programs within universities.

3.3. The training mechanism is not yet perfect, and the supply and demand of talent training are decoupled.

Current mechanisms for nurturing digital innovation skills in college students encounter several challenges. Primarily, there is a disconnect between the educational and industrial sectors, leading to outdated curricula. With the rapid evolution of digital technology driving fundamental changes in industry, work, and production, there is a shift in talent requirements—from traditional labor and technical proficiency to a composite skill set encompassing professional expertise, digital literacy, and innovative capacity. Universities, however, have been sluggish in adapting their talent development programs to these shifts, resulting in a curriculum that fails to address the market's growing demand for multidisciplinary and cross-functional competencies, exacerbating the misalignment between talent cultivation and industry needs.

Moreover, the prevalent teaching and assessment methods lack adaptability. Predominant instructional models remain heavily theoretical, with insufficient emphasis on inspiring and exploratory practical learning, hindering the stimulation of students' enthusiasm for digital innovation. Furthermore, the assessment practices in higher education often overlook the diverse nature of course content, typically relying on theoretical evaluations and written examinations, which inadequately gauge students' digital innovation capabilities.

4. Countermeasures for the Cultivation of the Digital Innovation Ability of College Students

4.1. Compacting the theoretical foundation of digital innovation ability and clarifying the cultivation orientation of the employment market

The first task of researching the cultivation of college students' digital innovation ability is to clarify a reasonable and perfect definition of college students' digital innovation ability. On the basis of organizing and analyzing the existing results, this paper chooses the perspective of an innovation ecosystem that is more in line with the characteristics of individual ability and organically combines with the definition of college students' innovation ability to make the following innovations in the definition of college students' digital innovation ability: college students' digital innovation ability is the organic integration of high-level digital literacy and innovation ability, and it is the ability to give full play to innovative thinking based on existing knowledge and experience and to skillfully use modern digital technology in the field of specialization to produce new products with new value for society or industry. It is the ability to give full play to innovative thinking on the basis of existing knowledge and experience and skillfully utilize modern digital technology in the field of specialization to produce new products with new value for society or industry. Students should have a high level of digital literacy and innovation ability, conscious digital innovation awareness, meticulous digital innovation thinking and high modern industrial adaptability. Second, form a national research network of college students' digital innovation ability and clarify the standard of digital innovation talent demand in each industry. The government will play a leading role in organizing and decentralizing the project of exploring the standards of digital innovation talent in industries and will link the research teams of digital innovation ability of college students majoring in each university, the corresponding industries and the corresponding scientific research institutes to form a research team of the

standards of the needs of digital innovation talent in the industries. With the help of the cloud platform for scientific research results exchange, a regular exchange mechanism is established for the teams, and academic exchange meetings are held regularly for results sharing. At the same time, the government allocates funds to support the practical testing of excellent research results by building a pilot application mechanism for excellent theories. Finally, the awareness of colleges and universities and students should be cultivated to improve their digital innovation ability. At the university level, establish an external supervision and evaluation mechanism, build an evaluation index system for the cultivation of college students' digital innovation ability, supervise and evaluate the cultivation practice of college students' digital innovation ability based on it, and implement certain incentives for universities or cooperative enterprises based on the evaluation results; at the student level, set up a scholarship for outstanding talent in digital innovation to reward students with excellent overall evaluation of digital innovation ability cultivation courses or actively participate in digital innovation-related projects and competitions and achieve certain results. innovation-related projects and competitions and achieve certain results to stimulate students' awareness and subjective initiative to improve their digital innovation ability. The details are shown in Figure 1.

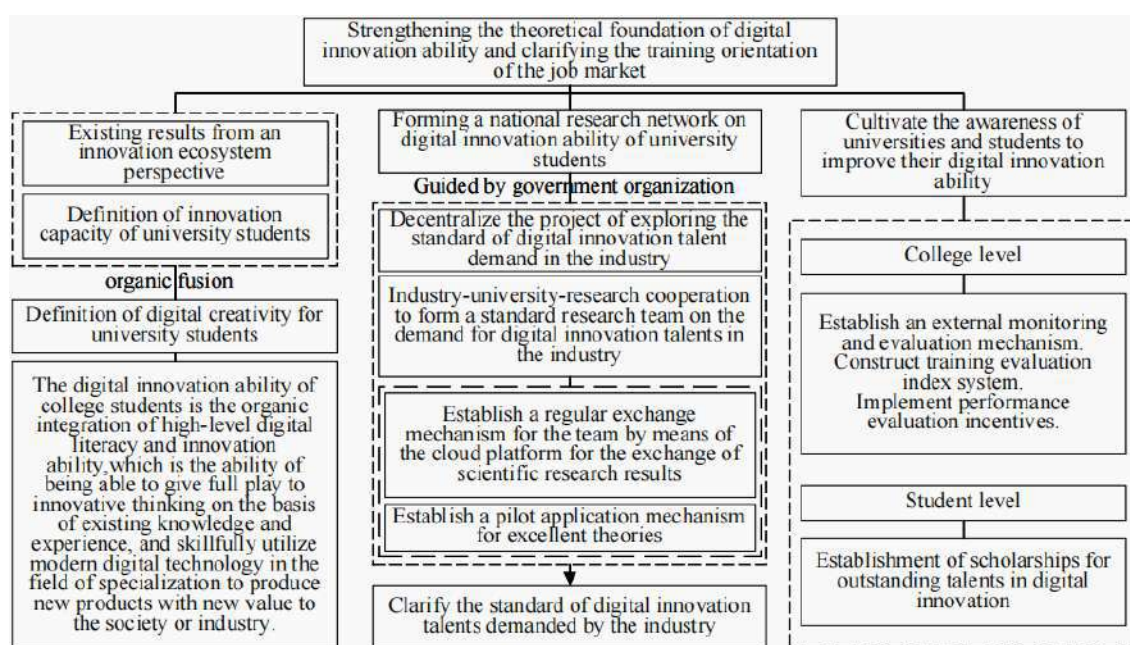


Figure 1: Strengthening the theoretical foundation of digital innovation ability and clarifying the cultivation orientation of the job market

4.2. Build a diversified and integrated cultivation ecosystem and expand multidirectional resource merging channels

The cultivation of college students' digital innovation ability requires the participation of multiple subjects from government, industry, academia, research and society to jointly cultivate high-quality digital innovation talent. In this regard, this paper proposes the following suggestions. First, improve the policy and system of collaborative education to realize the linkage and coupling of multiple subjects. The fundamental reason why the current collaborative education mechanism cannot have a good effect is that the value orientation of the main body of education is not the same and the responsibility of education is not clear. In this regard, the government needs to play a coordinating role, set up a special fund for the cultivation of students' digital innovation ability, encourage the active participation of social organizations through policy incentives and other measures, and build a multidimensional financial support system mainly based on financial allocations and social donations. At the same time, it should establish perfect policies for the collaborative cultivation of digital innovation talent, such as the preferential system of performance appraisal for cultivation subjects, the financial support system for related scientific research projects, and the reward system for excellent pilot projects, to encourage the cultivation subjects to participate actively. Improve the top-level planning of college students' digital innovation ability, clarify the boundaries of the responsibilities of each cultivation subject, guarantee that the cultivation subjects have their own

duties, and promote orderly cultivation. Second, open up the enterprise-school cooperation cultivation system and build a bridge for the mutual transfer of talent and resources. The government provides policy support, scientific research institutions provide intellectual support, promote universities and enterprises to build a cloud platform for the training of digital innovation talent, formulate digital innovation talent training courses mainly by university research teams, supplemented by enterprise research departments and scientific research institutions, share platform resources between enterprises and schools, and set universities and enterprises as theoretical training bases and practical training bases, respectively, to promote the talent of enterprises' advanced training personnel and university students. Enterprises and schools share platform resources and set universities and enterprises as theoretical training bases and practical training bases, respectively, to promote the complementary training of enterprise trainees and university students and help improve the digital innovation ability of the current labor force. Moreover, enterprises can set up "excellent digital innovation talent" through training for cooperating universities to realize the accurate delivery of digital innovation talent. Finally, to create an "endogenous and exogenous" talent mechanism to realize the construction of a three-pronged teaching team. Currently, teachers in colleges and universities mostly specialize in professional theory, lack practical experience in enterprises, have low digital literacy, and have weak innovation ability. First, due to the lack of practical experience, we can adopt the "endogenous and exogenous" talent mechanism, introduce enterprise engineers with a certain degree of digital innovation ability as practice tutors, set up a system of periodic enterprise practice and further training for on-campus teachers, and cultivate the "dual-capability" characteristics of on-campus teachers. Second, we will provide "digital innovation" courses. Second, the "Digital+" teacher training courses are set up to realize the deep integration of teachers' "professional dual competence" and "digital literacy". Third, to form a mechanism to improve the ability of the teacher team, enterprise and university cooperation to implement a typical project embedded learning system, teachers should be guided to actively participate in industrial frontier forums, digital innovation research projects and tournaments to bring teachers into contact with the international frontiers of the discipline and to promote the integration of the teacher's ability and teaching innovation. The details are shown in Figure 2.

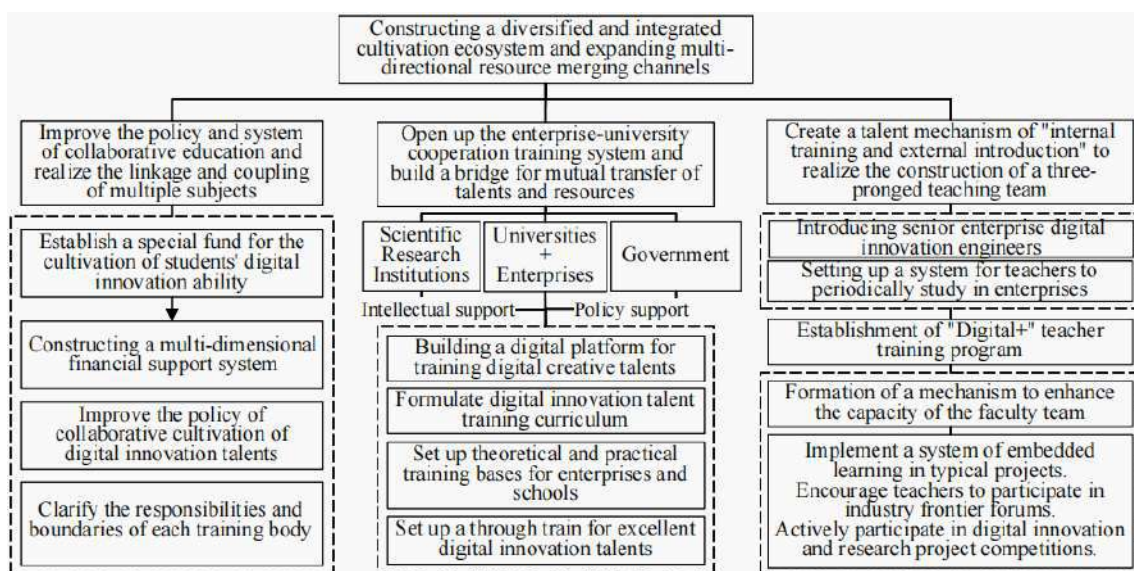


Figure 2: Building a diversified and integrated cultivation ecosystem and expanding multidirectional resource merging channels

4.3. Improve the construction of a dynamic digital creation course system and innovate the flexible teaching and assessment mode.

Based on the existing problems of the cultivation mechanism, this paper proposes the following suggestions in a targeted manner. First, to promote the construction of the three-pointed talent curriculum system, the digital innovation talent training program should be updated. Colleges and universities should actively explore the construction of a "professional + digital + innovation" integrated curriculum system, digital technology, and innovative thinking in traditional professional courses. For example, Hangzhou University of Electronic Science

and Technology School of Management organized the preparation of a "management + digital + innovation" series of teaching materials to explore the cross-fertilization of curriculum construction. For example, the School of Management of Hangzhou University of Electronic Science and Technology has organized the preparation of a series of textbooks on "Management + Digital + Innovation," which discusses the construction of cross-fertilization courses. Through the theory and practice base of enterprises and schools, it realizes the training of "dual-capability" talent. At the same time, digital innovation talent training courses on the digital innovation talent training cloud platform are regarded as online courses, and digital technology is utilized to strengthen backstage supervision and incorporate learning and assessment into the assessment indexes of students. Second, to build a feedback and adjustment mechanism for cultivation effect, the research team of digital innovation talent demand standard of each industry regularly tracks and studies the satisfaction and opinions of on-the-job graduates and interns who are engaged in professional counterparts within a certain number of years on the current professional curriculum system and updates the industry's digital innovation talent demand standard on the basis of it, promotes the iteration of the professional triple-talent curriculum system and digital innovation talent cultivation curriculum, and guarantees that the It also promotes the iteration of the professional triple-talent curriculum system and digital innovation talent cultivation courses, and guarantees the dynamics and advancement of the college students' digital innovation ability cultivation courses. Finally, innovate the teaching and examination mode of "scientific research leading, competition promoting learning," flip the teaching form of theory-based and practice-supplemented teaching, increase the proportion of heuristic and exploratory practical teaching, adopt the cross-fertilization teaching mode of "one class, many teachers, many teachers in the same classroom," and set up a reasonable proportion of teaching content and assignments for the students. A reasonable proportion of the teaching content and assignments are docked with disciplinary competitions and scientific research projects to create a teaching mode that utilizes scientific research to feed the teaching and truly focuses on the students. The assessment is based on the students' performance and final results in the process of disciplinary competitions and scientific research projects, supplemented by theoretical assessment. The details are shown in Figure 3.

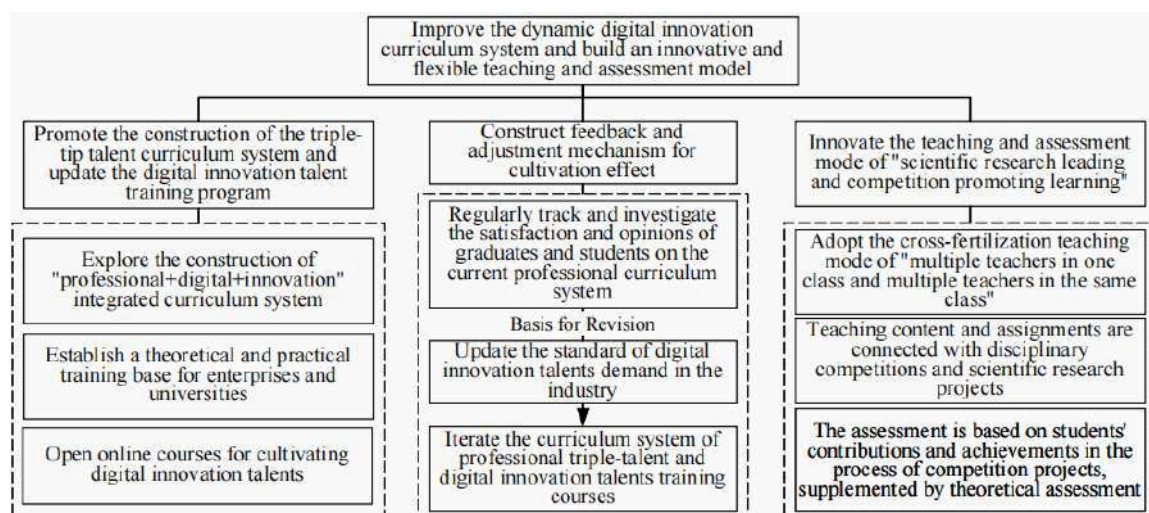


Figure 3: Improve the construction of a dynamic digital creation course system and innovate flexible teaching and assessment modes

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Student Responses to *Merdeka Belajar Kampus Merdeka* Regarding Learning Loss When Experiences Outside Campus

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Abstract

The *Merdeka Belajar Kampus Merdeka* (MBKM) has entered its fourth year in 2023. During its implementation, there was dynamic resistance from departments or students regarding changes in learning patterns and mobility policies for a maximum of 3 semesters. This research used a survey method on 357 active students of the MBKM program, Universitas Negeri Malang Indonesia. The survey covers two main parameters: program suitability with graduate learning outcomes and partner alignment with program objectives. The survey results show that MBKM has provided positive changes at the institutional level. Empirical studies and survey results show that student-centered learning through various learning activities provides a more meaningful understanding of content. Referring to increasingly complex programs, it is recommended to form a special team to accompany the MBKM in managing and developing the program so that the existing unit can focus on academic administration services.

Keywords: MBKM, Curriculum, Learning, Responses

1. Introduction

Industrial Revolution 4.0 integrates cyberspace with industrial production. Various types of artificial intelligence-based equipment displace human labor. Machines and robots replace technical human tasks (Makridakis, 2017). Multiple efforts to algorithmize human technical work continue until machines and robots can carry out complex tasks, exchange information, and give and receive commands automatically without involving humans (Talaviya et al., 2020). In extreme terms, the work of a thousand people in the Industry 1.0 era will be replaced by one modern person in the Industry 4.0 era.

The Ministry of Education and Culture of the Republic of Indonesia issued a *Merdeka Belajar Kampus Merdeka* (MBKM) policy based on these changes. This policy applies to all higher education institutions. *Merdeka Belajar* is a program that provides student learning flexibility to produce graduates who can compete by taking several activities equivalent to course credits or courses outside the study program, even outside the university.

This learning orientation will continue to move from work-based learning to life-based learning. In this way, efforts to provide a skilled and proficient workforce in various fields can be realized immediately (Halili, 2019; Hani & Richardus, 2021; Ismail et al., 2020; Sugiarto, 2019; Susanti et al., 2019; Yuliati & Saputra, 2019). Higher education institutions are committed to developing curricula deemed to meet students' needs in facing the challenges of dynamic developments. The curriculum is expected to be able to fill students with various abilities and skills that truly match their interests.

Designs that bridge the diversity of student characters will provide opportunities to develop knowledge more flexibly according to needs (Archer, 2007; Askham, 2008). This flexibility needs to be supported by capable elements of educational implementation (Carnell, 2007), for example, support from a system that gives them the freedom to take programs according to their interests (Hockings et al., 2007). The potential for diverse characters requires equal recognition in learning outcomes/graduate profiles (Iannelli, 2007; Huett et al., 2008; Lowe & Cook, 2003).

From a student's perspective, this research reflects how to implement MBKM in the fourth year in 2023. This research explores the experiences of students involved in the MBKM. The research results will provide an overview of the learning experience during the program and improve the program's quality.

2. Method

This research uses a cross-sectional survey design to evaluate the implementation of MBKM policies at Universitas Negeri Malang. The survey was aimed at active program students in the even semester 2023/2024 (January-July 2023). The number of students involved in the program was 3,270 from 8 faculties in the form of Student Exchange, Internship, Independent Study, Teaching Assistance, and Village Buildings (community services) activities, which were carried out for 20 weeks. Determining the sample size used the Slovin formula with an error rate of 5% with 357 students. The students were asked regarding the program's suitability with graduate learning outcomes and the alignment of partners with program objectives. These two parameters were measured using a digital questionnaire instrument, which was filled out at the end of the activity as a form of program evaluation. The collected data is analyzed using a single tabulation to see data patterns and is reported to the education services department to make program stabilization/development policies.

Post-program evaluation aims to see how the objectives were achieved. Periodic evaluations are mandatory to ensure the resources effectively achieve program objectives (Bakhshi & Garcia, 2016). In addition to routine evaluations, surveys are sometimes conducted mid-program to assess participant or partner satisfaction (Earl & Timperley, 2015). Therefore, applying this survey method aims to see how effective the program is in increasing the profile of Universitas Negeri Malang graduates through collaboration with partners.

3. Results

3.1 Demographic of Students' Mobility Universitas Negeri Malang

Universitas Negeri Malang allows students to develop their capabilities through mobility activities (MBKM) for a maximum of 3 semesters as one of the higher education institutions producing teaching staff consists of 73 departments at the undergraduate level with details of 36 coming from the education department and 37 from non-education departments. The meaning of the education department is the main profile of graduates as educators or researchers in the field of education. Conversely, the main profile for non-education departments is as a practitioner or researcher in their field. With the existing department composition, the distribution of programs to be selected will be related to teaching practice or internships in the industrial world (Table 1).

Table 1: Demographic of students' mobility Universitas Negeri Malang

No.	Programs	Total of students	Proportion
1	Student Exchange	98	3%
2	Intership	1,046	32%

3	Independent Study	458	14%
4	Teaching Assistantship	1,570	48%
5	Building a Village (community services)	98	3%
Total		3,270	100%

Most students who take the MBKM program are in their third year of study, considering the study period. Students in their third year in their 5th or 6th semester choose the MBKM program recommended by the department, considering suitability to the graduate profile. Referring to the survey results, it was found that the program objectives had been well received by students and were seen as an opportunity to develop themselves (Table 2).

Table 2: Students' motives for joining the MBKM program

No.	Students' motives	Proportion
1	Institutional policy	24%
2	Adding experience/build a portfolio	40%
3	Increase knowledge/application of knowledge	13%
4	Experience studying in other places/modes	8%
5	Contribute to society	2%
6	Etc	1%

Accumulated from Table 2 that 63% of students participating in the program want to gain experience or contribute through the program. This data shows that those involved in the MBKM program at Universitas Negeri Malang aim to develop themselves while they are students.

3.2 Implementation of the MBKM Program at Universitas Negeri Malang

The MBKM program at Universitas Negeri Malang is managed by a mobility unit formed in 2022 to record and report student activities to the National Student Data Registry. The Mobility Unit will communicate to students and department leaders regarding the program through pre-program outreach. This stage aims to ensure that as many as 25% of students who are the institution's target can be achieved well and that no students have problems in the educational administration process. Survey data shows that pre-program information, which includes (1) program information, (2) registration techniques, and (3) student obligations during the program, has been delivered and well received by students (Table 3).

Table 3: Effectiveness of program outreach for students and departments at Universitas Negeri Malang

Program Socialization Item	Level of Information Clarity	Total
Information Program	Very Clear	35%
1. Eligibility of student applicants	Clear	34%
2. Program Targets	Enough	21%
3. Program Timeline	Not enough	8%
	Unclear	2%
Registration Technical Information	Very Clear	27%
1. Document Requirements	Clear	41%
2. Registration Platform	Enough	22%
	Not Enough	8%
	Unclear	2%
Student Obligations	Very Clear	20%
1. Obligations to partners	Clear	37%
2. Obligations to departments	Enough	26%
3. Post-program obligations	Not Enough	12%
	Unclear	5%

The data presented in Table 3 shows that the program outreach to the stakeholders is considered adequate. This data projects that the implementation of the MBKM program in 2023 has been well internalized and supports the institutional mission. The program internalization occurs through several channels, such as introducing academic programs to new students, social media publications, integrated platforms, and student mobility web services.

The academic environment at Universitas Negeri Malang also supports program implementation. Students in their third year planning a mobility program can consult with the department head, academic assistant lecturer, and colleagues (Table 4). However, for the record, the Mobility Unit at the university level still needs to be an option for students who want to consult the MBKM program. This shows that the designated unit only plays a role at the university level and has yet to serve students' needs directly at the department level.

Table 4: Student consultation channels during the pre-MBKM program

No.	Consultation channels	Proportion
1	Academic assistant lecturer	17%
2	Head of Department	30%
3	Colleagues (upperclassmen/program alumni)	53%

3.3 Profile of MBKM Program Partners, Universitas Negeri Malang

Universitas Negeri Malang's MBKM program partners are grouped into two clusters: educational institutions and business/industry or government institutions. Both clusters cater to different types of programs. Partners from educational institutions play a role in providing experience in the world of work for departments with targets for achieving graduate profiles as educators. Meanwhile, partners from the world of business/industry or government agencies play a role in providing experience in the world of work for departments that aim to achieve a graduate profile as a practitioner.

The flow of partners to join the MBKM program at Universitas Negeri Malang is managed by the Education and Learning Development Technical Implementation Unit (UPT LPPP). LPPP is tasked with reviewing partners from educational institutions for the Teaching Assistance program and the business/industry world or government institutions for the Internship/Independent Study program (Figure 1).

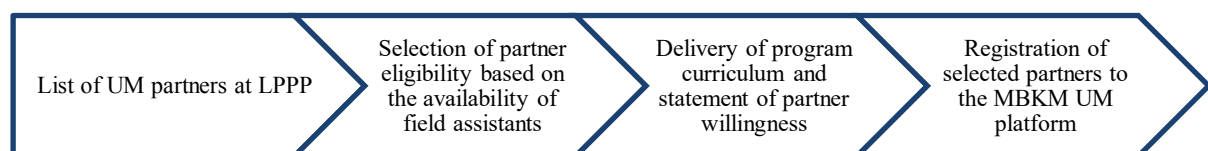


Figure 1: Flow of study of UM MBKM program partners

On hundred eleven partners have joined the MBKM program until 2023, from educational institutions, the business/industry world, or government institutions. Before partners join the program, partner leaders will receive direction regarding the program curriculum and the obligation to provide credible field assistants by the specified criteria. This prerequisite ensures horizontal alignment between the curriculum and the program (Table 5).

Table 5: Evaluation of partner alignment with the MBKM program

Partner Alignment	Level of Alignment	Total
Partner Understanding of the Program	Very Suitable	36%
1. The Purpose of Program	Suitable	38%
2. Curriculum Program	Enough	21%
	Less	3%
	Not Suitable	2%
Partner Suitability for the Program	Very Suitable	30%
1. Availability of Field Assistants	Suitable	40%
2. Alignment of Internship Material	Enough	24%

with the Curriculum	Less	4%
	Not Suitable	2%

3.4 Program Obstacles

In the fourth year of implementing MBKM at Universitas Negeri Malang, obstacles related to program substance have been reduced—however, the more complex the program, the more substantial technical support it requires. Obstacles to the MBKM program found in the field included alignment of new partners with learning outcomes, platform updates according to program complexity, and low involvement in the role of field assistant lecturers (Table 6).

Table 6: Program obstacles

No.	Obstacles	Proportion
1	New partners who are less relevant to learning achievement	15%
2	Knowledge that is not appropriate to lectures	19%
3	The platform needs service improvements	18%
4	Supervision is only a visit without follow-up	28%
5	There are no obstacles	20%

Management units and policy-making leaders must address obstacles in program implementation immediately to reduce the risk of program failure. For partners who still need to be aligned with the curriculum or learning outcomes, there needs to be a tiered program introduction stage starting from the partner leader to the appointed field assistant. The introduction of this tiered program aims to ensure equal understanding between partners and universities.

The demand for platform updates to respond to program complexity is an obligation for institutions to carry out development. The more demands of partners involved in the program, the more complex the platform ecosystem will be. The condition of the existing platform in 2023 will be to serve student data input from recording to post-program. However, it should be noted that external parties are still processing it manually, lengthening the workflow and increasing the risk of errors.

Regarding the involvement of the role of field assistant lecturers, it is indicated that it still needs to be higher due to the long duration of the program and the limited frequency of visits. As a result, lecturers, as the party responsible for ensuring the program's quality remains in line with higher education learning, can only capture some program implementations in detail. In response to this condition, there needs to be a review of the online monitoring frequency mechanism.

4. Discussion

The essence of MBKM is student-centered learning, where they are given the freedom and flexibility to choose their learning methods. They are the center of education. Whether they choose cognitive or affective learning experiences should guide the simulation in deciding what to do and how it will impact them. This concept contrasts with traditional learning, which is centered on lecturers. The lecturer's role is more dominating and determining in selecting and organizing content, interpreting and applying concepts, and evaluating student learning, while students are focused on recording/absorbing information. Weimer (2002) emphasized that in a student-centered classroom, the roles of lecturers and students change. The lecturer becomes a learning facilitator who views students not as empty vessels to be filled with knowledge but as seekers to be guided along the journey of their intellectual development. In-class activities involving students provide opportunities for educational institutions to help guide them in clarifying their understanding and assimilating course material meaningfully (Weimer, 2002).

Since 2019, MBKM has recommended learning to implement a student-centered approach. Baxter and Gray (2001) argue that learning that uses methods where students are actively involved in the learning process provides

a more meaningful knowledge impact. They are no longer expected to be passive absorbers of information; instead, lecturers act as facilitators and do not need to be experts in specific content (Tärnvik, 2007). This learning is expected from implementing MBKM, where students can choose which learning experience they want according to their interests, whether through lectures at other universities or other forms of learning at partner universities. MBKM is an opportunity for universities to improve the quality of their learning. Through this program, universities will review the suitability of their curriculum for those who use their graduates (Dalgarno et al., 2014). Through a form of learning that is directly related to the world of work, students have two advantages. Firstly, students will get a more significant proportion of knowledge implementation compared to theoretical understanding. Furthermore, secondly, they will get a portfolio in the world of work.

Implementation of the program requires a support system that is capable of mobility for students who are trying to find this learning experience. Empirical studies show that there have been many efforts to evaluate student-centered learning systems in higher education with various forms of learning (Kilic, 2010; Isikoglu et al., 2009; Jeffries et al., 2002). Other instruments have been developed to assess student perceptions and satisfaction (Shu-Hui & Smith, 2008; Brown, 2008; Grove & Bretz, 2007). The findings in the empirical studies that have been carried out provide lessons learned that student-centered learning through MBKM provides them with a better learning experience.

5. Conclusion

The implementation of MBKM at Universitas Negeri Malang in the fourth year (2023) has illustrated that the program has effectively provided positive change. The department responded by reviewing the alignment of its curriculum with graduate users. The university responded by establishing a particular unit to manage MBKM starting in 2022 for better coordination. However, the formed unit still needs to provide direct services to students regarding program plans. This finding is due to the unit's specific tasks being limited to the program administration process. For the record, several good practices demonstrated from program implementation include student perceptions of the program, clarity of program flow, a supportive academic ecosystem, and partner support. Forming a special team to accompany the MBKM unit in managing and developing the MBKM program is recommended.

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Informed Consent Statement/Ethics approval: This paper is a part of research involving several bachelor student's participations. In Indonesia, their age is considered to be adulthood, therefore neither their parents nor a legal guardian's permission is required. The research questionnaire was reviewed by ethical research committee.

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Nurturing Excellence: An Evaluation of the Higher Education Quality Assessment Model from the Perspective of Undergraduate Students in Somalia's Benadir Region

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Abstract

This study validated the Higher Education Quality Assessment Model (HEQAM) within the undergraduate educational milieu of universities in the Benadir region of Somalia. Originating in 2013, the HEQAM model, introduced by Noaman et al., represents a notable progression in evaluating the quality of higher education. Despite its decade-long existence, the model's validity and reliability have remained largely unexplored, with a solitary prior validation study conducted at a university in Saudi Arabia in 2017. This research addressed this lacuna by critically scrutinising the applicability of Noaman et al.'s HEQAM tool in assessing the perceived quality of higher education among students in the Benadir region. Employing a quantitative approach and a cross-sectional survey research design, data were garnered from 1,803 undergraduate students through electronic questionnaires across diverse universities in the Benadir region. The study's outcomes affirm the robustness and consistency of all eight dimensions within the HEQAM model as efficacious measures for evaluating higher education quality. The findings underscore substantial positive correlations among the dimensions, underscoring their significant interconnectedness. Thus, this investigation asserts that Noaman et al.'s HEQAM instrument is a reliable and cohesive tool adaptable to diverse educational settings. The discernible correlations and alignment with traditional conceptions of educational quality substantiate the construct validity of the HEQAM model. In light of these findings, the validated HEQAM instrument is recommended for standardised adoption in assessing and enhancing educational quality across various institutional and programmatic contexts. Comprehensive data and nuanced recommendations are available in the complete report.

Keywords: Higher Education Quality, Quality Assessment, Validation, Undergraduate Students, Instrument

1. Introduction

1.1. The Research Problem

This study addressed the critical issue of ensuring the validity and reliability of research instruments, explicitly focusing on Noaman et al.'s Higher Education Quality Assessment Model (HEQAM) introduced in 2013 (Noaman et al., 2013). The problem was the limited exploration of the model's validity and reliability, with only one prior validation study conducted at King Abdulaziz University in Saudi Arabia in 2017. This singular validation raised concerns about the generalizability of the HEQAM model across diverse higher education institutions, especially regarding its applicability in the Benadir region of Somalia. The problem was of paramount importance as the HEQAM model holds the potential to revolutionise higher education quality assessment. However, its unexplored validity and reliability compromise its effectiveness and reliability in assessing the perceived quality of higher education in different contexts.

The study builds upon Noaman et al.'s prior work by extending the HEQAM model's validation to a new context, the Benadir region in Somalia. The primary objective is to scrutinise the suitability of the HEQAM tool in evaluating the perceived quality of higher education in this specific region, addressing the lack of validation studies beyond the initial one in Saudi Arabia. The study also aims to contribute to the existing literature on higher education quality assessment models by validating the reliability and validity of each dimension outlined in the HEQAM model, assessing the independence of these dimensions, and evaluating the dimensions' suitability in the context of the Benadir region's universities.

The theoretical implications of the study are significant, as it contributes to the discourse on higher education quality assessment and provides insights into the effectiveness and applicability of the HEQAM model in diverse contexts. The practical implications are equally noteworthy, emphasising the importance of conducting comprehensive validation studies before employing assessment tools like the HEQAM model in educational settings. The study's outcomes will enhance our understanding of the instrument's effectiveness, ensuring its application in diverse contexts is sound and reliable. This, in turn, will contribute to more robust and meaningful assessments of the quality of higher education, particularly in underserved regions of developing countries with limited instrument validation studies.

1.2. Importance of the Problem

The significance of this issue is heightened in the context of Noaman et al.'s HEQAM model, designed in 2013 to assess the quality of higher education. Despite its potential to revolutionise quality assessment, the model's singular validation at King Abdulaziz University in Saudi Arabia by Noaman et al. (2013) raises crucial questions about its generalizability to other institutions. The uncertainty extends to whether students and staff in diverse settings perceive higher education quality in alignment with the model's eight constructs. The lack of exploration into the independence or redundancy of these constructs underscores knowledge gaps. Additionally, the absence of studies validating the items within each construct raises concerns about the model's foundational reliability. The ongoing uncertainty poses a significant risk, as researchers may unwittingly use the HEQAM model without confirming its effectiveness, which is especially problematic in developing countries with limited validation studies. The intended research aims to enhance our understanding of the HEQAM model's effectiveness and ensure its reliable application in diverse contexts, a critical step toward fostering more robust assessments of higher education quality, particularly in underserved regions of developing countries.

1.3. Relevant Scholarship

Numerous scholarly inquiries have focused on comprehending the complexities of assessing higher education quality, with researchers developing comprehensive models and frameworks. Previous studies by Noaman et al. (2017), Gilano and Hailegebreal (2021), and Tsinidou et al. (2010) emphasised critical dimensions such as curriculum, faculty, and infrastructure in evaluating educational quality. Other investigations by Akareem and Hossain (2016), Ashraf et al. (2016), and Arrieta and Avolio (2020) delved into factors influencing students' perceptions of quality, highlighting the diverse viewpoints in the assessment process. Moreover, the adaptation of service quality measurement constructs from other industries, like the SERVQUAL and UNIQUAL models, have been applied in higher education evaluation, emphasising the need for rigorous assessment tools. However, the

validation and independence of these constructs, particularly within the HEQAM model, remain crucial aspects unexplored in existing literature, highlighting the significance of the present study.

The review of diverse geographical studies from regions including Indonesia, Turkey, and the United States revealed similarities in assessing higher education quality and the necessity of examining construct independence. Notably, Gbenga's (2016) exploration of wellness perception and MacKenzie et al.'s (2011) analysis of constructs in MIS and behavioural research underscored the importance of validating research tools for reliability. Additionally, studies by Pat-El et al. (2011), Ozdemir et al. (2020), and Khalaf and Khourshed (2017) offered insights into various aspects of measurement tools in higher education yet did not specifically address the validation of the 53-item instrument developed by Noaman et al. The significance of validating scales was further exemplified by Law's (2013) investigation of SERVPERF and HEDPERF scales and Teeroovengadam et al.'s (2019) exploration of the higher education service quality (HESQUAL) scale, underlining their importance in measuring student perceptions.

While these studies have significantly contributed to understanding higher education quality assessment, the present study, grounded in the HEQAM model, aims to provide a comprehensive framework for evaluating the quality of higher education in the specific context of Somalia, contributing to the ongoing discourse on this crucial subject. By focusing on the validation and independence of constructs within the HEQAM model, this research enriches the understanding of higher education quality assessment, offering valuable insights for academia, policymakers, and stakeholders striving to enhance educational standards.

1.4 Research Questions

The primary objective of this study was to ascertain the validity of Noaman et al.'s (2013) Higher Education Quality Assessment Model (HEQAM) for evaluating higher education quality from the perspectives of students in universities in the Benadir region of Somalia. The research was explicitly structured to address three research questions to achieve this overarching goal. These questions were:

1. To what extent do each of the eight dimensions of the HEQAM model demonstrate validity and reliability in assessing the quality of higher education?
2. To what degree do the eight dimensions of the HEQAM model exhibit independence from one another?
3. To what extent is the appropriateness of the eight dimensions of the HEQAM model evident in measuring the quality of higher education?

In pursuit of answers to these research questions, a cross-sectional survey design was implemented, with data collected from a sample of 1805 undergraduate students representing five universities in the Benadir region of Somalia. The researchers deemed this research design appropriate for obtaining comprehensive insights into the validity, reliability, interdependence, and overall suitability of Noaman et al.'s HEQAM model for assessing higher education quality within the specific context of the Benadir region.

2. Method

2.1. Research Design

This study adopted a descriptive survey research design, as Creswell (2018) advocated, to quantitatively capture trends, attitudes, and opinions within a population by examining a representative subset. The survey design proved apt for this research by quantitatively depicting students' perspectives on evaluating higher education quality, thereby conserving time and resources. The chosen cross-sectional sample survey design allowed data collection from a segment of the study population at a single point, avoiding the need for multiple field visits associated with a longitudinal design. This pragmatic decision streamlined the research process and economised resources. Moreover, the survey design facilitated the generalisation of findings from the sample population to the broader target population, encompassing all undergraduate students in higher education institutions within the Benadir region of Somalia, ensuring a comprehensive understanding of the subject.

2.2. Study Population and Sample Size

The study focused on all undergraduate students enrolled in universities within the Benadir region of Somalia, considering their substantial representation in higher education institutions and the standard scrutiny of the quality of education they receive. To manage the extensive number of universities in the region, the accessible population was narrowed down to undergraduate students from five selected universities, including one publicly funded institution and four private entities, chosen to ensure representation from both for-profit and not-for-profit higher education institutions. According to data from the National Commission for Higher Education, these five universities collectively enrolled 27,023 undergraduates. Following the recommendation by Gay and Airasian (2002) that a survey study of this kind should aim for a coverage of 10 per cent and above of the target population, the researcher targeted a sample of 2,700 respondents. Ultimately, the study concluded with the participation of 1,803 students, resulting in a commendable response rate of 66.8%, aligning with the high response rate expectations for surveys of this nature as recommended by scholars. The distribution of study participants across the institutions is detailed in Table 1.

Table 1: Distribution of the Respondents by their Institutions

Type of Institution	Institution	No. of Students	Target size	Sample	Actual Size	Sample size
Private for Profit	UNISO	7293	729		209	
	JUST	4525	453		326	
Private Non-Profit	SU	5473	547		460	
	MU	5850	585		449	
Public university	SNU	3882	388		359	
Total		27023	2700		1803	

2.3. Sampling Procedures

In this study, a multi-stage sampling approach was meticulously employed. The first stage involved the stratified random sampling of universities, categorised into public and private, with further stratification within the private category distinguishing between for-profit and non-profit institutions. The selection of universities within each category utilised a lottery-based random sampling method, ensuring an unbiased representation. Notably, the public university, Somali National University, was automatically included due to its status as the sole public university in the country. In the second stage, respondents were selected based on academic year, focusing on students in their second, third, and fourth years to ensure a comprehensive assessment of education quality. First-year students were excluded, assuming they were in the early stages of their academic journey. Lastly, the survey instrument was distributed through students' WhatsApp groups within these institutions, restricting participation to group members to reach the desired sample size effectively. This approach was chosen because these WhatsApp groups were sufficiently large and representative of the target population.

2.4. Data Collection Method and Instrument

This research's chosen data collection method was the survey approach, explicitly utilising a questionnaire-based survey methodology. As Kumar (2018) articulated, surveys systematically gather data by posing inquiries to individuals with relevant information, a process facilitated through questionnaires or interviews. The questionnaire-based survey methodology was chosen for its effectiveness in obtaining student responses, providing valuable insights to validate Noaman et al.'s (2013) instrument to assess the quality of higher education. This approach also comprehensively understood how students evaluated public and private higher education institutions in the Benadir region. The survey method was deemed efficient, enabling the swift accumulation of data from a substantial pool of participants within a brief timeframe and at a manageable cost.

The data collection process involved an adopted self-administered questionnaire, recognised as a research instrument comprising inquiries designed to elicit information from respondents on a specific topic (Kumar, 2018). Such questionnaires efficiently gauge many subjects' behaviours, attitudes, preferences, opinions, and intentions, offering cost-effective and expeditious data collection. The questionnaire featured closed and open-ended

questions and was disseminated electronically via Google Forms. This choice aimed to assess and establish the reliability and validity of the Noaman et al. (2013) instrument, transforming it into an online format for ease of application. The distribution through specific program coordinators and subsequent sharing within student WhatsApp groups expedited the data collection, allowing respondents to express their perspectives without undue influence. The choice of this instrument format was grounded in its efficiency, accessibility, and capacity to capture diverse perspectives, considering the literacy of the undergraduate student respondents.

2.5. Validity and Reliability of Instrument

Validity, as outlined by Taherdoost (2016), refers to the accuracy of an instrument in measuring the intended constructs, encompassing facets such as the face, content, construct, and criterion validity. This study meticulously assessed all dimensions of validity within this framework. As defined by Taherdoost (2016), reliability pertains to the consistency and stability of results obtained through a measurement instrument, indicating repeatability over time. While the questionnaire used in this study was adopted from Noaman et al.'s (2013) work, where its reliability had been confirmed, the current researcher sought to validate its reliability through confirmatory factor analysis. This approach eliminated the need for pilot testing, as Noaman et al. (2013) previously established the instrument's reliability. The current study focused on validating the consistency of the instrument's items in measuring the quality of higher education.

3. Results

3.1. Research Question 1

The study's primary objective was to address the fundamental research question concerning the validity and reliability of each of the eight dimensions within the Higher Education Quality Assessment Model (HEQAM). Question one stated, "To what extent do each of the eight dimensions of the HEQAM model demonstrate validity and reliability in assessing the quality of higher education?" To accomplish this, the study employed confirmatory factor analysis (CFA), as elucidated by Castello and Osborne (2005), a statistical methodology designed to validate the underlying factor structure of observed variables. Through the strategic application of CFA, the research sought to ascertain the effectiveness of the eight dimensions encapsulated within the HEQAM model as dependable and robust metrics for comprehensively evaluating the quality of higher education. Notably, the comprehensive analysis aimed to determine the soundness and dependability of critical constructs, including curriculum structure, academic staff, career prospects, infrastructure, administrative services, library services, E-services, and location, all of which played integral roles in the HEQAM instrument's comprehensive assessment of higher education quality. The meticulous presentation of the in-depth findings derived from the CFA, complemented by an elaborate overview of the corresponding reliability indices, has been thoughtfully documented in Table 2, emphasising the robust and credible nature of the dimensions integrated within the HEQAM model.

Table 2: Confirmatory Factor Analysis and Reliability Test Result

Construct	Attributes	Factor Loadings	Reliability
Curriculum	The programme provides the appropriate scientific topics for a student's scientific path	0.570	0.634
	Curriculum lines with the requirements of the labour market	0.521	
	The curriculum enhances student skills and self-capabilities	0.656	
	The curriculum has prerequisites for the specific courses.	0.616	
	Weekly timetable	0.575	
	Variety of electives/modules in specialisation areas	0.627	
	The curriculum enhances student skills and self-capabilities	0.656	
	Eigenvalue	2.129	
	% variance explained	35.48	
Academic Staff	Academic qualifications.	0.649	0.755
	Professional experience	0.746	

	Research activity	0.684	
	The faculty is cooperative and responsive	0.628	
	Appropriate academic advising	0.614	
	Communication skills	0.669	
	Eigenvalue	2.704	
	% variance explained	45.09	
Career Prospects	Perspectives for a professional career	0.599	0.800
	Institution's links with business	0.590	
	Enhance technical skills	0.644	
	Enhance communication skills	0.644	
	Linguistic skills	0.640	
	Employment opportunities through job day programmes	0.636	
	Opportunities to continue studies abroad	0.606	
	Availability of exchange programmes with other institutes	0.603	
	Opportunities for postgraduate programmes	0.619	
	Eigenvalue	3.464	
	% variance explained	38.49	
Infrastructure	Modern and high-quality classrooms and laboratories	0.644	0.773
Infrastructure	Catering services	0.645	
	Sport facilities	0.653	
	Medical facilities	0.690	
	High-quality university administration buildings	0.676	
	Availability of services to host social and cultural events	0.674	
	Students' hostel	0.580	
	Eigenvalue	2.981	
	% variance explained	42.58	
Administrative Services	Effective, accurate, and prompt services	0.658	0.793
	Sufficient working hours	0.664	
	The availability of administrative services on the university website	0.719	
	Availability of technical support for e-services	0.716	
	Friendliness	0.626	
	Availability of Advertisement Materials for services	0.656	
	Clear guidelines and advice	0.638	
	Eigenvalue	3.133	
	% variance explained	44.76	
Library Services	Availability of textbooks and journals	0.660	0.801
	Easy borrowing process	0.695	
	The availability of library services electronically	0.794	
	E-library	0.727	
	Sufficient places to sit and read	0.675	
	Working hours	0.654	
	Friendliness	0.567	
	Eigenvalue	3.209	
	% variance explained	45.84	
E-service	The website provides academic and admin. services	0.664	0.778
	Effective, accurate, and prompt services	0.746	
	Prompt technical support	0.759	
	E-Service accessibility through different ways	0.748	
	E-Service through social networks	0.726	
	Eigenvalue	2.661	
	% variance explained	53.22	
Location	Accessibility	0.686	0.755
	Availability of transportation services (out campus)	0.747	
	Cost of transportation	0.721	
	Transportation services among the university buildings (on campus)	0.652	
	Availability of places for parking	0.634	

Safety and security department	0.577
Eigenvalue	2.709
% variance explained	45.15

The findings presented in Table 2 offer a comprehensive overview of the results obtained from the rigorous Confirmatory Factor Analysis (CFA) conducted for each construct within the Higher Education Quality Assessment Model (HEQAM). The CFA effectively distilled the multitude of items encompassed within the various constructs, including but not limited to curriculum structure, academic staff, career prospects, infrastructure, administrative services, library services, and e-services, into coherent singular factors, each demonstrating a strong sense of validity and reliability. Notably, the robust factor loadings, all surpassing the threshold of 0.5, and the commendable Cronbach's alpha values, each exceeding the recommended 0.6 benchmarks, serve as compelling indicators of the remarkable internal consistency embedded within these constructs. These compelling results undeniably affirm the unwavering robustness and credibility of the measurement items encapsulated within the HEQAM model, further attesting to their unwavering trustworthiness in comprehensively evaluating the multifaceted dimensions of higher education quality.

The insightful results from the comprehensive CFA provide a critical foundation for understanding the intricate nuances embedded within the HEQAM model's constructs. The successful extraction of coherent single factors from the diverse items signifies a significant milestone in the validation process, further reinforcing the model's credibility in capturing the multifaceted nature of higher education quality. The substantial factor loadings observed across the constructs, surpassing the critical threshold of 0.5, accentuate the robust relationship between the observed variables and their respective latent constructs. Simultaneously, the commendable Cronbach's alpha values, surpassing the recommended threshold of 0.6, serve as a compelling testament to the reliability and consistency of the measurement items, attesting to the model's ability to comprehensively assess the quality of higher education across various critical dimensions. Overall, these findings serve as a pivotal validation of the HEQAM model, bolstering its position as a comprehensive and reliable tool for evaluating the multifaceted landscape of higher education quality.

Table 2 serves as a comprehensive visual representation of the intricate nuances and underlying statistical robustness encapsulated within the results of the CFA. The detailed presentation of each construct's eigenvalues, factor loadings, and reliability indices provides a comprehensive snapshot of the internal consistency and credibility embedded within the HEQAM model. The compelling presentation of these findings emphasises the robustness and trustworthiness of the model's measurement items, reaffirming their ability to effectively capture and evaluate the multifaceted nature of higher education quality. These meticulously extracted and analysed results underscore the model's efficacy in comprehensively assessing the diverse dimensions of educational quality, thereby contributing to the ongoing dialogue and scholarly discourse surrounding the evaluation of higher education standards.

3.2. Research Question 2

The study's second research question examined the independence of the eight dimensions incorporated within the HEQAM model. The second question was, "To what degree do the eight dimensions of the HEQAM model exhibit independence from one another?" To achieve this, the analysis relied on linear correlation analysis, a method extensively elucidated by Peck et al. (2015) for discerning various variables' distinctiveness and unique characteristics. By leveraging this analytical approach, the research aimed to delineate the nuanced relationships and interdependencies among the dimensions, ultimately unravelling their contributions to the comprehensive evaluation of higher education quality. The meticulous documentation of the findings stemming from the linear correlation analysis, thoughtfully presented in Table 3, serves as a pivotal resource, providing nuanced insights and a comprehensive understanding of the intricate dynamics and interconnected nature of the dimensions encapsulated within the HEQAM model.

Table 3: Inter-correlations of the HEQAM Model Constructs

	CS	AS	CP	IN	AdS	LS	ES	LO
CS	1	0.604**	0.575**	0.507**	0.516**	0.477**	0.447**	0.378**
AS		1	0.662**	0.559**	0.576**	0.550**	0.505**	0.425**
CP			1	0.654**	0.641**	0.622**	0.546**	0.450**
IN				1	0.675**	0.649**	0.572**	0.485**
AdS					1	0.674**	0.607**	0.516**
LS						1	0.637**	0.531**
ES							1	0.599**
LO								1

The insights in Table 3 provide a comprehensive overview of the correlation analyses performed among the diverse dimensions integrated within the Higher Education Quality Assessment Model (HEQAM). The compelling data illustrates that the correlation coefficients established among the eight variables, namely Curriculum Structure (CS), Academic Staff (AS), Career Prospects (CP), Infrastructure (IN), Administrative Services (AdS), Library Services (LS), E-services (ES), and Location (LO), consistently exhibited positive and statistically significant relationships at the 0.05 level (two-tailed). The meticulous examination of these correlation coefficients underscores the significant associations embedded within the constructs, thereby shedding light on the interrelated nature of the multifaceted dimensions encapsulated within the HEQAM model. Specific correlations within the data set were identified as displaying robust relationships, further underscoring their substantial interconnectedness, as indicated by the statistical significance at the $p < 0.01$ level.

The comprehensive findings highlighted in Table 3 serve as a critical testament to the intricate relationships and underlying interdependencies prevalent within the diverse dimensions of the HEQAM model. The compelling presentation of positive correlation coefficients signifies the notable associations and interactions observed among the various constructs, emphasising their interconnected nature and collective impact on the comprehensive evaluation of the quality of higher education. Furthermore, the consistent statistical significance observed at the 0.05 level (two-tailed) accentuates the reliability and robustness of the correlation analyses, further attesting to the significant relationships shared among the dimensions integrated within the HEQAM model. Notably, the identification of correlations demonstrating substantial relationships, underscored by the statistical significance at the $p < 0.01$ level, serves as a compelling indicator of the nuanced and interrelated nature of the critical dimensions encapsulated within the HEQAM model, further contributing to the comprehensive understanding of higher education quality assessment.

Table 3 serves as an essential visual representation of the intricate associations and compelling statistical robustness embedded within the correlation analyses conducted among the various dimensions of the HEQAM model. The meticulous presentation of the positive and statistically significant correlation coefficients accentuates the integral relationships shared among the constructs, further elucidating their collective impact on the holistic evaluation of higher education quality. The consistent statistical significance observed at the 0.05 level (two-tailed) validates the robustness and reliability of the correlation analyses, affirming the significant associations embedded within the HEQAM model. Notably, identifying correlations demonstrating substantial relationships at the $p < 0.01$ level underscores the model's ability to comprehensively assess the intricate inter-dependencies among the critical dimensions, further contributing to the ongoing dialogue and scholarly discourse surrounding evaluating higher education standards.

3.3. Research Question 3

The study was designed to tackle the third research question, which centred on evaluating the appropriateness of the eight dimensions encompassed within the HEQAM model in effectively assessing the quality of higher education. The third research question was, "To what extent is the appropriateness of the eight dimensions of the HEQAM model evident in measuring the quality of higher education?" To respond to this inquiry, the researchers opted to employ an exploratory factor analysis (EFA), a statistical technique elaborated by Castello and Osborne (2005) that facilitates the condensation of complex data into a more concise set of summary variables, thereby enabling the exploration of the underlying theoretical structure of the phenomena under investigation. Leveraging

the capabilities of the EFA, the study successfully streamlined the numerous items involved in measuring the quality of higher education, drawing insights from the responses obtained through the comprehensive survey administered among university students in the Benadir region of Somalia. The detailed and insightful outcomes stemming from the rigorous EFA analysis are meticulously documented and presented comprehensively in Table 4, offering a nuanced and in-depth understanding of the critical nuances associated with the various dimensions encapsulated within the HEQAM model.

Table 4: Factor Loadings for Eight Constructs of the HEQAM Model

Factor	Eigenvalue	% variance	Highly loading items (loading in brackets)
1	14.40	27.18	CP1(0.423), CP2(0.429), CP3 (0.569), CP4 (0.522), CP6(0.550), CP7(0.458)
2	2.17	4.11	CS1(0.499), CS3(0.498), CS (0.558), CS6 (0.418), AS1(0.600), AS2(0.574)
3	1.69	3.19	IN7(0.401), LS1(0.551), LS2(0.616), LS3(0.688), LS4(0.608), LS5(0.516)
4	1.41	2.66	AdS2(0.362), AdS3(0.442), AdS4(0.522), AdS5(0.723), AdS6(0.604)
5	1.20	2.27	LO1 (0.489), LO2(0.638), LO3(0.709), LO4(0.668), LO5(0.574), LO6(0.420)
6	1.16	2.21	ES1(0.599), ES2(0.631), ES3(0.565), ES4 (0.530), ES5 (0.506)
7	1.12	2.12	IN1(0.506), IN2(0.422), IN3(0.486), IN4(0.540)
8	1.05	1.99	CS2(0.436), CS4(0.632)

The insightful data in Table 4 elucidates the outcome of the exploratory factor analysis (EFA) conducted on the 53 items encompassed within the Higher Education Quality Assessment Model (HEQAM) instrument. The analysis results identified eight distinctive factors, with the first eight factors notably demonstrating statistical significance, as indicated by their eigenvalues surpassing the threshold of 1.00. Notably, these factors exhibited a range of eigenvalues from 14.403 to 1.058, collectively accounting for the variation in the 53 items and explaining percentages from 27.175% to 1.996%. The comprehensive overview presented in Table 3 accentuates the significance of the factors identified through the exploratory factor analysis, further contributing to the nuanced understanding of the multifaceted dimensions encapsulated within the HEQAM model and their collective influence on the comprehensive evaluation of higher education quality.

Additionally, the profound insights outlined in Table 4 provide an in-depth exploration of the third research question, emphasising the pivotal role of the Career Prospects (CP) construct as the most substantial factor, featuring valid items for effectively measuring the quality of higher education. Simultaneously, the exclusion of specific items from the analysis, in adherence to the recommendations Rad et al. (2018), further underscores the meticulous approach adopted in the study. The discernible patterns observed within the Curriculum Structure (CS), Academic Staff (AS), Infrastructure (IN), Library Services (LS), Administrative Services (AdS), Location (LO), and E-services (ES) constructs emphasise their inherent significance in the comprehensive evaluation of higher education quality. These noteworthy findings testify to the robustness and comprehensive nature of the HEQAM model proposed by Noaman et al. (2013), highlighting its efficacy in encompassing essential factors for the holistic assessment of higher education standards. The meticulous analysis presented in Table 4 contributes significantly to the ongoing discourse and scholarly exploration surrounding evaluating and enhancing the quality of higher education programs and services.

4. Discussion

This study primarily focused on assessing the validity and reliability of the eight dimensions comprising the Higher Education Quality Assessment Model (HEQAM) in evaluating higher education quality. The research findings offered crucial insights into the significance of each dimension in appraising educational quality, drawing on comparisons and contrasts with existing literature. Notably, the study emphasised the fundamental role of curriculum structure as an essential quality indicator in higher education, aligning with the perspectives of

Tsinidou et al. (2010) and Bairagya and Joy (2021) while diverging from the viewpoint of Gilano and Hailegebreal (2021), who minimised its importance. Additionally, the study underscored the substantial influence of academic staff quality on higher education assessment, in alignment with the conclusions of Tsinidou et al. (2010) and Yildiz and Kara (2009) while conflicting with the findings of Gilano and Hailegebreal (2021). The research also highlighted the critical role of career prospects as an essential criterion for evaluating the quality of university education, echoing the observations of Tsinidou et al. (2010) and Noaman et al. (2017).

The study's second objective was to establish the pairwise independence of the eight dimensions in the HEQAM instrument. The results uncovered significant positive correlations among all eight constructs, with particular dimensions demonstrating solid associations. These findings were consistent with Noaman et al.'s (2017) previous research, which underscored the interconnected nature of the HEQAM model dimensions in evaluating higher education quality. Similarly, Gilano and Hailegebreal's (2021) study, employing dimensions similar to Noaman et al.'s (2013), emphasised the interrelatedness of the eight aspects in gauging higher education quality. Furthermore, Tsinidou et al.'s (2010) investigation revealed notable associations among seven of the eight examined dimensions. The third objective aimed to evaluate the reasonableness of the eight dimensions within the HEQAM model for assessing higher education quality. The exploratory factor analysis (EFA) findings demonstrated the presence of eight distinct factors, each significant and collectively explaining a substantial proportion of the variation in the 53 items. The confirmatory factor analysis (CFA) results further confirmed the validity and reliability of each construct within the HEQAM model, exhibiting robust factor loadings and high internal consistency. These outcomes reinforced the HEQAM model's effectiveness in comprehensively evaluating the multifaceted aspects of higher education quality, highlighting its applicability and robustness in diverse research contexts. Overall, the study contributed valuable insights into the intricate dimensions of the HEQAM model, emphasising its utility in the comprehensive assessment of higher education quality.

5. Conclusion

In conclusion, this study successfully established the validity and reliability of each of the eight dimensions of the Higher Education Quality Assessment Model (HEQAM) as quality measures in higher education for students in universities within the Benadir region of Somalia. The research confirmed the pairwise independence of these dimensions, acknowledging their assessability while recognising their interconnected nature. Furthermore, the study demonstrated that the eight dimensions serve as reasonable quality measures, with varying degrees of significance identified through exploratory factor analysis. In light of these findings, the study recommends developing targeted quality improvement plans, emphasising resources on the most significant dimensions such as curriculum structure, academic staff quality, and career prospects. Establishing a continuous assessment and monitoring system involving regular data collection and analysis on all dimensions to identify emerging trends is also advised. Active engagement of students, faculty, and other stakeholders in the quality improvement process is encouraged, fostering open communication channels for feedback and collaboration. These recommendations aim to enhance the overall quality of higher education in the Benadir region. The study's contributions provide valuable insights and empirical evidence supporting the comprehensive and robust nature of the HEQAM model in evaluating higher education quality.

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Children Early Nutrition Supplementation and Augmenting Factors in Teaching of Reading in Lungwena, Mangochi District, Malawi

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Abstract

The study investigated the effect of early nutrition supplementation on children's reading ability and factors that augment reading skills in children at pupil, household and school level. The study followed up on children that were provided with early nutrition supplementation in varying levels of intensity with a standardised reading test that was levelled for children with an equivalent of two years of primary education to determine how the nutrition supplementation affected their ability to read. The study used a multi-level random effects regression to determine effects that were due to children exposure to school, household and individual factors. The variables that were key at each level of effect were determined through a Principal Component analysis, and later regressed to determine those variables that were key to their reading abilities. The study did not find statistical significance on household and school effects but child specific variables. The study found that intensity of nutrition that a pupil takes in early years affect their ability to acquire reading skills. This was augmented by the number of times a pupil practice reading and availability of textbooks to read, including well stocked and utilized libraries available in schools where pupils were enrolled.

Keywords: Nutrition, Supplementation, Teaching and Reading, Malawi

1. Introduction

Better nutrition for children in early years has a positive effect on their cognitive abilities (Glewwe, P., Jacob, H.G. and King, G.E., 2001). Good nutrition status positively relates to child growth, however, the notion of better nutrition preventing children stunting is challenged by other theorists who attributes 60% of children growth for height to genetic make-up and the rest of 40% to nutrition (Lai, 2006). Therefore, despite the variances or lack of thereof, early nutrition will affect cognitive performance of children in their early education as shown in studies that have situated vertical body growth as key to high academic and professional performance (Berkman, D.S., Lescano, A.G., Gilman, R.H., Lopez, S.L., and Black, M.M., 2002). These findings leave an inconclusive linkage between nutrition and cognitive performance, nutrition and stunting, and academic performance based on age for

height. It is unclear whether nutrition is the common denominator or whether genes take precedence nor whether height affects how children perform academically.

Unrelated to the theorists and studies mentioned above, a group of researchers conducted a longitudinal study in Malawi's lakeside district of Mangochi. The study monitored growth patterns in 840 children. The children enrolled in the study were selected from birth. After the selection, the children were randomly assigned to groups where they were provided with nutrition supplements in varying quantities and types to monitor the effect of the supplements on the children growth patterns. The children were supported for 36 months. Parents/ Guardians of the participating children received nutrition education to sustain nutrition practices in their homesteads during the programme period as well as after the children's graduation from the programme based on the application of adult teaching theories on nutrition adapted from Piaget's theory on learning, that state that learning influences behaviour (Hatice BA., K., Zuhail, B. Günsel, B.A. Meziyet, 2009), hence the assumption that providing nutrition education to parents of the selected children will lead to parents continued behaviour in supporting the nutrition of the children post-intervention implementation.

The children under the intervention above, were randomly selected into four arms of treatment: 1) standard treatment i.e. no extra food supplements (but dietary supplementation between 18 and 30 months of age), 2), "standard" fortified spread with milk-powder as the protein source 3) modified fortified spread with soy-powder as the protein source, and 4) fortified maize-soy flour (likuni phala, LP) for monitoring effect of nutrition supplements on their growth. Results from the study did not show significant variation in height amongst nutrition groups. However, the group with higher uptake of nutrition intensity had children doing statistically, marginally well on height for age than others (Phuka, John, et.al, 2009). The findings showed that there was an effect on the variation of nutrition intake on growth trends of the participating children though not significant in overall terms. There was no direct explanation on the absence of observed significant effect regardless of the nutrition supplements. However, based on other studies conducted on nutrition and child vertical growth, gene-effect could be a speculative reason behind the results (Lai, 2006). Nonetheless, the gene-effect is contested where regardless of genes of first-generation parents, there is a remarkable growth patterns e.g. the case of children born to Chinese parents, where malnutrition is linked to location, and there is a clear positive correlation on nutrition and urbanisation (Jamison, 1986). This suggests that malnutrition is largely an economic induced condition from failure to procure nutritious food and/ or lack of knowledge on eating practices and regimes that promote better nutrition uptake. Therefore, regardless of genes, everyone has potential for better growth that is also associated with better academic performance or cognitive abilities.

Based on various research and studies that have linked pathways on maternal knowledge on health nutrition practices to lesser incidences of malnutrition and therefore better cognitive development and academic performance (Frost, M.B., Forste, R., and Haas, D.W., 2005; Glewwe, P., and Miguel, E.A., 2007), height to better academic performance (Spears, 2012), this study has followed-up children who benefited from the intervention above with a reading test and measurement of their height post-intervention. This was done to test the findings of others who have concluded on a positive pathway on nutrition, better height and better academic ability. Therefore, the study has used the four levels of nutrition supplementation intensity mentioned above and assessed how students in those groups performed in their acquisition of reading skills. Noteworthy mentioning that all children who participated in the nutrition interventions and proceeded to enroll in primary schools went through a standardised phonics literacy curriculum. All participating schools were similarly resourced in terms of trained teachers, teaching instruction materials, textbooks and received similar coaching and mentoring instructional support. Therefore, the assumed expectation was that children enrolled in these schools should perform within similar range, otherwise, variation in children's performance to acquire reading skills will have to be explained by other factors such as nutrition and other augmenting factors included in this study.

The treatment arms referred above, were provided by the Malawi College of Medicine in collaboration with Finland's Tampere University. A reading test standardized for pupils with equivalent two years of education was adapted from the Malawi Government's National reading programme to test the children who were traceable on their ability to read. The test items included letter identification, letter naming, syllable reading, oral reading fluency and comprehension, administered in Chichewa, a local language commonly used in schools where the

traced pupils were enrolled. The 301 students that were traced had an average of 11 years, implying that they were traced close to 8 years after the early nutrition supplementation. Further to the administration of the reading test, the study collected data at pupil, school and household level to understand the homogeneity or lack thereof of other factors aside the early nutrition received. This was done to examine the effect (if any) that early nutrition supplementation had on reading skills of the pupils and whether there are any augmenting factors that affecting the way a child learns to read, hence variation in their reading scores.

2. Experimental/Materials and methods

The study listed all children who were enrolled in the Lungwena Child Nutrition Study by treatment arm as implemented by the Malawi's Kamuzu University of Health Sciences and Tampere University of Finland in Malawi, Mangochi District, Lungwena. Thereafter a team of researchers went out tracing availability of the children in the study area, those available were re-listed and traced further back to the nutrition supplementation treatment arm that they belonged. An early grade reading test comprising of five key test-items (letter naming, letter identification, syllable reading, oral reading fluency and comprehension) was adopted from the Malawi National reading Programme for use in testing their reading abilities. After administration, the test was marked, scores of the test were entered in SPSS package for each pupil per school and uniquely identified by their identification numbers in the original random listing on the nutrition intervention. Further inquiry was conducted on household factors that have proven to contribute to the ability of pupils to learn reading and were taken as augmenting factors such as 1) times a pupil is read to at home (Roundy, A.R. and Roundy, T.P., 2009; Pang, E.S., Muaka, A., Bernhardt, E.B., and Kamil, M.L., 2010; Mastropieli, M.A., Leinart, A., and Scruggs, T.E., 1999; Denton, C.A., Anthony, J.L., Parker, R., and Hasbrouck, J., 2004), 2) language used at home (Harrington, M., & Sawyer, M., 1992; Dickinson, D.K., & McCabe, A., 2002), 3) Meals taken per day (Howard, 2010) and (Wesnes, K.A., Pincock, C., & Scholey, A., 2012); and school attendance (Roby, 2004), and (NCES, 2009; Aden, A.A., Yahye, Z.A., & Dahir, A., 2013). Further data was collected at each school where the pupils were enrolled. This was conducted to trace school resource factors that directly contribute to ability of pupils to learn to read such as 1) availability of girl latrines, 2) Teacher latrines, 3) Teaching staff room, 3) Class spaces, 4) Well-groomed grounds, 5) Electricity, 6) Clean water availability, 7) Textbooks availability, 8) Teaching guides' availability, 9) Well stocked library, 10) Teacher mentoring and coaching and 11) Availability of desks as researched by others including (Godhaber, D.D., & Dominic, B.J., 1990), (Llomo, O., & Mlavi, B., 2016) and (Hanushek, 1997). Further data at pupil level was collected on factors such as age, height of children, head circumference and gender to find out if there is evidence that support their contribution to learning of reading by pupils.

The data was collected at all these levels to enable the study show key factors at school, household and pupil level that augments the ability of children to learn reading skills in addition to the effect of early nutrition on learning ability (Frost, M.B., Forste, R., and Haas, D.W., 2005; Glewwe, P., and Miguel, E.A., 2007).

The observation obtained from the respondents were entered in SPSS and analyzed in STATA to describe the data, conduct a Principal Component Analysis (PCA) for factor analysis on key predictors of reading ability at school and household level and further statistical modelling through multi-level mixed methods regression analysis to linear mixed model regressions and analysis of variance to detect key predictors that affected ability of pupils to learn reading.

2.1. Model specification

The study examined the possible effects of increased intensity of nutritional supplementation interventions on early acquisition of reading skills. The data therefore consist of pupils (level 1) nested in households (level 2) and nested within schools (level 3). Due to the three-level nature of the data structure, measuring these effects necessitates fitting three-level multilevel linear models to examine the relative importance of schools and households as influences on reading ability of pupils. In the nutritional supplementation programme, random assignment of children to the four interventional conditions: A) delayed supplementation; B) standard supplementation; C) modified supplementation; and D) Likuni phala, were done at household level. It may therefore seem more likely that some parents or guardians would have been more enthused to sustain the feeding

practices, consequently having a direct effect on growth of the pupils', subsequently, influencing their reading abilities.

In addition, the study expected that pupils who received the same intervention would cluster in the same household, and pupils from different households who received the same intervention would cluster in the same school. Consequently, there would likely be variation among different schools in terms of reading practice at school level, availability of resources and environment for learning, as well as variation among households in terms of, reading practice, language, and meals taken per day, and availability of resources, at household level. Therefore, these would likely have an indirect effect on the reading ability of the pupils. Variation in pupils' reading abilities is therefore expected in both between-school and within-school-between-household variation in pupils' reading ability.

2.2. Model Assumptions

The model assumed that: 1) A linear relationship existed between the response variable and each predictor, 2) Predictors were not highly correlated, 3) Variances of sub-samples were equal, 4) Residuals were normally distributed and 5) Observations at each level were clustered, and therefore not independent.

2.3. Exploratory data analysis

The study response variable(s) such as ability to name letters (letter sounds), ability to know the letters (alphabet), reading fluency (number of words a pupil is able to read per minute), ability of a pupil to listen to a story and answer questions from the story (listening comprehension) and ability of pupils to read a story on their own and answer questions from the story (reading comprehension) were numericised and scores computed on a 101-percentage points (0% - 100% in order to calculate mean scores.

2.4. Normality of residuals of the mean score of reading ability

The study used a normal p-p plot of the residuals of the mean score of reading ability for each pupil to assess the behaviour of the residuals and ensure that data used in the analysis of the study was normalized. Where data showed non-normality, mean scores were centered through standadisation and computation of z-scores.

2.5. Building the Level-1 Model

The study model was specified as below:

$$z_mscore_{ijk} = \beta_0 + v_k + u_{jk} + e_{ijk} \text{ (Random intercept model) ... (1)}$$

$$z_mscore_{ijk} = \beta_0 + \beta_1 X_{ijk} + v_k + u_{jk} + e_{ijk} \text{ (Model with pupil level predictors) ... (2)}$$

Where X_{ijk} is a vector of pupil level predictors; β_0 is the mean of $z_mscores$ across all schools; β_1 is a vector of individual level effects; and

$v_k \sim N(0, \sigma_v^2)$ is the school level effect

$u_{jk} \sim N(0, \sigma_u^2)$ is the household level effect

$e_{ijk} \sim N(0, \sigma_e^2)$ is the residual error

The study also assessed the coverage intervals of the data to check the absolute magnitude of variance components. Furthermore, the study assessed the Variance Partition Coefficients to check the level of attribution of the data that was used in the study. Thereafter an Intra-class correlation coefficient was calculated to check the similarities of the implied coefficients within schools and within households, and thereafter the study conducted a random variable test to predict the school and household random effects. Furthermore, the study conducted a caterpillar plot analysis on the data to determine the magnitude of the school and household effect on the response variables. Further effects of the variables on the children ability to read was assessed through a Principal Component Analysis

that categorically tested effects across the levels and identified key factors that clearly explained variation of behaviour in the explained variable, in this case, the reading scores.

3. Results and Discussion

3.1. Descriptive statistics by school, household, and pupil level

This section explored the three-level data structure: pupils (level 1) in households (level 2) in schools (level 3). It provided structure of observations and breakdown of responses on the predictors of reading ability. The predictors focus on school and household factors.

Table 1: Descriptive statistics on predictors of reading

Predictor	School level		Household level		Pupil level	
	N	Percent	N	Percent	N	Percent
<i>Intervention group</i>						
Group A	26	34.2	71	24.32	78	24.38
Group B	13	17.1	80	27.4	85	26.56
Group C	18	23.7	76	26.03	90	28.13
Group D	19	25.0	65	22.26	67	20.94
<i>Times read to at home</i>						
Nobody reads to me at home	33	44.6	112	39.03	119	37.9
once a day	23	31.1	84	29.27	89	28.34
twice a day	14	18.9	58	20.21	66	21.02
three times a day	3	4.1	24	8.36	27	8.6
More than three times a day	1	1.4	9	3.14	13	4.14
<i>None-textbooks</i>						
None	35	47.3	130	45.45	144	45.86
one book	8	10.8	32	11.19	37	11.78
two books	16	21.6	75	26.22	79	25.16
more than two books	15	20.3	49	17.13	54	17.2
<i>Other sources of books</i>						
No where	38	50.7	146	51.05	159	50.64
Library	8	10.7	25	8.74	27	8.6
class teacher	26	34.7	92	32.17	101	32.17
Classmates	3	4.0	23	8.04	27	8.6
<i>Gender of pupil</i>						
Male	27	36.0	124	44.29	136	44.16
Female	48	64.0	156	55.71	172	55.84
<i>School library is well stocked</i>						
Agree	37	48.7	141	49.47	153	49.2
Disagree	39	51.3	144	50.53	158	50.8
<i>Library is well used by teachers and pupils</i>						
Agree	37	48.7	141	49.47	153	49.2
Disagree	39	51.3	144	50.53	158	50.8
<i>Teaching materials are adequate</i>						

Agree	34	44.7	138	51.49	153	52.4
Disagree	42	55.3	130	48.51	139	47.6
<i>Classroom has electricity</i>						
Disagree	76	100.0	285	100	311	100
		M(SD)		Mean		Mean
<i>Age</i>	60	11.1(1.54)	256	11.3(1.12)	280	11.3(1.10)
<i>Height</i>	74	136.6(8.74)	283	131.6(19.24)	310	131.5(19.15)
<i>Head circumference</i>	74	53.2(3.91)	283	50.9(8.95)	311	50.7(9.04)

Data in Table 1 above, showed that pupils were fairly represented across the nutrition intervention groups and across the three levels (school, household and pupil level). 45% of respondents were not read to at home, while 37% of pupils were not read to at pupil level, while 39% are not read to at household level. Only 30% indicated being read to once across the three levels, implying that pupils were not read to as often. 46-50% of observation indicated that pupils do not have access to other textbooks in households and at individual level. Where textbooks were available, 30% of the pupils indicated that they borrowed reading materials from their class teachers. In general, this implied that households do not stock supplementary reading books for pupils to use in improving their reading skills. 64% of girls were recorded at school level, while 55% were recorded at household and pupils' level. Implying that there were more girls traced in the study than boys.

All schools, households and pupils traced and included as respondents in the study had no access to electricity. Implying that any reading practice, was likely during day time, save for those with access to alternative sources of lighting. All respondents were indifferent on availability of libraries, adequacy of teaching resources and utilization of the same with averages around 50% at school, household and individual level respectively. Average height of pupils was at 136cm with an average head circumference of 53cm for a mean age of 11.

3.2. Random Intercept Model

The random effect intercept model was fitted to 320 pupils, nested in 319 households nested in 76 schools. The number of pupils per household ranged from 1 to 2; and the number of pupils per school ranged from 1 to 19. The intercept was found to be 0.0002 (SE = 0.0559). Thus, without adjusting for any predictor, the average pupil is expected to score 0.002 standard errors from 0, within the range of -0.925 to 5.752 standard errors from 0. The between-school; within-school-between-households; and within-households-between-pupil variances were estimated as: 0.005969; 1.19×10^{-19} ; and 0.996, respectively. The likelihood ratio test which compared the current model to a single level (linear regression model) showed that the likelihood ratio chi square statistic was not significant at 5% significance level ($\chi^2(2) = 0.00049, p = 0.9998$).

3.3. Coverage Intervals

The absolute magnitude of variance components in z_scores was $\pm 0.04788581SE$. This showed the extent to which the real, observed population matches the ideal or normative population. In this case, the data used in the study showed that there was a 95% probability that the true (unknown) estimate would lie within the interval, given the evidence provided by the observed data.

3.4. Variance Partition Coefficients (VPC)

The relative importance of schools; households and pupils as sources of the total variation of pupil's reading ability was summarised. Results indicated in Table 2 below showed that almost all variation in pupil reading ability was attributed to variation at pupil level, meaning that the variation in the reading scores of pupils did not come from the augmenting factors at school and household level, rather pupil related factors or factors that were related directly to pupils were responsible for the performance of the pupils in their reading ability.

Table 2: Variance partition coefficients (VPC)

Level	VPC
School	3.590e-07
Household	1.427e-32
Pupil	0.99999964

3.5. Intra-class correlation coefficients (ICCs)

Table 3 below showed that the model implied correlation coefficient (similarity) of the observed $z_mscores$ within schools and within households and implied model of the observed $z_mscores$ within schools and within households showed that both the schools and households had the same ICC, which is almost zero, indicating that the effect of household factors and school level factors could not be relied upon, therefore accepting that pupil level factors were the only effect on the their reading scores.

Table 3: Intra-class correlation coefficients (ICC)

Cluster	ICC
School	3.590e-07
Household	3.590e-07

3.6. Predicting school and household effects

Table 4 below presented descriptive statistics for the school and household random effects. School effects ranged from -0.0038 standard deviation units to 0.0039 standard deviation units; and the household effects range from -1.11e-16 standard deviation units to 6.86e-16 standard deviation units.

Table 4: Descriptive on school and household effects

Random effect	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
v_0	76	-2.08E-12	0.001232	-0.00377	0.003929
u_0	292	-2.12E-18	1.18E-16	-1.11E-16	6.86E-16

Results of testing for the normality of the school and household effects showed that effects were approximately normally distributed as the data points lay along the fitted line at 45-degree angle. Likewise, the quantile-quantile plot for school effects showed that the household effects were not normally distributed, having heavier tails than would be expected from a normal distribution.

The caterpillar plot indicated how many schools differed from the average school showed that schools did not differ significantly from the average school, implying that regardless of which school a pupil was enrolled in, their performance in reading scores were not affected, the school level effects did not explain performance of pupils. Likewise, the households studied, did not differ significantly from the average household in terms of pupils' reading ability as presented in the caterpillar plots, indicating and augmenting the finding that experiences for pupils at household level did not explain the variation in their reading scores but pupil related factors. In summary, the likelihood ratio chi square statistic was found not significant; the ICCs were found to be very small at school and household levels, therefore, it can be concluded that $z_mscores$ at these two levels are independent observations. Therefore, a single level model without predictors would be preferred to the three-level model without predictors in explaining variation in reading scores and discussing any augmenting factors that predict pupil reading ability at pupil level.

3.7. Pupils level Model with predictors

To determine factors that predict reading skills acquisition, individual factors such as age, gender, height and head circumference were considered. A random effects model at pupil level regressed the reading ability of pupils (z_mscore), a centered numericized score on reading outcomes across all the reading skills test-itemized in the

reading test administered to all pupils. The model was fitted to 260 pupils, nested in 259 households and in 69 schools. The number of pupils per household ranged from 1 to 2; and the number of pupils per school ranged from 1 to 15. Just like the three-level model without predictors, the three level model with pupil level predictors showed that a likelihood ratio test was not significant at 95% confidence interval, indicating that a linear regression model with predictors at pupil level would better fit the data than the three-level model with predictors ($\chi^2(2)=0.10$, $p=0.9505$).

3.8. Household level Model

At the household level, a Principal Component Analysis (PCA) of factors that greatly affect reading outcomes was conducted. Results of the PCA are presented below:

Table 5: PCA results at household level

Principal components/ covariance	Number of obs	298			
	Number of comp.	4			
	Trace	11.06474			
	Rho	0.7301			
Rotation: (unrooted principal) =					
Component	Eigenvalue	Difference	Proportion	Cumulative	
Comp 1	3.50925	1.47695	0.3172	0.3172	
Comp 2	2.0323	0.634066	0.1837	0.5008	
Comp 3	1.3924	0.259427	0.1264	0.6272	
Comp 4	1.39324	0.232096	0.1264	0.7301	
Comp 5	0.906715	0.206939	0.1029	0.8121	
Comp 6	0.699776	0.176771	0.0819	0.8753	
Comp 7	0.523005	0.0775938	0.0632	0.9226	
Comp 8	0.445411	0.18711	0.0473	0.9628	
Comp 9	0.258302	0.105375	0.0233	0.9862	
Comp 10	0.152926		0.0138	1	
Principal (eigenvectors)	Components				Unexplaine d
Variable	Comp 1	Comp2	Comp3	Comp4	
Nutrition Group Nursery attendance	-0.0802	-0.048	-0.3073	0.8973	0.06932
Meals taken per day	-0.0472	0.0066	-0.0165	-0.009	0.2483
language	0.0006	-0.0127	-0.003	0.0711	0.435
School absence Reading homework	-0.016	0.0114	0.0065	-0.002	0.1825
Who reads to pupils	-0.4656	0.8764	0.064	0.0497	0.0058
Supplementary reading materials	0.3877	0.21	-0.1439	0.1714	0.6207
	0.539	0.3385	-0.6309	-0.2123	0.1238
	0.4055	0.0959	0.4603	0.3342	0.3491

Source of reading materials	0.354	0.2131	0.4377	0.0004	0.3715
Environment for reading	0.2089	0.1266	0.281	0.0333	0.5801

The results above showed that the intervention group where the pupil belonged, whether a pupil is read to at home, whether the household has other sources of textbooks, and other books were identified to greatly influence reading abilities of pupils in the household. The selection was based on large eigenvalues exhibited after the PCA was conducted and as shown in Table 5 above. Based on the PCA selection of factors above, the selected factors were included in the model at household level as presented in the regression results in Table 6 below

Mixed-effects ML regression			Number of obs	253		
			Observations per group			
Group Variable	No of Groups	Minimum	Average	Maximum		
Schools	68	1	3.7	15		
Households	252	1	1	2		
					Wald chi2(8)	34.57
Log likelihood	-347.455				Prob > chi2	0
z_mscore	coef.	std.Err.	z	P> z 	(95% Conf. Interval)	
Age	0.661964	0.05407	1.22	0.221	-0.0397789	0.172172
Gender	-0.03367	0.119547	-0.28	0.778	-0.2679746	0.20064
Height	0.001677	0.003758	0.45	0.655	-0.0056888	0.009043
Head Circumference	0.00194	0.007917	0.25	0.806	-0.0135767	0.017456
Nutrition Group	-0.12183	0.058147	-2.1	0.036	-0.2358004	-0.00787
Reading homework	-0.19234	0.055971	3.44	0.001	0.0826343	0.302038
Supplementary readers	0.150648	0.057896	2.6	0.009	0.03717338	0.264123
Sources of readers	-0.04533	0.064842	-0.7	0.485	-0.1724174	0.08176
Constatnt	-1.0412	0.781384	-1.33	0.183	-2.572686	0.490283
Effects Parameters	Estimate	Std. Err.	[95% conf. Interval]			
School						
Var(_cons)	0.021562	0.038219	0.0006683	0.6957332		
Household						
Var(_cons)	1.87E-10	5.59E-10	5.30E-13	6.59E-08		
Var (Residual)	0.892568	0.086268	0.738532	1.078726		
LR test vs. linear regression:	chi2(2)=0.39 Prob>chi2 = 0.824					

Notably, the model was fitted to 253 pupils, nested in 252 households nested in 68 schools. The number of pupils per household ranged from 1 to 2; and the number of pupils per school ranged from 1 to 15. The three-level model with pupil and household predictors at household level shows that a likelihood ratio test is also not significant at 5% significance level ($\chi^2(2)=0.39$, $p = 0.8248$). Therefore, results indicated that a linear regression model with pupil and household predictors at household level would better fit the data than the three-level model with pupil and household predictors at the same level.

3.9. School level Model

Another PCA was conducted to find out factors that greatly affect ability of students to read at school level. Results of the PCA showed that well stocked school library, well used library, and adequacy of teaching materials in schools explain variance in the ability of pupils to acquire reading skills. Therefore, these factors were included together with others tested at household and pupil level and regressed against outcome scores of the reading test numericized in z _scores.

The selection of the factors included in the mixed effects mode was based on their large eigenvalues. The regression output in Table 7 below included factors at pupil, school and household factors to test whether these factors significantly explain how well pupils learn to read.

Mixed-effects ML regression		Number of obs.		230		
Group Variable	No. of Groups	Observations per group				
		Minimum	Average	Maximum		
Schools	68	1	3.4	13		
Households	229	1	1	2		
log likelihood	-311.11372	Wald chi2 (10)		40.98		
		Prob > chi2		0		
Z_mscore	Coef.	Std. Err.	z	P> z	[95% conf. Interval]	
Age	0.0770659	0.560734	1.37	0.169	-0.03284	0.186968
Gender	-0.1342454	0.122392	-1.1	0.273	-0.37413	0.105638
Height	-0.0067225	0.004751	-1.41	0.157	-0.01603	0.002589
Head Circumference	0.029429	0.013095	2.25	0.025	0.003764	0.055094
Nutrition Group	-0.169909	0.061183	-2.78	0.005	-0.28983	-0.04999
Reading homework	0.1805176	0.059149	3.05	0.002	0.064588	0.296448
Supplementary readers	0.1019654	0.061352	1.66	0.097	-0.01828	0.222212
sources of readers	-0.0174194	0.067558	-0.26	0.797	-0.14983	0.114992
well stocked school library	-0.2618095	0.182951	-1.43	0.152	-0.62039	0.096768
Adequacy of teaching materials in schools	0.0094144	0.172321	0.05	0.956	-0.32833	0.347157
_cons	-1.096159	0.845345	-1.3	0.195	-2.753	0.560686
Random-effects parameters	Estimate	Std. Err	95% Conf. Interval			
Schools						
Var (_cons)	2.64E-12	6.19 e-09				0
Household						
Var (_cons)	1.21E-15	4.01E-15	1.83E-18	8.01E-13		
Var (residual)	0.8758676	0.081873	0.7292407	1.051976		

The model was fitted to 230 pupils, nested in 229 households nested in 68 schools. The number of pupils per household ranged from 1 to 2; and the number of pupils per school ranged from 1 to 13. Just like the three-level model without pupil predictors, the three level model with pupil level, household level, and school level predictors at school level shows that a likelihood ratio test is also not significant at 5% significance level ($\chi^2(2)=0.00$, $p = 1.000$), indicating that a linear regression model with pupil, household, and school predictors at school level would better fit the data than the three-level model with similar predictors at school level.

Adding household level random effects to the school level model with predictors at all levels having included all factors that affect reading abilities based on the PCA at pupil, household and school level and found out that they do not significantly explain how well pupils read. Household random effects were added to the school level model with predictors at all levels to find out how they affect other factors tested above in influencing how well pupils read. A linear regression test through a mixed effect model was then carried out to test the contribution of the household random effects at school level and all other predictors across the levels.

The model was fitted to 230 pupils, nested in 229 households nested in 68 schools. The number of pupils per household ranged from 1 to 2; and the number of pupils per school ranged from 1 to 13. Adding household level random effects to the school level model with predictors at all levels showed a significant likelihood ratio test at 5% significance level ($\chi^2(2) = 15.86$, $p = 0.0078$), indicating that the random effects model at school level with predictors at all levels and a random effect at household level would better fit the data than single-level model with predictors at all levels.

The model has shown that, holding other variables at their mean, the nutritional supplementation interventions; number of times a pupil reads at home and school library being well stocked would significantly predict pupil's ability to read at 95% significance level as their p values have been found to be less than 0.05. Changing from a well-stocked library to a poorly stocked library would decrease the standardized score of the pupil's average score by a factor of 0.36.

The Likelihood-ratio test provides evidence that household level heterogeneity varies across the study conditions ($\chi^2(13) = 300.75$, $p < 0.001$). Augmenting that random nutrition intensity group which a pupil belonged would affect ability of the pupil to read, in addition to factors such as number of times a pupil reads at home and school library being well stocked.

Increased nutritional supplementation had a statistically significant effect on reading ability of pupils in primary schools. Particularly, a pupil who switched from higher nutritional supplementation group a to nutrition intensity group resulted in a corresponding decrease in the standardized score of their average score by a factor of 0.15 (Adj. $\beta = 0.022$; 95% CI: 0.282 to 0.0224). In addition, pupils who received delayed supplementation (variance = 0.9563, SE = 0.3372) varied greatly in their performance and reading scores, compared to those in other interventional groups. This implied that those in groups with greater nutrition intensity performed better and the difference in performance within the groups was less significant. The ANOVA on $z_mscores$ and various intervention levels did not greatly fit the data (Large Root MSE), however, the total variation on performance of groups at model level was significant ($p = 0.038 < p = 0.05$). This implied that within the nutrition groups, a clear variation significance was found on the intervention group with delayed nutrition supplementation ($p = 0.0461 < p = 0.05$), augmenting earlier findings on greater variation in performance for pupils randomly selected in the delayed nutrition supplementation group.

4. Conclusion

Intensity of nutrition that a pupil takes in early years affect their ability to acquire reading skills. This is augmented by the number of times a pupil practice reading and availability of textbooks to read, including well stocked and utilized libraries available in schools where pupils are enrolled. The homogeneity in school resources and household characteristics leaves no marked effect on the variation of pupil scores. Therefore, while it is critical to resource variables that affect the teaching of reading at school and household level, factors that directly affect a pupil in attaining reading instruction are the most critical and have marked effects on the teaching of reading, including early nutrition status of pupils undertaking a reading instruction. These findings challenge the implementers of reading interventions to go beyond investing in reading instruction, and consider integrating nutrition support of pupils, early in their lives, populating homes with supplementary readers, and working with community platforms to support after-school reading practice and homework to ensure that reading skill gains obtained from the reading instruction are sustained and elevated.

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Developing A SERVQUAL-Based Scale for Measuring Student Satisfaction with Academic Service in Higher Education

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Abstract

Assessing student satisfaction with academic services provided by higher education institutions has always been a challenging task. This study aimed to create a valid, reliable, and practical web-based student satisfaction scale (SSS) through a design and validation stage. Applying the SERVQUAL model in this development research, during the design stage, the SSS consisted of three subscales with 32 items. These items were established and validated through expert review for content validity, pilot testing for practicality, and a main test for concurrent validity. The results showed that the it had an acceptable level of content validity with I-CVI scores ranging from .80 to 1.00 and an S-CVI of .90. It also met practicality criteria with an S-SPI of 0.9. The concurrent validity of the SSS ranged from .665 to .999, and reliability was .888 to .999. These findings suggest that the SSS met valid, reliable, and practical criteria. It has diagnostic and predictive value for improving quality assurance purposes.

Keywords: Academic Service, Student Satisfaction, Higher Education, Service Quality

1. Introduction

Ensuring the quality of higher education is proving to be a challenge in various countries' education systems (Liu & Liu, 2017; Shabbir et al., 2015; Sunarto, 2022). The need to improve quality has also become a priority in Indonesia, bolstered by a new Decree of National Higher Education Standards (NHES) in 2023. A study conducted by Visscher dan Hendriks (2009) on quality assurance in six countries, including the Netherlands, Italy, England, Germany, Estonia, and Denmark, highlights the importance of continuous quality improvement, taking into account several critical factors, including the limited use of data in reviewing and improving institutional functions.'

Higher education quality is a critical aspect that encompasses various areas ranging from student satisfaction to institution rankings. While both factors play an essential role in determining the quality of education, Harvey (2022) prioritizes student satisfaction over institution rankings. The rationale behind this approach is that the

primary purpose of student feedback is to identify areas that require improvement, rather than simply providing information or ranking institutions. Therefore, the quality of academic and supported services is a crucial indicator of higher education quality worldwide (Wong & Chapman, 2022). Several studies have also identified student academic satisfaction as a significant factor in improving the overall quality of higher education (Abili et al., 2012; Butt & Rehman, 2010; Kanwar & Sanjeeva, 2022; Zaki, 2020).

Evaluating student satisfaction in higher education including in study program level is a crucial aspect that has been studied by researchers worldwide. To this end, various methods have been proposed, including the SERVQUAL (Parasuraman et al., 1988), HESQUAL (Teeroovengadum et al., 2016), and the competency method (Warn & Tranter, 2001). However, among these methods, the SERVQUAL model has gained significant attention as it measures both expectation and perception, which enables the identification of satisfaction levels by analyzing the gaps between these two variables. The SERVQUAL model has been used in multiple studies worldwide to assess higher education satisfaction, including studies on faculty satisfaction (Krsmanovic et al., 2014), public and private quality comparison (Saliba & Zoran, 2018), service quality (Goumairi et al., 2020), and public administration services (Soares et al., 2017). The model's ability to identify the gaps between expectation and perception has made it a popular and widely used tool for evaluating student satisfaction in higher education. This approach allows researchers to analyze the factors that contribute to student satisfaction and identify areas that need improvement, ultimately enhancing the quality of education in higher learning institutions.

With the advent of web-based surveys, measuring student satisfaction has become relatively easier, offering numerous advantages such as improved design, administration, response rate, low data entry errors, efficient analysis, reporting, and cost-effectiveness (Nayak & Narayan, 2019; Wu et al., 2022; Wyatt, 2000). Despite these advantages, the survey instrument, including the satisfaction scale, must meet specific requirements in its design and development to ensure its validity, reliability, and objectivity, and to minimize bias while collecting data (Lee & Lim, 2008). Despite the benefits of existing student satisfaction instruments, such as their ability to measure student satisfaction, there are also limitations. The scope of the instrument content may be too broad and not entirely applicable to a study program's specific needs and uniqueness. Therefore, study programs require a student satisfaction scale that can accurately measure academic services and meet their improvement needs. For this reason, this study aims to create a valid, reliable, and practical student satisfaction scale with academic services that can improve quality assurance at the study program level. The proposed scale will be tailored to meet the specific needs of each study program and ensure that the data collected is objective, unbiased, and reliable.

2. Methods

2.1 Research Design and Procedure

The method of this development research was in the form of scale construction referenced to Mann (2006), Lee and Lim (2008), and (Cohen & Swerdlik, 2017). The development procedure consisted of design and validation stages. In the design stage, the study focused on defining the indicator of the scale, writing the blueprint, pooling items, writing the initial scale items, and transferring all the scale materials into a web-based scale of Google Form. Meanwhile, for the validation stage, the study addressed content validation assessment by an expert panel, pilot test, and main test.

2.2 Participants

The study was conducted at Sriwijaya University's Faculty of Teacher Training and Education (FTTE) among its current lecturers and students. Ten out of 22 heads of study programs were randomly selected to participate in the expert review to assess the content validity of SSS. The age group of students who took part in the pilot test and main test ranged from 18 to 30 years. The first-year students were excluded from the study since they were not considered ready to benefit from academic services. In the pilot test, 30 students were chosen randomly to assess the practicality of SSS. Finally, in the main test, 949 students from 22 study programs took part in the validation of SSS.

2.3 Instruments

The process of validating the initial SSS involved three steps: expert review, pilot test, and main test (Mann, 2006). The expert review was conducted by a panel of experts who established the content validity using a validation sheet. They reviewed each item separately, non-face-to-face approach, following a single-blind procedure (Rubio et al., 2003). Using a scoring format of 1 to 4 of (Polit et al., 2007) (1=not relevant, 2=somewhat relevant, 3=quite relevant, and 4=very relevant), they filled out the sheet to indicate how they judged each item. The pilot test was conducted by providing respondents with a revised SSS on a designed website. They were also asked to complete a 16-item practicality questionnaire using a Likert format of 1 to 4 (1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree). The questionnaire covered the content, language, and web-survey platform of SSS. Examples of the questions were "the number of questions is adequate" (content), "The sentences used are clear, do not give rise to multiple interpretations" (language), and "Any device can be used to access the scale" (web-survey platform). Finally, in the main test, respondents had the final version of the SSS available on a web-based platform. They were asked to complete the SSS and their responses also ranged from 1 to 4 (1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree). The web link to the SSS in Google Form platform was sent to students via study program social media.

2.4 Data Analysis

The research question had three criteria to clarify and was analyzed in three portions accordingly. Firstly, SSS calculated the content-validated value using the CVI method, consisting of CVI for item (I-CVI) and CVI for scale (S-CVI) (Yusoff, 2019). An item was rated I-CVI of 1.00 if all validators agreed it was "quite relevant or very relevant". If over half but not all validators deemed an item "quite relevant or very relevant", the I-CVI was at least 0.78 for ten validators. If none of the validators chose "quite relevant or very relevant" for an item, the I-CVI was 0. Its S-CVI was calculated by dividing the number of items scored 3 or 4 (deemed relevant) by the total number of items. The method of scale practicality index (SPI) adopted from the CVI was used to measure the practicality criteria of SSS in the pilot test. The I-SPI was 1.00 if all respondents agreed that an item was "agree and strongly agree". If more than half but not all respondents rated an item as "agree and strongly agree", the I-SPI was at least 0.78 for ten respondents. If none of the respondents chose "strongly disagree or disagree" for an item, the I-SPI was 0. The S-SPI of SSS was counted by dividing the number of items scored 3 or 4 (deemed agree) by the total number of practicality items. Additionally, its reliability and validity in the pilot test were measured through Cronbach alpha and item-total correlation, while convergent validity was utilized for its reliability and validity in the main test. The items of SSS should have higher correlations among themselves and significantly higher loadings, as measured by Cronbach alpha and item-total correlation to ensure its reliability and validity.

3. Results

3.1 Design Phase

During the design phase of the SSS, the SERVQUAL model (Parasuraman et al., 1985, 1988) was implemented to generate the scale. The expectation and perception aspects of the scale contained five domains of service quality, namely tangible, reliability, responsiveness, assurance, and empathy, with an equal number of items in each aspect. As per the literature review, the initial form item composition of the SSS consisted of 32 items, with 16 items each for expectation and perception aspects. The scale comprised teaching service, academic administration service, and facility satisfaction subscales. To provide a clearer understanding, the table below illustrates the blueprint of the SSS.

Table 1: The Blue Print of the SSS

Subscales	Domain (N item)									
	Tangible		Reliability		Responsiveness		Assurance		Empathy	
	E*	P**	E	P	E	P	E	P	E	P
Teaching Service	1	1	1	1	1	1	1	1	1	1
Academic Administration Service	1	1	1	1	1	1	1	1	1	1
Facility	1	1	1	1	1	1	1	1	2	2
Total of Items	3	3	3	3	3	3	3	3	4	4

*E=Expectation, **P=Perception

After reviewing the literature, establishing the blueprint of SSS, and pooling the items, the study continued to select the items, prepared the manual, and transferred them into a web-based survey platform of Google Form.

3.2 Content Validity

The study conducted a thorough literature review and consulted with experts to identify the different aspects and domains of SSS. A panel of ten experts then assessed the relevance of each item in relation to the aspect and domain definition. To ensure its content validity, it used I-CVI and S-CVI measures. Below is a detailed table of the I-CVI, S-CVI subscales, S-CVI SSS of the initial form after validated by the expert panel.

Table 2: I-CVI and S-CVI of SSS judged by expert panel (N=10)

Dimension	Expectation			Perception		
	Not Relevant	Relevant	CVI	Not Relevant	Relevant	CVI
Teaching Service Subscale						
Tangible	1	9	.90	1	9	.90
Reliability	1	9	.90	2	8	.90
Responsiveness	2	8	.80	2	8	.80
Assurance	1	9	.90	1	9	.90
Empathy		10	1.00	1	9	1.00
S-CVI Teaching Service = .9						
Academic Administration Service Subscale						
Tangible		10	1.00		10	1.00
Reliability	1	9	.90	1	9	.90
Responsiveness	1	9	.90	2	8	.80
Assurance	2	8	.80	1	9	.90
Empathy	1	9	.90		10	.90
S-CVI of Academic Administration Service = 0.9						
Facility Subscale						
Tangible		10	1.00	1	9	.90
Reliability	1	9	.90	1	9	.90
Responsiveness	1	9	.90	2	8	.80
Assurance	1	9	.90	1	9	.90
Empathy 1	1	9	.90	1	9	.90
Empathy 2		10	1.00		10	1.00
S-CVI of Facilities = .916						
S-CVI of the SSS = .903						

Using the CVI method as done by Zamanzadeh et al. (2015) for given scores of 10 validators in the table above, each item must reach a consensus of I-CVI equal to or more than 0.78 to be included in the initial form. 32 items

are in the values between .8 - 1. They are more than .78 of I-CVI. Thus, all items remain in the pool of items. Meanwhile, the S-CVI value of each subscale and full scale reach 1, indicating all subscales and the full scale meet the requirement of content validity.

3.3 Pilot Test of SSS

To obtain validity and reliability coefficients on the SSS, a pilot test was conducted in which 30 respondents participated. The data was analyzed using the Corrected Item Total Correlation Technique (Wolf, 1967) with the computer assistance of SPSS Version 25. This method was used to obtain the overall Cronbach's Alpha and Corrected Item-Total Correlation of the SSS. The results showed that all items in the three satisfaction subscales were deemed valid, except for the Assurance-Perception-Administration-Academic-services (APAAA) item, which had a correlation coefficient of only .222. This value was below the permissible value of 0.30 (McCowan & McCowan, 1999), indicating that the item needed to be rephrased and included in the main test. To ensure the reliability of all items in the SSS, Cronbach's alpha was calculated. The results of this analysis confirmed that all items in the SSS were reliable, with a sufficient value of >0.60. Overall, the pilot test provided valuable insights into the SSS and helped to ensure that the scale was adequate for further validating through the main test step.

Tabel 3: The Results of Pilot Test (N=30) and Main Test of SSS (N=949)

Items*	Pilot Test		Main Test			
	Corrected Total	Item-Correlation	Cronbach's Alpha if Item Deleted	Corrected Total	Item-Correlation	Cronbach's Alpha if Item Deleted
Item-Total Statistics of Teaching Service						
TETS	.428		.879	.649		.945
ReaETS	.659		.860	.729		.941
ReaETS	.355		.882	.797		.938
AETS	.588		.866	.793		.938
EETS	.559		.872	.800		.937
TPETS	.696		.858	.740		.940
ResPTS	.722		.856	.800		.937
ResPTS	.737		.855	.787		.938
APTS	.670		.860	.828		.936
EPTS	.684		.858	.649		.945
Item-Total Statistics of Academic Administration Services						
TEAAS	.653		.819	.785		.953
ReaEAAS	.536		.832	.815		.951
ReaEAAS	.475		.834	.818		.951
AEAAS	.709		.815	.821		.951
EEAAS	.748		.812	.794		.952
TPAAS	.785		.804	.786		.953
ResPAAS	.449		.839	.834		.951
ResPAAS	.414		.840	.800		.952
APAAS	.222		.852	.830		.951
EPAAS	.548		.827	.802		.952
Item-Total Statistics of Facilities						
TEF	.667		.925	.745		.941
ReaEF	.641		.926	.746		.941
ReaEF	.563		.929	.755		.941
AEF	.626		.927	.753		.941
EE1F	.846		.921	.734		.941
EE1F	.631		.927	.748		.941
TPF	.704		.924	.766		.940
ResPF	.841		.918	.745		.941
ResPF	.783		.921	.754		.941
APF	.742		.922	.777		.940
EEP1F	.619		.929	.709		.943
EEP2F	.862		.920	.746		.941

*T=tangible, Rea=reliability, A=assurance, E=empathy, Res=responsiveness, E=expectation, P=perception, TS=teaching service, AAS=academic administration service, F=facilities

Following the completion of the initial SSS, a pilot test was also carried out to evaluate its practicality. Participants were asked to express their thoughts on the website's content, language, and appearance by responding to a questionnaire. The responses to these questions were assessed using the SPI method, which assisted in determining their I-SPI score. The overall feasibility score of the SSS was verified by calculating the S-SPI, which involved categorizing the number of items where participants agreed or strongly agreed (score 3 or 4) versus those where they did not agree or strongly disagree (score 1 or 2), and dividing it by the total number of items. The feasibility score obtained for the SSS using this method provides a comprehensive understanding of its practicability.

No.	Practicality Items	I-SPI
1	The purpose of the scale is clear.	1.00
2	Instructions for filling are clear.	0.97
3	The number of questions is adequate.	0.90
4	Fill in questions relevant to the purpose of the scale.	1.00
5	Duration of completing the scale does not take up time.	0.97
6	Questions are placed orderly.	0.87
7	The sentences are clear and do not give rise to multiple interpretations.	0.83
8	The number of words in each item is adequate.	0.97
9	Response forms 1-4 are easy to understand.	0.93
10	Scalable application site is easy to access.	1.00
11	The appearance of the questionnaire on the web is attractive.	0.87
12	Filling in information about respondents is easy.	1.00
13	All questionnaire response buttons are easy to access.	1.00
14	The font size used is adequate.	0.97
15	The scale can be accessed using the device you own (smartphone, tablet, laptop, computer)	1.00
16	Reviewing responses before completing is easy to do.	0.97
S-SPI		0.94

3.4 Main Test Test of SSS

During the main test, the SSS was validated by involving 949 students, and analyzed using the corrected item-total correlation method. The results of the data analysis are presented in Table 3 above, where the criterion validity coefficient of the items ranged from .649 to .834. Meanwhile, the coefficient of Cronbach's alpha were between .936 and .953. A scale is considered reliable if the Cronbach's alpha value is greater than .60 and the criterion validity coefficient is at least .30. Therefore, the data in the table indicate that the SSS has good reliability and validity. When compared to the pilot test, the validity and reliability values of the main test were better. This is acceptable due to the significant difference in the number of respondents, which influenced their values. For better understanding, the final form of the SSS items is attached in Appendix 1.

4. Discussion

The current study aimed to create a web-based quality assurance instrument called the Student Satisfaction Scale (SSS). It was designed to improve the service quality of study programs and includes teaching services, academic administration services, and facility subscales. The study was successful in designing and validating it, resulting in a valid, reliable, and practical SSS. Based on these findings, the SSS is considered suitable for this institution to measure student satisfaction with academic service. Furthermore, a discussion followed in connection with the achieved goal.

During the development of SSS, the SERVQUAL model (Parasuraman et al., 1988) was exclusively used. This model emphasizes the importance of measuring consumer satisfaction based on tangible, reliability, responsiveness, assurance, and empathy dimensions. In order to determine the service quality level, a balanced

number of items between expectations and perception in each dimension was required. This would enable identification of any gaps between the two (Dan, 2012). In the design stage, the components of measuring student satisfaction aspects such as teaching services, academic administration services, and facilities were analyzed. As a result, 20 items were established for the first and second subscales, and 12 items for the third subscale. Specifically, these initial items consisted of 16 expectation aspects and 16 perception aspects. Due to psychological considerations of respondents, such as the risk of losing interest in completing a longer questionnaire, a smaller number of items were preferred (Sharma, 2022).

After conducting a blind review, ten validators reached a consensus that all proposed items of SSS were relevant and had valid content. The items achieved I-CVI between .80 and 1 and an S-CVI value of .90, which is above the minimum limit of 0.78 for ten raters. In order to ensure content validity, the proposed items were evaluated based on relevance, clarity, simplicity, and ambiguity. An intensive literature review was conducted to ensure that all items fulfilled these criteria. Expert panels also considered all items of SSS to be adequate. Therefore, it can be concluded that it meets the content validity requirement. The CVI value is important in defining the domain of the latent variable being measured, both in the development stage and the judgment-quantification stage (Bertea & Zait, 2013). In his work, Yagmale (2003) outlined four standards for evaluating content validity - relevance, clarity, simplicity, and ambiguity. In the current study, the items were thoroughly reviewed against the standard to ensure their relevance to indicators. The expert panels judged the items of SSS to be adequate during the judgment-quantification stage. Thus, it can be concluded that SSS satisfies the requirement of content validation.

In terms of applying web survey platform of this study, the SSS has good practical values according to the results of the pilot test. The level of practicality was calculated using the SPI method, and each item reached values between 0.87 and 1.0, indicating that the scale is practical or user-friendly in terms of content, language, or website appearance. Along with the initial validity and reliability values, it is a matter to assess practical aspects because it provides comprehensive information regarding its usefulness to users. Some related studies have confirm the using web-based or online survey in for its quality (Rao et al., 2018) as well as its possibilities, pitfall, and application (Harlow, 2010). However, some limitations emerge because the SSS only uses the Google Form platform, which requires semi-manual data processing. If incorporated into the existing information system, the system may process data more effectively and display them on the quality assurance unit of the institution website. Nonetheless, the practical test results demonstrate that users did not complain about using this platform. The finding the current study confirms previous researches of how effective ways to design and apply it as a supporting platform for data collection (Regmi et al., 2016; Son et al., 2021; Zeithaml et al., 2002) and informs user experience during a web-based survey (Santosa, 2016). Compared to similar applications (Andres et al., 2020), studies show the web platform superiority in the present research including unlimited respondents, automatically presented answers in spreadsheets, theme options, adding logos, images, videos, skip logic and page branching, embedding surveys into emails or web sites, adding collaborators, and it's free.

To determine whether the SSS stands for previous work, the studies of Siming et al (2015), Weerasinghe et al. (2017), and Razinkina et al. (2018) may be a reference. Their studies identified various elements that influenced student satisfaction, such as GPA, quality of teaching, clarity of expectations, teaching style, quality of lecturers, quality of campus services and facilities, and effective use of technology. Additionally, the studies found that the quality of classrooms, lecturer-student relationships, interactions with fellow students, concern for lecturers' well-being, and student growth and development also contribute to student satisfaction. The current study project selected several of these elements for pooling the items, categorizing them into tangibility, reliability, responsiveness, assurance, and empathy domains. It points similar results that according to validators' viewpoints they were relevant included in the scale.

The latest study conducted on the subject has revealed some significant findings. According to the study, the number of items focused on facility subscales outweighed those of teaching service and academic administration service subscales, as per expert opinions. This indicates the crucial role that facilities play in building satisfaction levels. While previous research by Douglas et al. (2006) suggests that facilities are not as significant in measuring student satisfaction, they are still very important in determining a student's choice of university. Prospective students pay serious attention to the quality of facilities offered by a higher education institution before making a

decision. With 12 of 32 items denoting the facility subscale in the present study, it is clear that the items in this subscale hold universal importance.

The study in question has successfully achieved its objectives. However, the process of determining the exact service quality in higher education is a complex and multi-faceted one. The Parasuraman et al. model of service quality is used in this study to determine how the respondents perceive their expectations of the services and their perception of the performance of the expected services. It is important to note that capturing the performance of the service by a scale is not always sufficient due to the subjective nature of service quality measurement using a self-report method that depends on the respondent perception (Özkan, 2016). Therefore, future research may benefit from including another method, such as peer review or the use of performance indicators and service providers or higher education institutions (Mishra, 2007). By comparing the expectations and perceptions of the respondents, more impressive data on the service quality can be obtained. In terms of website-based surveys used to measure student satisfaction in a more integrated fashion, future studies may consider embedding SSS into information systems to make the administration, data processing, and reporting more effective and informative. Overall, the study has provided valuable insights into the service quality in higher education, and future research can build on these findings to further enhance the quality of service provided to students.

5. Conclusion

Students' satisfaction with their academic experience in higher education is an important aspect that needs to be measured accurately. While there are numerous methods available to assess overall satisfaction, using a similar scale may not be sufficient to reveal individual responses concerning academic satisfaction. To address this issue, researchers have developed an alternative instrument called the student satisfaction scale (SSS), which applies the SERVQUAL model to measure academic satisfaction more comprehensively. The SERVQUAL model analyzes the gap between students' expectations and perceptions to evaluate their satisfaction with teaching services, academic administration services, and facilities. The SSS comprises 32 items that measure students' expectations and perceptions in five critical domains, including tangibility, reliability, assurance, responsiveness, and empathy. These domains represent the quality assurance required at the study program level of higher education. The validation stage of the study confirmed that the SSS is a reliable and valid tool for measuring student satisfaction with academic services. It has both diagnostic and predictive values for improving the academic quality assurance of study programs, ensuring that students receive the best possible learning experience.

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Appendix 1: The Final Item of the SSS

No.	Code	Items
1	TETS	Lecturers should organize the classroom before and during learning in a neat manner and orderly manner.
2	ReaETS	Lecturers need to use innovative, case-based, problem-solving, and project-based learning methods.
3	ReaETS	Lecturers must immediately to students who experience difficulties in learning and provide necessary assistance.
4	AETS	Lecturers are required to Use current, reliable, and easily accessible sources for lecture materials.
5	EETS	Lecturers must create a comfortable learning atmosphere for all student.
6	TPETS	Staff need to organize the workspace and equipment to show readiness to serve students' academic administration needs.
7	ResPTS	Staff must always be agile in providing academic administration services to students.
8	ResPTS	Staff should be responsive when students convey administrative needs that need to be resolved.
9	APTS	Staff must have reliable skills to provide good administrative services to students.
10	EPTS	Staff should show a polite attitude when treating students who require administrative services.
11	TEAAS	The classroom where lectures are held or the laboratory where practice and practicums are held and the equipment must look representative.
12	ResEAAS	Furniture (desks, chairs) and equipment in the classroom must be available in sufficient quantities and well maintained.
13	ResEAAS	Lecture rooms and facilities must be available if there is a sudden need.
14	AEAAS	The laboratory or practice room should be equipped with modern equipment in sufficient quantities for learning.
15	EEAAS	Sanitary facilities (toilets) must be available in sufficient numbers, easily accessible, and kept clean.
16	TPAAS	Places of worship facilities should be available in sufficient capacity and easily accessible to students.
17	ResPAAS	Lecturers always arrange the classroom carefully to create a conducive learning atmosphere.
18	ResPAAS	Lecturers always apply contemporary learning methods, problem-solving, case discussions, and projects.
19	APAAS	Lecturers are aware of students' difficulties in learning and immediately assist.
20	EPAAS	Lecturers provide up-to-date and easily accessible learning materials and resources.
21	TEF	Lecturers always create a fun and comfortable learning atmosphere.
22	ReaEF	Staff organize working conditions neatly to facilitate service to students.
23	ReaEF	Staff provide administrative services deftly by their main duties.
24	AEF	Staff respond quickly when students need help with paperwork or completing documents.
25	EE1F	Staff demonstrate high skills in providing administrative services.
26	EE1F	Staff provide full academic administration services with friendliness.
27	TPF	The classrooms where lectures are held or the laboratories where practicums are carried out and their equipment look classy.
28	ResPF	The lecture rooms and their furniture and other equipment are always well maintained and in sufficient quantities.
29	ResPF	Whenever there are other incidental needs, space in one of the buildings and equipment are always available.
30	APF	The laboratory or practice room has modern equipment and is sufficient in quantity.
32	EEP1F	Sanitary facilities (toilets) are always clean, easy to reach, and available in adequate quantities.
32	EEP2F	Places of worship facilities are provided in adequate capacity and are easily accessible.

Teaching at the Right Level: From Pre-service Teachers’ Perspective to Design of Teaching Material

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Abstract

Teaching at the Right Level (TaRL) is a learning approach that facilitates learning according to the ability level of each student. To explore the understanding of pre-service teachers regarding teaching materials with the TaRL approach, researchers conducted qualitative research with the subjects of 9 students from the students of pre-service teachers of Pendidikan Profesi Guru (PPG)/Teacher Professional Program. Teaching materials with the TaRL approach made by the subjects are studied more deeply and measured through 9 indicators of suitability of teaching materials based on the TaRL approach. Furthermore, each subject was interviewed to get more detailed findings regarding the pre-service teacher's understanding of TaRL-based teaching materials. Based on the results of studies and interviews, it was found that all subjects did not make teaching materials that were in accordance with students' abilities and did not make indicators to identify students who needed special handling. Pre-service teachers who understand the concept of TaRL tend to meet all indicators in making teaching materials that are in accordance with TaRL principles. Further research is needed to find gaps in the difficulty of pre-service PPG teachers in formulating teaching materials needed by students according to their perspective levels of understanding.

Keywords: Design of Teaching Material, Pre-service Teacher, Teaching at the Right Level

1. Introduction

Indonesia still faces low quality education. The United Nations Development Program (UNDP), in 2020 stated that Indonesia's Human Development Index (HDI) was in position 121 out of 189 countries, far below ASEAN countries such as Malaysia, Singapore, Thailand, Vietnam, and Brunei (Margaretha, 2023). This condition is linear with the results of the *Program for International Student Assessment (PISA)* in 2018 which placed Indonesia in

70th place out of 78 countries in the field of science, 72nd out of 78 countries in the field of Mathematics, and 72nd out of 77 countries in the field of reading. While in 2023, referring to the results of the PISA survey announced on Tuesday (5/12/2023), globally, the scores of mathematics, reading, and science skills of 15-year-old students in 81 countries fell, including in Indonesia. This international assessment of math, reading and science skills among students in PISA was designed by the Organization for Economic Cooperation and Development (OECD) (kompas.id, 2023). The achievement of Indonesia's PISA score since participating for the first time in 2000 to 2022, the PISA 2022 score is among the lowest, especially in reading (359), the lowest ever in 2000 and 2018 (371). So did math scores (366), ever the lowest of 2022 (360). As for science (383) it is relatively stable.

Anticipating this problem, in January 2022 the Ministry of Education, Culture, Research, and Technology (Kemdikbudristek) adopted the use of the Teaching at the Right Level (TaRL) approach pioneered by India. This approach aims to increase student learning participation in the classroom. Teaching at the Right Level (TaRL) was originally introduced by an Indian Non-Governmental Organization (NGO), Pratham, which was a response to the failure of the education system (Gandana et al., 2021; Rahayu, 2022; Unesco, 2023). In classroom practice, TaRL is a teaching approach that utilizes simple testing tools to assess and then categorize students according to their level of learning compared to their age or grade. TaRL is currently used in several African countries such as Zambia, Botswana, Ghana, Nigeria, and Uganda (Suharyani et al., 2023).

The adoption by the Kemdikbudristek of TaRL is a strategic step. In classroom learning, TaRL is a teaching approach that utilizes simple test tools to assess and then group children according to their learning level (Syarifudin et al., 2022; Unesco, 2023). Grouping is done based on their level of learning, not their age or grade. The TaRL approach prioritizes improving basic skills, supported by appropriate learning methods. The TaRL approach facilitates flexibility to teach according to the student's ability. This approach is structured to adjust the achievements, ability levels, and needs of students. TaRL is not tied to grade level, but adjusts based on students' abilities. (Angrist et al., 2020).

Previous research on TaRL implementation was conducted by Lakhsmān (2019). Lakhsmān (2019) states that the application of TaRL is implemented through three main ways. First, as a volunteer-based model through iterations of previous methods. Secondly, Pratham's team members led the work (assisted by volunteers) and carried out significant transformations and changes in basic learning in a relatively short period of time. Third, partnerships with government school systems at either state or district level where Pratham's team works closely with the government to incorporate core elements of the TaRL methodology into classroom teaching. The three methods are applied according to the needs and conditions of the school.

The TaRL approach implemented in primary schools in India shows that the methodology used, which consists of reorganizing instruction based on children's actual learning levels, rather than on a prescribed syllabus, has proven to be highly effective when applied correctly (Banerjee et al., 2016). Furthermore, despite the *promise of randomized controlled trials* (RCTs), the evaluation results obtained from the application of TaRL succeeded in increasing the level of student learning using measurable models in government schools.

Subsequent research focused on teachers' accurate perceptions of students' learning levels, before accompanying teachers to implement TaRL. The results obtained in this study show that increased intervention for teachers in identifying and utilizing data, assisted by technology is needed to improve student learning outcomes (Fitriani, 2022; Syarifudin et al., 2022). Teachers' perception of students' level of learning ability is a significant factor before the implementation of TaRL learning.

Although previous research on TaRL has been carried out, especially on the aspect of simple test instruments, the implementation of TaRL in the classroom to improve literacy and numeracy skills, including identifying teacher perceptions before implementing the TaRL approach, mapping the perspectives of Pre-service Teacher Professional Program (PPG) teachers and how they arrange teaching tools, which adapt the TaRL approach, has not been intensively carried out. This research is urgent considering that the Ministry of Education, Culture, Research, and Technology has an interest in implementing the Kurikulum Merdeka (Independent Curriculum) by applying the TaRL approach, especially to teachers who are included in the Pre-service Teacher Professional

Program (PPG). Mapping the perspectives of Pre-service PPG teachers is an indicator of whether teachers' understanding of the TaRL learning approach is adequate.

This study explored the understanding and evaluation of TaRL learning tools made by Pre-service PPG teachers for batch 2 2023 of Universitas Islam Malang and conducted structured interviews to dig deeper into how teachers' perspectives on TaR, in 9 (nine) respondents. The nine teachers were the teachers whose learning tools got the highest (top three), medium (three people), and low (three people with the lowest scores).

2. Method

This research is qualitative research with a case study approach. This research focuses on an in-depth understanding of the experience of Pre-service PPG students regarding the preparation of TaRL-laden teaching materials. The subjects of the study were 76 PPG Pre-service Batch 2 students of 2023, from three fields of study, namely Mathematics, English, and Indonesian of Universitas Islam Malang. Then 9 subjects were selected based on the students' final scores, with details of 3 students who got high final marks, 3 students who got middle final marks, and 3 students who got low final scores. Next, researchers coded each subject to facilitate writing the analysis as shown in Table 1.

Table 1: Subject Codes

Subject	Subject Code
Subjects from Indonesian field of study with high grades	ST1
Subjects from the field of study of Mathematics with high grades	ST2
Subjects from the field of English study with high grades	ST3
Subjects from Indonesian field of study with moderate grades	SS1
Subjects from the field of study of Mathematics with moderate grades	SS2
Subjects from the field of English studies with moderate grades	SS3
Subjects from Indonesian field of study with low grades	SR1
Subjects from the field of study of Mathematics with low grades	SR2
Subjects from the field of English study with low grades	SR3

The instruments used in this study were the list of interview questions shown in Table 2 and the TaRL indicator table which included nine components as shown in Table 3. The nine components include the initial level of understanding, grouping of students, customized learning materials, relevant exercises and activities, continuous monitoring and evaluation, adjustment ability, interactivity, the possibility of providing additional support, and emphasis on understanding concepts.

Table 2: List of TaRL Understanding Questions for Pre-service PPG Students Batch 2 -Year 2023

No	QUESTION
1	What is your understanding of the concept of Teaching at the Right Level (TaRL)?
2	How do you think TaRL differs from conventional learning approaches?
3	Are you able to explain the basic principles of TaRL in teaching?
4	Why do you think it is important to tailor teaching to each student's level of understanding, as is done in TaRL?
5	How can TaRL help address student comprehension gaps in the classroom?
6	In the context of TaRL, what is meant by " <i>assessment-driven instruction</i> "?
7	How can TaRL be implemented in online or distance learning situations?
8	What benefits might students derive from applying TaRL teaching methods?

- | | |
|----|---|
| 9 | How has the role of teachers changed in the context of TaRL learning compared to conventional approaches? |
| 10 | How do you see the potential use of technology in supporting TaRL implementation in educational settings? |

Data collection techniques are carried out in two ways. First, the subject is given a deep question regarding the understanding of TaRL. Subsequently, an examination is conducted on instructional resources employing the TaRL (Teaching at the Right Level) methodology within the context of the subject matter. This analysis seeks to assess the congruence between the documents, structured as educational materials, and the specified criteria aligned with the TaRL approach.

Table 3: Table of Conformity Indicators of Teaching Materials Teaching at The Right Level

No.	Indicators	Avai lable	Not Availa ble
1	Measurement of Initial Comprehension Level: Teaching materials should include initial measurement tools, such as diagnostic tests, that help determine a student's initial level of understanding of the topic to be taught. This allows teachers to group students based on their abilities.		
2	Student Grouping: This indicator includes the process of grouping students into groups based on diagnostic test results. These groups should have a similar level of understanding, so that teaching materials can be tailored to each group.		
3	Customized Learning Materials: Teaching materials should include material appropriate to the level of understanding of each group of students. This material should be designed to be well accessible and understood by students in the group.		
4	Relevant Exercises and Activities: This indicator includes the presence of exercises and activities appropriate to the student's level of understanding. These activities should be designed to help students deepen their understanding.		
5	Continuous Monitoring and Evaluation: Teaching materials should include methods of continuous monitoring and evaluation to measure student progress. This helps the teacher or teachers adjust instructions when needed.		
6	Customizability: Teaching materials should be flexible and allow teachers or tutors to adjust them according to student progress. It includes guidance on how to adapt teaching materials for students who are faster or slower in understanding the material.		
7	Interactivity: Teaching materials should stimulate active student participation. This can include questions, discussions, or tasks that encourage deeper understanding.		
8	Possibility of Providing Additional Support: Teaching materials should also include indicators to identify students who may need additional support, such as students who require special guidance.		
9	Emphasis on Understanding Concepts: Teaching materials should place emphasis on understanding concepts rather than simply memorizing facts. It helps students understand and apply concepts in a variety of contexts.		

Data analysis is carried out by means of thematic analysis to identify patterns, themes, and relationships between student experience and teaching material design. The observation was carried out to see and obtain evidence of a pattern about the relationship between students' perspectives on TaRL as well as the accuracy of the teaching materials they had compiled. The results obtained are used to make recommendations related to TaRL-loaded teaching materials that are in accordance with TaRL principles to be implemented in classroom learning.

3. Results

3.1 Results of TaRL Understanding in Pre-service PPG Students Class Batch of 2023

The results of the understanding of Pre-service PPG students explored through the first question, about the concept of TaRL show that the subject conveys a definition of TaRL which functions as a learning approach that emphasizes the level of understanding, learning readiness, style, and interest in learning students. Only one subject stated that TaRL is a learning strategy that focuses on the abilities of each learner individually, not by grade or grade level.

In the second question related to the difference between TaRL and conventional learning, the subject answered the distinguishing aspects are in the teaching material, learning readiness, which is differentiated (content, process, product), personalized learning, and the learning center is on the student. The third question explores the basic principles of TaRL in teaching that the subject understands is the existence of diagnostic tests, learning that is customized according to the student's ability level, and the flexibility of teaching to students. One subject did not answer in detail.

In the fourth question, the subject was asked why teaching adjustments are important in TaRL. The subject stated that teaching adjustments need to be made because students have different learning speeds, interests, and styles in order to get maximum learning, teachers can adjust learning strategies-learning media, facilitate students who start learning from different beginnings, facilitate the identification of student knowledge groupings (low, high, medium), prevent student knowledge gaps, and different student characters then you should get more accommodating learning.

The fifth question focuses on whether TaRL can help address student comprehension gaps in the classroom. The subject states that the comprehension gap is narrowed by tailored teaching, facilitating teachers to structure innovative learning, TaRL enables teachers to recognize the potential, characteristics, needs and development of each student through initial and periodic assessments, and TaRL addresses student understanding gaps. One of the subjects stated that according to his experience the student managed to pass the predetermined standards at each level. They learn "conditioned" both in terms of text / material, media, assignments, and the intensity of teacher assistance.

In the sixth question, subjects were asked to answer the question what is *assessment-driven instruction*? The subjects said learning activities carried out based on student assessment or evaluation Assessment-driven instruction uses the results of the evaluation to determine the level of understanding of each learner and design teaching appropriate to that level. Thus, teaching is centered on assessments that provide immediate insight into the individual learning needs of learners, supporting a tailored approach to the teaching process. In the context of TaRL means whether the learning process is in accordance with the level and readiness of students. A learning approach that uses assessment results to determine objectives, strategies, and learning materials that are in accordance with the needs and abilities of students. With this approach, teachers can measure learners' learning progress, develop effective lesson plans, and provide accurate and systematic assessments. Information from this assessment is used to direct teaching by adjusting the material and teaching approach to suit the level of student understanding. "Assessment-driven instruction" refers to the use of continuous assessment to guide teaching. Teachers use assessment results to assess students' level of understanding of certain concepts. Based on these results, teaching is tailored to meet the specific needs of students. This approach places emphasis on responsiveness to students' actual level of understanding, ensuring that learning is tailored to needs. One subject stated that the meaning of the phrase refers to learning carried out based on data (values and results of diagnostic assessments). Assessment-driven instruction refers to the use of assessment to determine the level of understanding of learners and then design instruction based on that assessment. Assessment-driven instruction means that assessment should encourage learning. Assessment practice should send appropriate signals to students about what to learn, how to learn it, and the relative time spent on concepts and skills in a subject.

In the seventh question, the subject answered the question how can TaRL be implemented in online or distance learning situations? Nine subjects said that digital platforms that allow individualized assessment and teaching vary according to the level and learning style of students. The use of online evaluation tools, adaptive learning applications, and content development that is responsive to the level of understanding of learners in my opinion can support the effective implementation of TaRL in an online learning environment. Use of applications such as quizzies, video conferencing, break out room in zoom, google form. Kahoot, word wall, and learning spaces according to student level and readiness allow teachers to carry out online diagnostic assessments before grouping students according to ability level.

The eighth question focuses on the benefits of TaRL learning for students. The subject answers to increased understanding of the material, improved academic skills, increased student confidence, and reduced understanding gap among students because teaching is tailored to the level of understanding of individuals so as to be able to achieve learning objectives according to their level. TaRL reduces comprehension gaps, increases student motivation because students learn according to their style and ability level, and have a strong understanding of concepts. TaRL opens opportunities for students to achieve the expected competencies (even surpass) even though they come from various backgrounds of their respective cognitive abilities, while making learning effective. Students get learning instruction that matches their level of understanding, students can reach their full potential.

The ninth question asks students to answer the question of how the role of the teacher changes in the context of TaRL learning compared to conventional approaches. The role of the teacher has changed to become more individualist in the sense of understanding the individual students more deeply. The teacher does not deliver the material in general, but acts as a facilitator who identifies the level of understanding of individual learners and structures teaching accordingly. The teacher also acts as a counselor who analyzes the initial abilities of students and makes learning designs that are in accordance with the abilities of students. Teachers develop valid diagnostic assessments, design modules/mentoring plans tailored to the student's level. The teacher acts as a monitor of the development of student abilities and adjusters of material to student abilities.

In the tenth question, the subject answered the question of how the potential use of technology in supporting the implementation of TaRL in the educational environment. The subject stated that online learning applications, digital evaluation tools, and adaptive platforms provide solutions to identify students' levels of understanding very quickly and provide learning content tailored to individual learners. Technology also allows teachers to see the progress of their students in real-time and makes it easy to provide appropriate guidance. Teachers maximize the use of customizable applications in implementing TaRL, for example making quizzes according to their level in the quizziz application, and doing Lembar Kerja Peserta Didik (LKPD) (student's worksheet) can be through word wall or live worksheets. Teachers use a teaching module creation platform that can adapt content, media, and learning methods to student needs and interests, Technology facilitates teachers to identify and analyze the initial abilities of students, and create teaching materials that suit student abilities. The use of technology helps students and teachers achieve the expected competencies, so that students are happy and teachers are carefree. Technology increases student engagement in learning through the display of videos and online-based game slide shows.

3.2 Results of Identifying the Conformity of Teaching Materials with TaRL Components

Based on the results of the analysis of teaching materials made by nine (9) subjects who are students of PPG Pre-service Universitas Islam Malang (UNISMA) Batch 2 of 2023 with related TaRL components which contain 9 indicators, the following data can be presented. First is the ST 1 subject who is a student from the Field of Indonesian Language and Literature Education. This student gets high marks at the end of the semester. Indicators of teaching materials that have been made and in accordance with TaRL are indicators 1,2,4,5,6,7,8, and 9. While the indicator that is not suitable is indicator 3.

The second subject is SS1 students who also come from the Field of Indonesian Language and Literature Education. This student gets moderate grades at the end of the semester. Indicators of teaching materials that have been made and in accordance with TaRL are indicators 4, 5, 7, 8, and 9. While the indicators that do not match are indicators 1, 2, 3, and 6.

Next are SR1 students who also come from the Field of Indonesian Language and Literature Education. This student gets a low score at the end of the semester. Indicators of teaching materials that have been made and in accordance with TaRL are indicators 1, 5, 7, and 9. While the indicators that do not match are indicators 2, 3, 4, 6, and 8.

Furthermore, ST2 students are students from the Field of Mathematics Education. This student gets high marks at the end of the semester. Indicators of teaching materials that have been made and in accordance with TaRL are indicators 2, 4, 5, 7, and 9. While the indicators that do not match are indicators 1,3,6 and 8.

The fifth subject is SS2 students who also come from the Field of Mathematics Education. This student gets moderate grades at the end of the semester. Indicators of teaching materials that have been made and in accordance with TaRL are indicators 1, 2, 4, 5, 7, and 9. While the indicators that do not match are indicators 3, 6, and 8.

The next subject is SR2 students who also come from the Field of Mathematics Education. This student gets a low score at the end of the semester. Indicators of teaching materials that have been made and in accordance with TaRL are indicators 2, 4, 5, 7, and 9. While the indicators that do not match are indicators 1, 3, 6, and 8.

The seventh subject is ST3 who is a student from the Field of English Language Education. This student gets high marks at the end of the semester. Indicators of teaching materials that have been made and in accordance with TaRL are indicators 5, 6, 7, and 9. While the indicators that do not match are indicators 1, 2, 3, 4, and 8.

The eighth subject is an SS3 student who also comes from the Field of English Language Education. This student gets moderate grades at the end of the semester. Indicators of teaching materials that have been made and in accordance with TaRL are indicators 5, 7, and 9. While the indicators that do not match are indicators 1, 2, 3, 4, 6, and 8.

Next are SR3 students who also come from the Field of English Language Education. This student gets a low score at the end of the semester. Indicators of teaching materials that have been made and in accordance with TaRL are indicators 1, 4, 5, 7, and 9. While the indicators that do not match are indicators 2, 3, 6, and 8.

Based on the presentation of the results of the analysis of teaching materials, it can be found that indicators that consistently exist and are successfully met are indicators 5, 7, and 9. Meanwhile, the indicators that were consistently not met by the nine subjects were indicator 3, Adapted Learning Materials: Teaching materials must include material that is appropriate to the level of understanding of each group of students. This material should be designed to be well accessible and understood by students in the group. The results of the analysis can be seen in Figure 1.

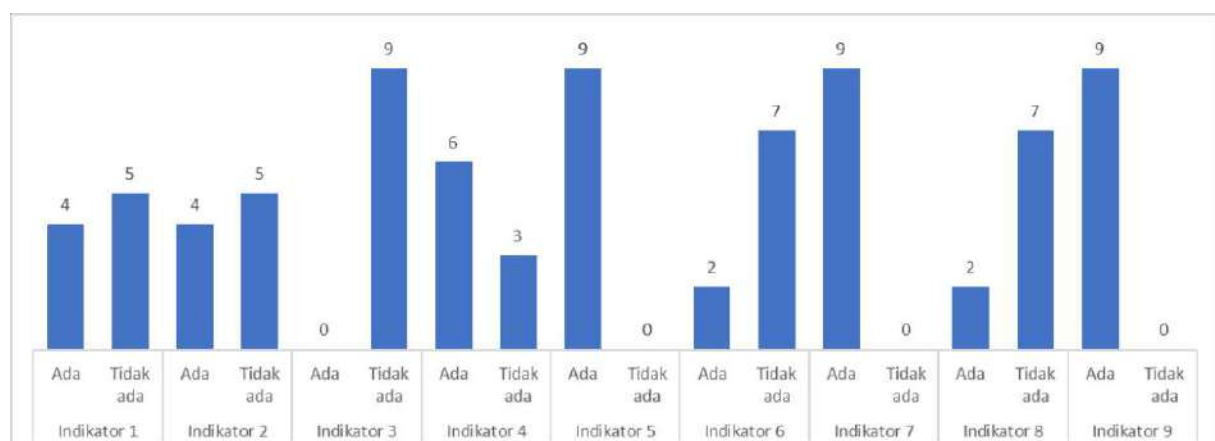


Figure 1. Number of Students Who Make Teaching Materials according to Teaching Material Indicators using TaRL Approach

4. Discussion

4.1 Understanding TaRL of Pre-service PPG Students

The Teaching at the Right Level (TaRL) approach will ensure students get a solid fundamental interpretation before moving on to more complex concepts, which will give students a strategic foundation to develop their creativity (Pebriyanti et al., 2023). The research reinforces that to condition students who have a solid basic understanding to increase their creativity, teachers must have a good understanding of TaRL. The Teaching at the Right Level (TaRL) approach will ensure students get a solid fundamental interpretation before moving on to more complex concepts, which will give students a strategic foundation to develop their creativity (Adil et al., 2022; Jazuli, 2022; Pebriyanti et al., 2023). The research has implications for conditioning students to have a solid basic understanding to increase their creativity, so teachers must have a good understanding of TaRL. In this context, the research focuses on exploring the understanding of Pre-service PPG teachers on the TaRL learning approach, through structured interviews and identification of TaRL-laden teaching materials on nine subjects.

The Teaching at the Right Level (TaRL) approach will ensure students get a solid fundamental interpretation before moving on to more complex concepts, which will give students a strategic foundation to develop their creativity (Pebriyanti et al., 2023). The research reinforces that to condition students who have a solid basic understanding to increase their creativity, teachers must have a good understanding of TaRL. The Teaching at the Right Level (TaRL) approach will ensure students get a solid fundamental interpretation before moving on to more complex concepts, which will give students a strategic foundation to develop their creativity (Adil et al., 2022; Jazuli, 2022; Pebriyanti et al., 2023). The research has implications for conditioning students to have a solid basic understanding to increase their creativity, so teachers must have a good understanding of TaRL. In this context, the research focuses on exploring the understanding of Pre-service PPG teachers on the TaRL learning approach, through structured interviews and identification of TaRL-laden teaching materials on nine subjects.

Of the nine subjects, only one stated that TaRL is a strategy. The other eight subjects stated that TaRL is a learning approach that emphasizes students' level of understanding, readiness to learn, style, and interests. This understanding is linear with research (Amoah et al., 2022; Meishanti et al., 2022) who argue that learning in small groups with interactive instruction, students' weak points are addressed and managed before moving on to more difficult concepts. Pre-service PPG teachers batch 2 of 2023 have a good understanding of the definition of TaRL which emphasizes a learning approach that facilitates student learning readiness before carrying out learning.

In the first and second question points that explore the understanding and differences of TaRL learning with conventional learning, the subject has a homogeneous perspective that the distinguishing aspects of TaRL are teaching materials, readiness to learn, which is facilitated by differentiated learning through differentiation of content, processes, and products. Personalized learning is another buzzword for TaRL that is not implemented in conventional learning. The opinions expressed by subjects support the statement that learning *analysis* opens up new opportunities to promote personalization by providing insight and understanding into how learners learn and supporting tailored learning experiences that meet their goals and needs (Chatti & Muslim, 2019). The character of personalized learning is the spirit of TaRL teaching. Teachers understand that children at different levels of understanding need grouping to facilitate more personalized learning as needed (Ahyar et al., 2022; Ningrum et al., 2023).

The third question explores the basic principles of TaRL in teaching that the subject understands is the existence of diagnostic tests, learning that is customized according to the student's ability level, and the flexibility of teaching to students. Pre-service PPG teachers explain the basic principles of TaRL oriented to the level of understanding of students. These findings confirm that the level of student understanding becomes the starting point for teachers in formulating teaching that suits students (Aspat Colle et al., 2023; Banerji & Chavan, 2020).

The fourth question that focused on adjusting teaching according to students' comprehension levels and the fifth question how TaRL helped students' understanding gaps in the classroom became follow-ups after researchers found out how teachers understood TaRL learning principles. Adapting the teaching done in TaRL is important

because each learner has different speeds, interests and learning styles, TaRL can ensure that learning material is completely absorbed by each learner and improve their understanding and skills individually. Students who get teaching according to their ability and learning speed are more challenged and motivated to develop their potential. Students will also feel more valued and recognized as unique and distinct individuals. Teaching adjustments are strategic because teachers can set learning strategies, learning media, guidance, and appropriate treatment when carrying out the teaching process in class. TaRL enables teachers to optimize the prevention of gaps in understanding between students.

The sixth question explores the teacher's understanding of *assessment driven instruction* (ADI) and the seventh question how it is applied in learning. The teacher stated that ADI in the context of TaRL refers to the regular use of assessment to identify students' level of understanding of the material. In the context of TaRL, ADI refers to the use of ongoing assessment to guide teaching. Teachers use assessment results to assess students' level of understanding of certain concepts. Based on these results, teaching is tailored to meet the specific needs of students. This approach places emphasis on responsiveness to students' actual level of understanding, ensuring that learning is tailored to their individual needs. Meanwhile, the results of ADI are used to determine objectives, strategies, and learning materials that suit the needs and abilities of students. In research (Mostafa, 2011; Sari & Setyarsih, 2017; Soares & Draper, 2013) stated that ADI improves the portfolio design skills of in-service teachers in the field of English, improves the science process skills of high school students, and potentially improves the ability to read near informational texts. ADI plays a strategic role in photographing students' abilities comprehensively.

The eighth question delves into teachers' perceptions of the benefits of TaRL for students. Teachers convey the benefits of TaRL including understanding the material, improving academic skills, increasing student confidence, and reducing understanding gaps among students because teaching is adjusted to the level of individual understanding, students can achieve learning goals according to their level, increase student motivation, and make it easier for students to learn. The teacher added that the use of TaRL helps students achieve expected competencies (even surpass) despite coming from various backgrounds of their respective cognitive abilities. The eighth question correlates with the third question which delves into teachers' perceptions of the basic principles of TaRL teaching. Students are the center of TaRL orientation that requires teachers to be proficient in dealing with students with different levels of understanding.

Question nine explores the changing role of teachers in TaRL teaching. The role of teachers as facilitators is getting stronger in TaRL teaching, besides that teachers also act as counselors, and are adaptive to adjust the material according to the level of understanding of students. In conventional learning that has not applied TaRL, teachers rarely adjust the material needed by some students who are at a low level of understanding. This change makes teachers challenged to creatively arrange material according to student needs. This role shift according to (Muammar & Megawati, 2023) requires teachers or TaRL accompanying volunteers to carry out diagnostic assessments on students first and group students according to ability before teaching takes place. These pre-actions encourage teachers to better prepare before starting teaching.

The last question of this interview with Pre-service PPG teachers is to explore teachers' understanding of the potential use of technology in supporting the implementation of TaRL in educational environments. Online learning applications, digital evaluation tools, and adaptive platforms can provide solutions to identify the level of understanding of students very quickly and provide learning content that suits individual students, I think technology also allows teachers to see the progress of their students in real-time and makes it easier to provide appropriate guidance. Teachers think that technology can help teachers in designing and presenting learning materials that are appropriate to the level of students. For example, teachers can more precisely identify students' initial abilities to determine the use of teaching module creation platforms that can tailor content, media, and learning methods to student needs and interests. The involvement of technology as a learning application is proven to increase personalized or customized learning in low- to middle-income communities as well as in students and make students achieve higher learning outcomes (Amoah et al., 2022; Major & Francis, 2020).

4.2 Suitability of Teaching Materials with TaRL Components

Based on the results of this study, an interesting trend can be found regarding the suitability of teaching materials with the TaRL component juxtaposed with the overall results of student grades at the end of the semester. Good student grades at the end of the semester are not in line with teaching materials with the TaRL components they make. This is shown in Figure 2.

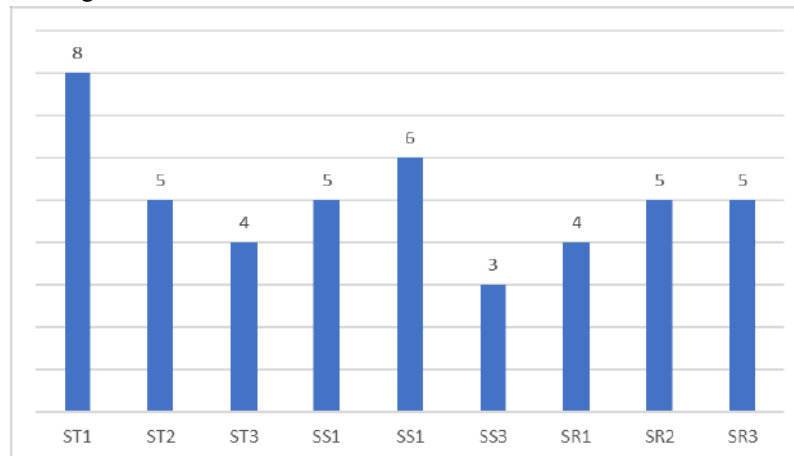


Figure 2: Number of Indicators Filled by Every Subject

From Figure 2 it can be seen that the bar chart has fluctuations. In this sense, subjects who get high semester grades there is no guarantee that the teaching materials made will match the TaRL component higher than subjects who get low semester grades. Thus, it can be said that it is not a guarantee that students whose scores are high at the end of the semester are able to make teaching materials that are in accordance with the TaRL component. However, it is certainly also a natural thing because indeed the final semester grades are indeed taken from several assignment grades that have been carried out by the subject. Final grades can be obtained from assignment grades, daily test scores, midterm exam scores, end-of-semester exam scores, and the value of a series of activities, such as essay writing, practice, homework, class participation, and others. The final grade given to students can be said to be the conclusion of the values of the work they have done (Sani, 2022).

Making teaching materials with TaRL has many challenges. That's because this new approach is very complex and does have to have adjustments to be made. Basically, the character and ability of students must be different, plus in the process, they must encounter less than ideal conditions. This is an obstacle to implementing TaRL in making teaching materials (Mubarokah, 2022).

The interesting thing from this discussion is that there is a tendency about the subject's understanding of TaRL with the suitability of the teaching materials they make. Those who have a good understanding of TaRL turn out that the teaching materials they make also have a high compatibility of TaRL components. It is certainly a consideration that the task of TaRL-based teaching material manufacturing products must be side by side with interviews about the understanding of the product maker. This is important because not all learners have a very good level of honesty, of course there are those who have a bad level of honesty (Situmorang & Nurrahman, 2019). Even though the main purpose of education is to form a good character (Omeri, 2015).

5. Conclusion

The subjects studied tend to create exercises and activities that are appropriate to the student's level of understanding, but the teaching materials are still made the same for all students with different levels of understanding. We recommend that teaching materials also need to be adjusted to the level of student understanding because teachers need to design a positive learning environment and learning experience in order to arouse student interest, motivation, participation, and confidence.

Indicators to identify students who need special attention need to be included in teaching materials in learning with the TaRL approach. Guidelines for adapting teaching materials for students who can understand the material sooner or later than the estimated time also need to be included in teaching materials for learning with the TaRL approach. This is important in anticipation so that teachers can intervene early as a form of positive support for all students so that learning objectives can be achieved and all students can have the competencies set. Further research is needed to find gaps in the difficulty of pre-service PPG teachers in formulating teaching materials needed by students according to their respective levels of understanding.

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Appendix 1: The Final Item of the SSS

No.	Code	Items
1	TETS	Lecturers should organize the classroom before and during learning in a neat manner and orderly manner.
2	ReaETS	Lecturers need to use innovative, case-based, problem-solving, and project-based learning methods.
3	ReaETS	Lecturers must immediately to students who experience difficulties in learning and provide necessary assistance.
4	AETS	Lecturers are required to Use current, reliable, and easily accessible sources for lecture materials.
5	EETS	Lecturers must create a comfortable learning atmosphere for all student.
6	TPETS	Staff need to organize the workspace and equipment to show readiness to serve students' academic administration needs.
7	ResPTS	Staff must always be agile in providing academic administration services to students.
8	ResPTS	Staff should be responsive when students convey administrative needs that need to be resolved.
9	APTS	Staff must have reliable skills to provide good administrative services to students.
10	EPTS	Staff should show a polite attitude when treating students who require administrative services.
11	TEAAS	The classroom where lectures are held or the laboratory where practice and practicums are held and the equipment must look representative.
12	ResEAAS	Furniture (desks, chairs) and equipment in the classroom must be available in sufficient quantities and well maintained.
13	ResEAAS	Lecture rooms and facilities must be available if there is a sudden need.
14	AEAAS	The laboratory or practice room should be equipped with modern equipment in sufficient quantities for learning.
15	EEAAS	Sanitary facilities (toilets) must be available in sufficient numbers, easily accessible, and kept clean.
16	TPAAS	Places of worship facilities should be available in sufficient capacity and easily accessible to students.
17	ResPAAS	Lecturers always arrange the classroom carefully to create a conducive learning atmosphere.
18	ResPAAS	Lecturers always apply contemporary learning methods, problem-solving, case discussions, and projects.
19	APAAS	Lecturers are aware of students' difficulties in learning and immediately assist.
20	EPAAS	Lecturers provide up-to-date and easily accessible learning materials and resources.
21	TEF	Lecturers always create a fun and comfortable learning atmosphere.
22	ReaEF	Staff organize working conditions neatly to facilitate service to students.
23	ReaEF	Staff provide administrative services deftly by their main duties.
24	AEF	Staff respond quickly when students need help with paperwork or completing documents.
25	EE1F	Staff demonstrate high skills in providing administrative services.
26	EE1F	Staff provide full academic administration services with friendliness.
27	TPF	The classrooms where lectures are held or the laboratories where practicums are carried out and their equipment look classy.
28	ResPF	The lecture rooms and their furniture and other equipment are always well maintained and in sufficient quantities.
29	ResPF	Whenever there are other incidental needs, space in one of the buildings and equipment are always available.
30	APF	The laboratory or practice room has modern equipment and is sufficient in quantity.
32	EEP1F	Sanitary facilities (toilets) are always clean, easy to reach, and available in adequate quantities.
32	EEP2F	Places of worship facilities are provided in adequate capacity and are easily accessible.

Development of Social Competence of Future Tourism Specialists by Conducting Excursions within the Framework of English Language Classes

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Abstract

This study covers the conduct of excursions to tourism and service industry enterprises as a part of English language classes. It is known that with the development of the tourism industry, the demand for workers in this field is growing. The requirements for employees in this area are high too. Proficiency in English is one of the most important requirements today. Since work in tourism involves constant communication with guests and partners from around the world. It is necessary to note that it is important to develop social competence of the future tourism specialists. Social competence implies the ability to take responsibility, to work on something controversial, uncertain, and the ability to make decisions in various professional situations. It is known that today graduates must possess such qualities as resistance to stress, mobility and innovation. Thus, it is important for a future specialist not only to know, but also to be able to demonstrate the necessary skills and knowledge. This study presents excursions as an auxiliary form of educational activity, aimed at developing social competence among future tourism and service industry specialists. The results of this study showed the effectiveness of organizing excursions for the development of social competence of the future tourism specialists in the process of teaching English.

Keywords: Tourism and Service Industry, Tourism Specialists, English Language, Competence, Social Competence

1. Introduction

It is known that tourism is one of the highly profitable sectors of the world economy, ranking second in terms of income after oil production and refining. Tourism industry is booming and captures rigorous attention of academics, business tycoons, and economic analysts because of its growing effect on the GDP of a country ("Tourism industry is booming and captures rigorous attention of academics, business tycoons, and economic analysts because of its growing effect on the GDP of a country").

In the Kyrgyz Republic this sector is one of the priorities, which is confirmed by a significant increase in recent years in the number of economic entities engaged in tourism and service. According to the information of the

National Statistical Committee of the Kyrgyz Republic in January 2023 in the Republic registered 121.1 thousand economic entities engaged in economic activities related to tourism [National Statistical Committee]. Active development of the tourism industry in Kyrgyzstan increases the demand for specialists in this field.

The National Development Strategy of the Kyrgyz Republic for 2018-2040 highlights the importance of the tourism industry. "We need professional staff at all levels from management to service personnel..." (National Strategy, b. d., p. 62).

However, experience shows that workers in this industry often face some difficulties related to social adaptation, interpersonal communication. Also, insufficient command of English causes difficulties in communicating with guests, clients, colleagues.

Work in the field of tourism and service, first of all, involves communication with customers from different countries. Thus, mastery of foreign languages, in particular English, is one of the primary criteria for employment in the enterprises of this sphere. In addition, the ability to communicate effectively with people, the ability to quickly adapt to new conditions requires the development of social competence from the specialists of this sphere regardless of specialization" (M. Ozturk, 2018, p. 180).

Competency-based approach today is considered as an innovative process in education, aimed at changing the principles of learning organization and the role of the student from a passive recipient of knowledge, skills and abilities to an active cognitive subject of the educational process (Verbitsky A. A., 2009). In our opinion, the competence approach in the training of future tourism specialists should become one of the priority directions in the activities of modern universities.

The issues of competence approach are considered in the works of V.I. Baidenko (Baidenko, 2004), I.L. Bim (I.L. Bim, 1998), N.I. Gez, I.A. Zimnyaya, D. Raven, R. White and many others. In the Kyrgyz Republic, the problem of competency-based approach is devoted to the works of N.A. Asipova (Asipova N.A., 2014), K.D. Dobaev (Dobaev K.D., 2010), A.T. Kaldybaeva, A.K. Narkoziev (Narkoziev A.K., 2011), A.S. Raimkulov and others. The main concepts of the competence approach are "competence" and "competence".

In the Pedagogical Dictionary, the term "competence" means a range of powers, occupation in which a person has the necessary knowledge and experience (Pedagogical Dictionary, 2008). According to I.A. Zimnyaya's point of view, competence is an "integrative personal quality" manifested by a person in solving various professional and social tasks (Zimnyaya I.A., 2016). In other words, competence is the ability to apply the knowledge obtained during training in practice.

Our research studies social competence and its development in students, future specialists of tourism and service sphere. Given the fact that the service sphere is a close communication between the subject of service and its consumer, and this communication requires a sufficient level of formation of social competence.

The problem of students' social competence development is touched upon in the works of E.G. Azimov, N.I. Geza, N.D. Galskova, I.A. Zimnyaya, and others. (Zimnyaya I.A., 2016). Let's consider different points of view regarding the definition of the term "social competence".

According to I.E. Shishova, social competence is "the ability to interact effectively with other people in the process of speech communication and implementation of some other activity on the basis of available knowledge, skills, abilities, formed communicative abilities and personality qualities" (Shishova I.E., 2006). L.S. Znikina believes that social competence is the ability to take responsibility in making professional decisions, tolerance to different cultures. In addition, she attributes to it the ability and readiness to independently acquire new knowledge and skills, to realize one's personal potential (Znikina L.S., 2005).

According to V.I. Baidenko, social competence is "readiness and ability to form and live in social interaction: to change and adapt" (V.I. Baidenko, 2004, p. 7).

Social competence of a specialist of tourism and service industry, in our opinion, is an acquired set of abilities and skills formed in the process of specially organized training or adaptation to working conditions in this sphere.

The object of this study is the process of teaching English to students, future specialists in tourism. The subject of the study is the formation of social competence in the process of teaching English.

It is known that the development of social competence implies the necessity of using active forms of learning, organizing excursions, as well as game activities (Ozturk M.S., 2021).

This article considers conducting excursions to the enterprises of tourism and service industry as one of the activities aimed at the development of students' social competence.

There are different points of view regarding the term "excursion". Let's consider some of them. According to T.S. Shirobokova excursion is "an ancient form of educational and educational work, the peculiarity of which is that the learning process is realized not in the conditions of the classroom, but on the streets of the city, in the museum, in nature, in parks, in production, etc., during the direct perception by students of the surrounding world" (Shirobokova T.S., b. d.). V.V. Kostovarova considers "educational excursion as a form of organizing training, which allows observations, as well as provides an opportunity to study various subjects, phenomena and processes in natural conditions" (V.V. Kostovarova, 2015, p. 102). According to I.E. Shishova, the use of lessons-excursions is effective for the formation of social competence in the process of teaching foreign languages (Shishova I.E., 2006, p. 112).

2. Method

The method of study of psychological and pedagogical scientific and methodical literature on the problem of research is "a way of initial ideas and initial concept about the subject of research, its sides and connections, detection of gaps, ambiguities in the development of the problem selected for study" (Obraztsov, 2004, p. 268). Detailed study of the literature on the problem under study allows to identify already studied and developed concepts, points of view, experience, thus forming an idea of the degree of development of the problem. In the process of work, this method includes initially compiling a bibliographic list on the topic under study to be analyzed. "Analysis is a mental dissection of a subject or phenomenon into its constituent parts, that is, the allocation of individual parts, features and properties in them, while synthesis is a mental connection of individual elements, parts and features in a whole" (Mindiyarova, 2018, p. 2). The analysis allows us to delve deeper into the essence of the problem under study. Thus, having analyzed a variety of sources, the points of view of various scientists regarding the problem we are studying have been revealed.

Conducting pedagogical research involves the use of empirical methods to identify problems in the pedagogical process.

Questionnaire survey is "a method of mass collection of information by means of specially designed questionnaires-questionnaires" (Podlasy, 2015, p. 567). Questionnaire survey, which allows to interview a large number of respondents, gives an opportunity to investigate certain pedagogical phenomena. In our study this method was used to assess the level of formation of students' social competence. It is important not to allow ambiguous questions in the questionnaires. Also, before starting the questionnaire, its goals and objectives should be explained. In practice, open, closed and mixed types of questionnaires are used. Open-ended questionnaires contain questions to which the interviewees give their answers, while closed-ended questionnaires include questions and possible answers to them. "The strength of a written survey lies in the possibility to cover a large number of interviewees with the research and, therefore, to identify mass phenomena, on the basis of the analysis of which facts are established" (Zagvyazinskiy et al., 2008, p. 117).

In the framework of our research we consider it appropriate to use the method of questionnaire survey, which allows us to survey the necessary number of respondents to assess the level of formation of social competence of future employees of the tourism and service industry. The following questionnaires were used for this purpose:

the questionnaire for diagnosing the level of empathic abilities of V.V. Boyko. Boyko, aimed at assessing the ability to empathize, sympathize with a partner in communication; the questionnaire of tolerance-intolerance to uncertainty by T.V. Kornilova, developed in 2009 and reflecting such personality variables as tolerance to uncertainty (TN), intolerance to uncertainty (ITN) and interpersonal intolerance to uncertainty (IITN).

Tolerance to uncertainty (TO) reflects the ability to make decisions and perform actions in situations of uncertainty, ambiguity, readiness for new, sometimes creative ideas.

Intolerance to uncertainty (ITN) means a person's constant striving for orderliness and clarity in affairs, rejection of ambiguity in work, opinions, inability to change established views in new conditions.

Interpersonal Intolerance to Uncertainty (MITN) is a scale of such a personality property as acceptance or non-acceptance of ambiguity in interpersonal relations. The higher this index, the more the subject does not tolerate ambiguity in communication with people. This questionnaire includes three blocks of questions, each of which is aimed at measuring the above-mentioned indicators. In total, 33 questions are presented in the questionnaire. The first block (1-12 questions) represents tolerance to uncertainty, the second block (13-25 questions) represents intolerance to uncertainty, and finally, the third block (26-33 questions) represents interpersonal intolerance to uncertainty.

As noted above, V.V. Boyko's questionnaire is aimed at diagnosing the level of intolerance to uncertainty. Boyko's questionnaire is aimed at diagnosing the level of empathic abilities, which are a component of social competence of a tourism specialist. This is the ability to sympathize, empathize, be responsive in communication with colleagues and clients. The questionnaire of V.V. Boyko's questionnaire contains 36 questions. Respondents are asked to answer positively "Yes" or negatively "No" to the statements proposed in the questionnaire. The total score can theoretically vary from 0 to 36 points. Each positive answer is assigned 1 point. If the respondent scores a total of 30 points or higher on the answers, he/she has a very high level of empathy; from 29 to 22 - average; if the total score is 21-15, it is an underestimate. A score of less than 14 indicates a very low level of empathy.

3. Results

In our study, the lessons-excursions were conducted in three stages: 1) preparatory, 2) departure to the object of excursion 3) summarizing. Let us consider the first stage of the excursion. At the preparatory stage, students are preliminarily familiarized with the object of excursion, the guide is determined. In addition, students are informed in advance of the theme and purpose of the excursion. If necessary, the lesson reinforces the passed theoretical material. Also students are given tasks, the answers to which should be found during the excursion. At the final third stage of the excursion, the results are summarized, the tasks performed by students are checked and the results are discussed.

The sphere of tourism includes enterprises that provide services to tourists. Such enterprises can include: travel agents, tour operators, hotels, catering companies, transport companies, entertainment organizations, etc.

As part of the forming experiment we organized study tours for students to the following organizations of tourism sphere: Kyrgyz Concept Company, Burana Tower, Jannat Regency Bishkek Hotel, Ala-Too Square, Ala-Archa Nature Park, Frunze Restaurant.

Let's consider one of the excursions conducted in the tourist company "Kyrgyz Concept", organized in accordance with the stages outlined above.

1. Preparation for the excursion.

Activity of the teacher:

1. Familiarize with the object and route of the excursion.
2. Carry out the work of collecting information about the company, its activities.

3. After familiarizing with the information about the company to hold a meeting with the management of the company "Kyrgyz Concept", during which to determine the date and time of the excursion.
4. Decide the issue of transportation of students to the excursion site.
5. Determine a tour guide.
6. Conduct a class preparing students for the upcoming field trip.

In a class devoted to an upcoming field trip to a tour company it was decided to:

1. Meet the students near the tour site at the designated time.
2. In coordination with the management of the company, to appoint the manager of the human resources department of the company "Kyrgyz Concept" as a tour guide.

Let's consider a fragment of the experimental lesson at the stage of preparation for the excursion.

Introduction. Mutual greeting. Informing students about the upcoming excursion, its objectives.

Tasks of the class: putting forward the problem; distribution of tasks among the participants, to which it is necessary to find answers during the excursion.

Course of the lesson:

1. Conducting a lexical warm-up.
2. Organizing an interactive group discussion using brainstorming technology. The teacher writes the word "Travel Agency" on the board, and students have to name as many ideas as possible in English that are associated with this word.
3. Reading the text "Six steps to successful selling". After reading the text, the teacher asks students the following questions: What is the main idea of the text? (Describe each of six stages of the selling process. After reading the text, students learn about the sales process in a travel agency.
4. Learning new lexical material on the topic "Travel Agency".
5. Performing a listening exercise. Students listen to five dialogs, in each of which customers want to buy a particular product or service from a travel agency. After listening twice, students have to name which product or service each individual customer wants to buy.
6. Students are given assignments to complete that they will be able to complete after obtaining the necessary information during the field trip. The student needs to fill in the appropriate table with the information obtained during the tour.

The class concludes with a discussion of the date and time of the upcoming field trip. The instructor also reminds about the rules of behavior during the excursion [Dissertation].

II. Departure of students to the excursion object and fulfill the necessary academic work.

Tasks: meeting with students at the appointed time at the object of excursion; familiarization of students with the object (conversation, visual demonstration, independent work according to the plan: observation, collection of illustrative material, etc.).

The course of the lesson:

1. At a predetermined time, students led by the teacher go to the object of excursion.
2. At the very beginning of the excursion the representative of the company conducting the excursion gets acquainted with the students, asks them questions concerning their choice of profession. In order to give students more complete information about the company, the representative makes a presentation about Kyrgyz Concept Company (Kyrgyz Concept Company, established in 1990, is the leader of the tourism market of Kyrgyzstan. The main products of the company are air tickets, tours abroad, tourism in Kyrgyzstan, conference management, education abroad). Also during the tour, a training on "Customer care" was conducted for students. Students asked questions, gave examples of situations from personal practice, made necessary notes.

3. The tour guide introduces the students to the departments of the company, telling about their main functions and specifics of work. Students take pictures, ask questions, answers to which they need to prepare as part of the assignment.
4. Completion of the excursion.

III. Summarizing the results of the excursion.

The third stage of the class-excursion is the final stage, includes summarizing and discussing the results with the students, checking the assignment given to the students before the excursion.

Introduction:

Mutual greeting. The teacher thanks the students for their active participation in the excursion.

Objectives: to discuss with the students the excursion to the company "Kyrgyz Concept"; to check the students' fulfillment of the assignment; to summarize the results.

Course of the lesson:

1. The instructor asks the students questions about the excursion: Did you like our excursion to "Kyrgyz Concept" Company? (Did you like our excursion to Kyrgyz Concept Company? What did you like most of all? What benefits have you gained from this excursion? (What benefits have you gained from this excursion?))
2. Students hand in their assignment sheets. The assignments for each item are discussed.
3. At the end of the class, the instructor summarizes the results. Students emphasize the importance of customer care as one of the main requirements of the tourism business, list the qualities of a professional consultant in selling products and services. In addition, the importance of such qualities as the ability to anticipate the behavior of the client, partner, and the ability to create a benevolent psychological atmosphere both in the team and in communication with clients, the ability to act in situations of uncertainty is highlighted.

The excursion to the company "Kyrgyz Concept" gave students the opportunity to see the work of the travel agency, communicate with employees, get acquainted with the specifics of the work of each department, and get information about the possibility of internship and employment in the company.

In our study we conducted an experiment consisting of three stages: 1) ascertaining stage; 2) forming stage; 3) control stage. The following research methods were applied: the method of studying psychological and pedagogical methodological and scientific literature on the research problem and the method of questioning. The study of literature on the research problem gave an opportunity to familiarize with different points of view on the issues under study. This method allowed us to see the general picture of the degree of development of the problem. In the framework of this study, social competence consists of the following two components: 1) a component related to orientation towards the other; 2) a component related to social mobility and human activity (Ozturk, 2021) (Figure 1).

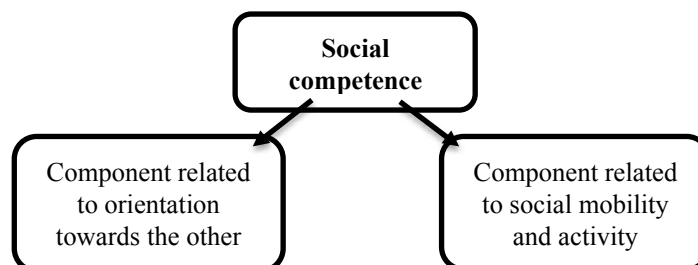


Figure 1: Component related to social mobility and activity

Taking into account the structural components of social competence, at the founding stage of the experiment for a more objective assessment of the formation of social competence we conducted a questionnaire by means of the questionnaire for determining the level of empathic abilities V.V. Boyko. Boyko Questionnaire-1. The component

related to social mobility and human activity was assessed using the questionnaire of tolerance-intolerance to uncertainty developed by T.V. Kornilova Questionnaire-2. The above-mentioned questionnaires were adapted by us to the tasks of the present study (Ozturk M.S., 2021).

4. Discussion

The main purpose of Questionnaire-1 was to determine the level of empathic abilities in students. It is known that when working in the service sector, it is important to anticipate customer behavior, to be able to put oneself in the place of another person, to create a favorable atmosphere in the team and in communication with guests. There are 36 questions in the above questionnaire, which must be answered "Yes" or "No". The final score can range from 0 to 36 points. For each "Yes" answer, 1 point is assigned. If a respondent scores a total of 30 points or higher, the level of empathy is high; from 29 to 22 - average; 21-15 is considered an underestimate. A result totaling less than 14 points indicates a very low level of empathy. In accordance with the results obtained at the establishing stage of the experiment in the experimental group the average score, amounted to 16, in the control groups - 21. Both indicators are underestimates.

In our study, Questionnaire-2 is aimed at determining the following indicators: 1) tolerance to uncertainty (TN); 2) intolerance to uncertainty (ITN); 3) interpersonal intolerance to uncertainty (IITN). Uncertainty tolerance (UT) is the ability to perform complex work tasks independently, the ability to be open to something new. Intolerance to uncertainty (ITN) reflects a person's aversion to novelty and uncertainty. Finally, interpersonal intolerance to uncertainty (IITN) shows the aversion to uncertainty in interpersonal relationships.

Questionnaire-2 consists of 33 statements, after reading each statement, students had to rate their degree of agreement or disagreement. The indicators of tolerance to uncertainty (TN) are presented as: 12-35 - low, 36-60 - medium and 61-84 - high. Indicators of Intolerance to Uncertainty (ITN) are presented as: 13-38 - low, 39-65 - medium and 66-91 - high. Interpersonal Intolerance to Uncertainty (IITN) score is presented as 8 to 23 is low, 24-40 is medium and 41-56 is high. The results of the formative experiment on Questionnaire-2 in the experimental group are as follows: on average, TN was 32 points, ITN - 67, and IITN - 29 points. The situation in the control group is as follows: TH - on average 39 points, ITN - 52 and IITN - 31 points (Ozturk M.S., 2021).

According to the results of the establishing experiment, the indicators of social competence formation in the control group do not significantly exceed the indicators of formation in the students of the experimental group.

The formative stage of the experiment lasted from September 2017 to June 2018. It involved 59 students of the control group (31 2nd year students of the department "Tourism" of the Professional Higher School KTU "Manas" and 28 2nd year students of the training direction "Tourism" and "Hospitality" of the Academy of Tourism). The experimental group included 58 students (36 students of the 2nd year of the department "Tourism" of the Professional Higher School of KTU "Manas" and 22 students of the 2nd year of the direction of training "Tourism" and "Hospitality" of the Academy of Tourism) (Ozturk, 2021).

It is worth noting that during the forming experiment students began to show increased attention to learning English, motivation appeared. In addition, social communication skills improved in the groups we studied.

The results of the forming experiment showed that the tolerance to uncertainty (TU) in the experimental group increased from 32 to 41 points. This indicator is average and characterizes a person who strives for novelty and is ready to go off the beaten path. Intolerance to uncertainty (ITN) decreased from 67 to 55 points, indicating a decrease in students' desire for clarity in their work. In addition, Interpersonal Intolerance to Uncertainty (IITN) decreased from 29 to 18 points, indicating a decrease in one's feelings of anxiety and discomfort in interpersonal communication in situations of uncertainty.

TN scores in the control group decreased slightly, from 39 to 37 points. There was also an increase in ITN from 52 to 61 points, which indicates denial of uncertainty, unknown. The IITN score decreased from 31 to 28 points, indicating the effectiveness of our experiment (Ozturk, 2021).

In conclusion, it should be noted that it is important for a worker in the tourism and service industry to be able to interact effectively in various situations of professional communication, including in English, which requires the formation and development of social competence. In the framework of this research we have studied the realization of educational excursions to the enterprises of tourism and service sphere in students of future specialists in tourism as one of the types of activity aimed at the development of social competence. As the results of the experiment showed, the excursion is one of the effective methods of training, developing observation, attention, stimulating students' interest in learning, as well as contributing to the development of students' social competence, bringing them closer to the social reality of modern tourism industry business.

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Guidelines for Promoting the Mental Health of Sarasas Affiliated Schools Teacher

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Abstract

This research aimed 1) to study factors, indicators, and methods to promote mental health of Sarasas affiliated school teachers, 2) to study current status, desirable status, and the needs for promoting mental health of Sarasas affiliated school teachers, and 3) to propose guidelines for promoting mental health of Sarasas affiliated school teachers. The research instrument is a 5-rating scale questionnaire. The data were collected from the sample of 361 persons. Statistics for data analysis include percentage, mean, standard deviation, and coefficient alpha reliability. The findings from the study revealed that 1) according to a synthesis table of content based on the consideration of experts' opinions, there were 3 factors, 7 indicators and 4 development methods, 2) current status for promoting mental health of Sarasas affiliated school teachers was overall at a moderate level, 3) desirable status for promoting mental health of Sarasas affiliated school teachers was overall at the excellent level, 4) the priority of needs of the guidelines for promoting mental health of Sarasas affiliated school teachers as arranged from descending order to ascending order were promoting mental health at work, making good mood to promote interpersonal mental health, accepting other people, promoting one's own mental health, and having good health, 5) guidelines for promoting mental health of Sarasas affiliated school teachers consisted of 3 aspects and 20 guidelines, 6) the test results were correct and consistent, 7) the quality assessment results of the guidelines for promoting mental health showed that all aspects were appropriate and possible at a high level.

Keywords: Mental Health Promotion, Sarasas Affiliated School Teachers, Development Guidelines

1. Introduction

The national strategy 2018-2037 elevates the country development in all dimensions to the goal of becoming a developed country driven by wisdom and innovation in the next 20 years. As a consequence, it is necessary to set the basis for human resource development in a systematic manner. Emphasis is placed on developing and uplifting people of all ages in all dimensions to be good, skilled and quality human resources and ready to drive the country forward to its full capacity. "Thai people in the future must be physically, mentally, intellectually, and socially prepared and have good mental health at all ages. Enhancing Thai people to have good health and well-being covers physical, mental, intellectual and social aspects and all forms of well-being management is emphasized, leading to potential in well-being management by oneself. Every sector is supported to participate in enhancing Thai people to have good well-being and appropriate well-being skills. Well-being literacy is created by developing correct and reliable knowledge and well-being communication among people while incorrect well-being knowledge must be monitored and managed, creating intellectual and social skills that increase people's

potential to manage their own well-being, such as modifying one's own health behavior to be proper and having sufficient physical activities for living, preventing and controlling risk factors that threaten well-being by pushing forward all well-being promotion policies that allow all sectors to participate in taking responsibility for people's health so as to reduce threats being obstacles of the development of Thai people's well-being, creating an environment contributing to good well-being, and promoting a health-friendly physical environment (National Strategy, 2018 – 2037).

Thai and global societies are facing new and more complex changes and challenges. Though today's life is full of convenience, people's minds are stimulated by cravings. Many people are suffering and feeling stressed because they are unable to set priority in life. They are looking for something that is not essential since they do not understand their own deep needs. Meanwhile, living in the era of globalization makes people more distant, from family to society levels. Parents do not have time to raise their children while communities and societies trust each other less. Nowadays, there are diseases and health threats causing effects on security, economy, and society in various dimensions, even Thai education system (Department of Mental Health, 2020).

In the current situation, the causes of teachers' mental health and well-being include job satisfaction, social support, and workload, passing through work-family conflicts and work-related stress. A good pattern of relationship is a guideline for express emotional response to students and teacher welfare will be changed in the long term (Split, 2011). Problems of Thai teachers today are overworking in terms of teaching and workloads they need to take responsible for, making them have no time to develop themselves, to have creative ideas or develop instructional media to have quality suitable for promoting learner development (Patcharee Tungkaew et al., 2020).

Teacher development is the key of school transformation. School administrators need to promote teachers to receive knowledge development regarding learning management skills and teacher mental health and well-being development to be ready for learning exchange at all times. Teacher development affects teacher work efficiency, which has a direct effect on educational institutions. Administrators are required to have knowledge, understanding, and capability in promoting work efficiency appropriate to teachers' knowledge and capabilities. Promoting good mental health and well-being of teachers contributes to satisfaction and cooperation in working with administrators, happiness at work to ensure the work of school is successful in an efficient manner. The way teachers have good quality of life, are able to manage both positive and negative feelings efficiently in accordance with their goals, have positive perspectives toward environment and experiences, it will lead to a better way to solve problems and live a life and contribute to self-development at all times, which directly affects goal achievement of the school (Praiya Pengkaew, 2017).

Teachers of Sarasas affiliated schools currently receive economic and social effects over a long period of time, making them have stress, anxiety, emotional fatigue, burnout, work-related life problem, family problem, diseases and health threats, resulting in wide ranging effects. Teacher pressure comes from teaching and learning, working, and social interaction with supervisors/chiefs and colleagues, students, and parents, playing a greater role in teachers' work. Teachers are at risk of mental health problems, which can be seen from social incidents more often. Most teachers face severe problems with their quality of work life, i.e. income and remuneration, safe environment, health promotion, competency development opportunity, progress in their career and job stability, social relations, organizational constitution, independence in work, and pride in the organization. Teachers' problems of quality of work life bring about mental health problems of Sarasas affiliated school teachers at work (Policy from the meeting of school administrators of Sarasas affiliated schools on 20 November 2022).

The researcher viewed the importance and benefits of the preparation of guidelines for the development of mental health and well-being promotion of Sarasas affiliated school teachers. The information obtained can be used as a guideline for improving the efficiency of administration and management in educational institutions. The objectives of the study were to study factors, indicators, current status, and desirable status for promoting mental health and well-being of Sarasas affiliated school teachers so that school administrators can bring the study results to be guidelines for promoting teachers' mental health and well-being to ensure they are happy at work, satisfied with life, able to deal with both positive and negative feelings efficiently in accordance with current situations. It

will be beneficial to the implementation of a work plan and policy setting for improving the quality of education management to achieve the set goals, bringing the success to the administration of educational institutions.

2. Research objectives

1. To study factors, indicators, and methods to promote mental health of Sarasas affiliated school teachers.
2. To study current status, desirable status, and the needs for promoting mental health of Sarasas affiliated school teachers.
3. To propose guidelines for promoting mental health of Sarasas affiliated school teachers.

3. Research methodology

In this research, the researcher focused on studying a guideline for developing mental health and well-being of Sarasas affiliated school teachers. Survey research was conducted and relevant information was studied. A questionnaire was used for data collection.

1. The scope of population

5,798 teachers in 46 Sarasas affiliated schools. The sample size is determined by Krejcie and Morgan Table (1970). The proportion is determined by school. Simple random sampling by a lottery method is used to select the sample. The sample consists of 361 persons.

3.1. *The scope of content*

The researcher focused on studying factors, indicators, and teacher development for promoting mental health of Sarasas affiliated school teachers. There are 3 factors and 7 indicators as follow:

1.1. Promoting mental health at work

- 1) creating good mood at work
- 2) creating the importance of work and work goals
- 3) setting goals to achieve success at work.

1.2 Promoting interpersonal mental health

- 1) building good relationship at work
- 2) accepting other people.

1.3 Promoting one's own mental health

- 1) having good health
- 2) self-control.

3.2. *Teacher development methods*

2.1 Guidance

2.2 Using a mentoring system

2.3 Hands-on learning

2.4 School-based training.

3.3. *Research instrument*

Set 1: **Research instrument**

Part 1 – general information of respondents comes in the form of checklist questions.

Part 2 – questions about current status and desirable status for promoting mental health of Sarasas affiliated school teachers come in the form of a 5-rating scale.

The methods for teacher development come in the form of checklist questions.

Part 3 – opinions and additional suggestions about developing guidelines for promoting mental health of Sarasas affiliated school teachers.

Set 2: The draft of developing guidelines for promoting mental health of Sarasas affiliated school teachers

Part 1 – information of respondents, i.e., position, education level, work experience.

Part 2 – inquiries about experts' opinions about appropriateness, feasibility, and usability of the draft of developing guidelines for promoting mental health of Sarasas affiliated school teachers.

3.4. Making and testing the instrument

1. Study how to make a questionnaire used for data collection from documents and textbooks relevant to a guideline for improving teachers' mental health.
2. Study relevant concepts, theories and research documents, consider details to ensure they cover all the research objectives.
3. Make a questionnaire to cover all research objectives to be used as the instrument to collect data from the sample for making an analysis accordingly.
4. Submit the questionnaire to the advisor to verify accuracy and appropriateness in order to improve it to be complete.
5. Measure the validity of the instrument. The made questionnaire is submitted to 5 experts; experts in school administration, to check the accuracy and assess that that content is clear, correct, and consistent with the definition. IOC was set at 0.60 or higher. All question items met the criteria, the IOC was 1.00.
6. The questionnaire verified by the experts was measured the power of discrimination and pretested with 30 people who are not the research sample. Internal consistency was measured. Pearson correlation coefficient was used to measure the power of discrimination. Cronbach's Alpha coefficient was used to measure the reliability of the questionnaire. The reliability of the questionnaire was 0.98.

3.5. Data analysis

1. Analyze the status of the respondents by calculating frequency and percentage.
2. Analyze the current status and desirable status of the development guidelines for promoting mental health of Sarasas affiliated school teachers by calculating mean, standard deviation, and interpreting levels. The questionnaire came from a rating scale, interpreted by comparing with the 5 rating scales as follow (Boonchom Srisa-ard, 2013, page 121):
3. The needs analysis (Modified Priority Needs Index: PNI modified) of teacher development according to the concept of mental health promotion so as to arrange the priority. The results obtained would be used to design teacher development guidelines in accordance with the concept about mental health promotion.
4. Analyze opinions and additional suggestions about mental health promotion in school using descriptive analysis.
5. Descriptive statistics, i.e., frequency and percentage were used to analyze methods for teacher development to promote mental health in school.

3.6. Statistics in data analysis

Statistics used in data processing and analysis are as follow:

1. Basic statistics, i.e., percentage, mean, and standard deviation.
2. Statistics used to measure the quality of the instrument, i.e., IOC (Index of item objective congruence. Cronbach's alpha coefficient is used to measure reliability of the questionnaire.
3. Statistics used to identify the needs of teacher development in accordance with the concept of mental health promotion to set the priority, (Modified Priority Needs Index: PNI modified).

4. Data analysis results

The analysis results are presented procedurally as per the following details:

4.1. Part 1 presents the data analysis results of the study on factors, indicators, and methods promoting mental health of Sarasas affiliated school teachers.

Factors, indicators, and methods for promoting mental health of Sarasas affiliated school teachers obtained from the synthesis of relevant documents, theoretical concepts, and research studies conducted domestically and internationally, performed by making a synthetic table of content and using consideration of criteria selected by experts as factors, indicators, and development methods more than 50%. It was found that there were 3 factors, 7 indicators and 4 methods for teacher development.

4.2. Part 2 presents the data analysis results of the study on current status, desirable status and the needs of promoting mental health of Sarasas affiliated school teachers.

2.1 The analysis results of the current status, desirable status and the needs of the guidelines for promoting mental health of Sarasas affiliated school teachers were obtained from the sample of 361 persons. The analysis was performed to find out mean, standard deviation, current status, desirable status, and the needs of the guidelines for promoting mental health of Sarasas affiliated school teachers.

Table 4.3: Mean, standard deviation and interpretation, current status, desirable status, mental health promotion of Sarasas affiliated school teachers (n = 361).

Mental health promotion of Sarasas affiliated school teachers		Current status			Desirable status		
		\bar{x}	S.D.	Interpret results	\bar{x}	S.D.	Interpret results
(n = 361)							
1. Promoting mental health at work							
1.1	Creating a good mood at work	2.96	0.67	Moderate	4.47	0.51	High
1.2	Setting importance and goals at work	3.05	0.61	Moderate	4.42	0.60	High
1.3	Setting goals for success at work	2.99	0.59	Moderate	4.35	0.62	High
Total		3.00	0.62	Moderate	4.41	0.57	High
2. Promoting interpersonal mental health							
2.1	Building a good relationship with others at work	3.13	0.78	Moderate	4.40	0.60	High
2.2	Accepting other people	3.08	0.61	Moderate	4.39	0.61	High
Total		3.41	0.69	Moderate	4.39	0.60	High
3. Promoting one's own mental health							
3.1	Having good health	3.01	0.77	Moderate	4.37	0.65	High
3.2	self-control	3.07	0.61	Moderate	4.35	0.62	High
Total		3.04	0.69	Moderate	4.36	0.63	High
Total		3.15	0.66	Moderate	4.38	0.60	High

According to Table 4.3, it was found that the current status of mental health promotion of Sarasas affiliated school teachers was overall at a moderate level ($\bar{x} = 3.15$, S.D. = 0.66). When each aspect was taken into consideration, the aspect with the highest mean at a moderate level was promoting interpersonal mental health ($\bar{x} = 3.41$, S.D. = 0.69) and the aspect with the lowest mean at a moderate level was promoting mental health at work ($\bar{x} = 3.00$, S.D. = 0.62).

With regard to desirable status of mental health promotion of Sarasas affiliated school teachers, overall it was at a high level ($\bar{x} = 4.38$, S.D. = 0.60). When each aspect was taken into consideration, the aspect with the highest

mean at a high level was promoting mental health at work ($\bar{x} = 4.41$, S.D. = 0.57), and the aspect with the lowest mean at a high level was promoting one's own mental health ($\bar{x} = 4.36$, S.D. = 0.63).

The analysis results of the needs of mental health promotion of Sarasas affiliated school teachers that shall lead to guidelines for developing mental health promotion of Sarasas affiliated school teachers can be concluded as follow:

The needs of guidelines for developing mental health promotion of Sarasas affiliated school teachers were analyzed to set the priority (Modified Priority Needs Index: PNI modified) for designing guidelines for developing mental health promotion of Sarasas affiliated school teachers.

Table 2 shows the mean of current status, the mean of desirable status of guidelines for developing mental health promotion of Sarasas affiliated school teachers, modified priority needs index and the priority needs of each aspect.

Table 4.11: The mean of current status, desirable status, priority needs index, and overall priority needs and the priority needs of each aspect

(n=361)

Mental health promotion	D	I	PNI modified	Priority needs
1. Mental health at work				
1.1 Creating a good mood at work	2.96	4.47	0.510	1
1.2 Setting importance and goals at work	3.05	4.42	0.449	4
1.3 Setting goals for success at work	2.99	4.35	0.454	2
Total	3.00	4.41	0.470	1
2. Promoting interpersonal mental health				
2.1 Building a good relationship with others at work	3.13	4.40	0.405	7
2.2 Accepting other people	3.08	4.39	0.425	5
Total	3.41	4.39	0.287	3

Table 4.11: The mean of current status, desirable status, priority needs index, and overall priority needs and the priority needs of each aspect (continued)

(n=361)

Mental health promotion	D	I	PNI modified	Priority needs
3. Promoting one's own mental health				
3.1 Having good health	3.01	4.37	0.451	3
3.2 Self-control	3.07	4.35	0.416	6
Total	3.04	4.36	0.434	2
Total (X_{tot})	3.15	4.38	0.390	

According to Table 4.11, the priority needs of the guidelines for developing mental health of Sarasas affiliated school teachers, overall and each aspect, from descending to ascending order are mental health promotion at work; creating good mood at work, followed by promoting one's own mental health; having good health, promoting interpersonal mental health; accepting other people respectively.

The needs of the guidelines for promoting mental health of Sarasas affiliated school teachers in each aspect are as follow:

1. Promoting mental health at work consists of

1.1 Creating a good mood at work. Teachers are able to have satisfaction and happiness at work. They are able to relieve stress by themselves while they are working. They are able to accept problem status, obstacles at work and solve work-related problems by themselves.

1.2 Setting importance and goals at work. Teachers are able to trust other people and give importance to work. They dare enough to express their opinions and listen to opinions of others. They develop themselves and search for knowledge and bring the knowledge obtained to practice in class and school regularly.

1.3 Setting goals for success at work. Teachers have knowledge and understanding to make a plan for integrated learning management appropriate to students' age. They have knowledge and skills in using media and academic sources in an efficient manner. They have knowledge, understanding and skills in management, design, planning to develop their own teaching and learning management effectively.

2. Promoting interpersonal mental health consists of

2.1 Building a good relationship with others at work. Teachers are able to transfer and share teaching techniques and work experiences with colleagues. They are able to solve problems, express their opinions and suggestions with colleagues at school.

2.2 Accepting other people. Teachers participate in designing a new process of teaching and learning management with a teacher team, which can be applied to school. They are able to accept colleagues' opinions or opinions of other people that are different from theirs. They are able to adapt themselves to the environment at work when working with a group of teachers having different backgrounds in an appropriate manner.

3. Promoting one's own mental health consists of

3.1 Having good health. Teachers need to have physical checkup and exercise regularly. They are able to manage working time and workload suitable for their potential at work, not affecting their own health. They need to take care of their health, relieve anxiety for being ready to learn and develop their work ability.

3.2 Self-control. Teachers are able to control their emotions when a crisis or serious problem occurs. They are able to make decision or choose an appropriate work method suitable under the rules and regulations of the school. They are flexible and patient with improper behavior of others by expressing positive emotions.

4.3. Part 3 presents the analysis results of data studied, prepare, examine and assess the guidelines for promoting mental health of Sarasas affiliated school teachers.

The study results show the priority needs index (PNI modified) from descending to ascending order as follow: Promoting mental health at work; creating a good mood at work, promoting interpersonal mental health; accepting other people, promoting one's own mental health; having good health to make an interview form to seek guidelines for promoting mental health of Sarasas affiliated school teachers. The target persons of the interview were 1 director and 1 administrator in 3 schools, 6 persons in total. A purposive sampling method was used to select the target persons. The schools selected must have best practice about the development of guidelines for promoting teachers' mental health. The schools must achieve excellent management, leading to the guidelines for promoting mental health of Sarasas affiliated school teachers.

5. Conclusion

The research results of the guidelines for promoting mental health of Sarasas affiliated school teachers can be concluded as follow:

5.1. The study on factors, indicators, and methods for promoting mental health of Sarasas affiliated school teachers.

1.1 According to the synthesis of documents, research, concepts, theories conducted domestically and internationally, it was found that there are 3 factors, 7 indicators and 4 methods for promoting teachers' mental health.

5.2. The analysis results of current status, desirable status and the needs of the development of guidelines for promoting mental health of Sarasas affiliated school teachers.

2.1 The analysis results can be concluded as follow:

1) the overall current status of mental health promotion of Sarasas affiliated school teachers was at a moderate level. When each aspect was taken into consideration, the aspect with the highest mean at a moderate level was promoting interpersonal mental health and the aspect with the lowest mean at a moderate level was promoting mental health at work.

2) as for desirable status of mental health promotion of Sarasas affiliated school teachers, overall it was at a high level. When each aspect was taken into consideration, the aspect with the highest mean at a high level was promoting mental health at work and the aspect with the lowest mean was promoting one's own mental health.

2.2 The analysis results of the priority needs of the guidelines for promoting mental health of Sarasas affiliated school teachers.

Overall and each aspect, from descending to ascending orders are mental health at work; creating a good mood at work, followed by promoting one 's own mental health; having good health, promoting interpersonal health; accepting other people respectively.

2.3 Data analysis of methods to promote mental health of Sarasas affiliated school teachers.

With regard to promoting mental health at work; creating a good mood at work, most of them gave viewed that teachers should learn from working, followed by pieces of advice, school-based training, and mentoring system.

In relationship promoting one's own mental health; having good health, most of them viewed that teachers should learn from working, followed by pieces of advice, school-based training, and mentoring system.

With regard to promoting interpersonal mental health; accepting other people, most of them viewed that teachers should learn from working, followed by pieces of advice, school-based training, and mentoring system.

5.3. The study on guidelines for promoting mental health of Sarasas affiliated school teachers

3.1 The study results on the highest PNI modified of all aspects were used to make an interview form, as arranged from descending to ascending order as follow: 1. Promoting mental health at work. 2. Promoting one's own mental health. 3. Promoting interpersonal mental health to develop mental health promotion of Sarasas affiliated school teachers. The schools achieve best practice about the development of guidelines for promoting teachers' mental health, have excellent management that leads to the guidelines for promoting teachers' mental health.

3.2 Results of the draft of the guidelines for promoting mental health of Sarasas affiliated school teachers.

Obtained from the study on the needs of the development, best practice, and synthesis by the researcher, showed that there are 3 aspects 20 guidelines.

3.4 The results of the examination confirming accuracy and consistency of the guidelines for improvement according to experts' advice to obtain the guidelines for promoting mental health of Sarasas affiliated school teachers showed there are 3 aspects and 20 guidelines.

3.5 The quality assessment results of the guidelines for promoting mental health of Sarasas affiliated school teachers found that there are 20 guidelines which are appropriate and feasible to be used to promote mental health of Sarasas affiliated school teachers. The mean was 4.40 and 4.20 respectively.

6. Discussion

According to the study on guidelines for promoting mental health of Sarasas affiliated school teachers, it can be discussed as follow:

6.1. Current status and desirable status of the guidelines for promoting mental health of Sarasas affiliated school teachers according to Sarasas affiliated school teachers are shown below:

1.1 With regard to current stats of the guidelines for promoting mental health of Sarasas affiliated school teachers, when each aspect was taken into consideration, the aspect with the highest mean was promoting interpersonal mental health. It is the number one to be developed since today's society is changing at all times. Importance is given to acceptance of differences, building trust in others, participation in groups, adaptability to environment, participation in designing new processes of teaching and learning management with a teacher team to be applied to school, accepting performance assessments from others, and being able to use the assessment results to improve and develop one's own work. This is consistent with a research study conducted by Tanaporn Suwanworabun (2020) on work-related happiness and general well-being of personnel in addiction management as the study result indicated that their happiness and general well-being were at a moderate level.

1.2 With reference to desirable status of the guidelines for promoting mental health of Sarasas affiliated school teachers, when each aspect was taken into consideration, the aspect with the highest mean was promoting mental health at work. It is the number one to be developed because administrators are aware of the importance of promoting teachers to be able to create nice atmosphere and environment for teaching and learning, take pride in the tasks assigned, have satisfaction and happiness at work, accept problems and obstacles that occur at work and be able to solve problems, control their emotions when problems arise, and relieve work-related stress by themselves. This is consistent with a research study conducted by Phra Palad Anon Changrangkarn (2021).

5.2. The priority needs of the guidelines for developing mental health promotion of Sarasas affiliated school teachers, from descending to ascending order, are promoting mental health at work; creating a good mood at work, followed by promoting one's own mental health; having good health, promoting interpersonal mental health; accepting other people respectively.

2.1 Promoting mental health at work; creating a good mood at work is the top priority because teachers are required to create nice atmosphere and environment at work by making a mechanism to ensure teachers take pride in and are happy at work. They accept problems and obstacles that can happen at work and seek a way to solve the problems. This is consistent with a study conducted by Gito et al. (2013).

2.2 Promoting one's own mental health; having good health, is necessary to be developed to encourage teachers to manage work time, workload to be suitable for their working potential by not affecting their health. They are able to take care of their health, relieve stress and anxiety, and get ready to learn and develop their work ability. This is consistent with a study conducted by McCauley (1998).

2.3 Promoting interpersonal mental health; accepting other people, is necessary to be developed. Teachers are required to participate in designing a new process of teaching and learning management with a teacher team to be applied to school. They are able to accept colleagues' opinions and trust other people to perform important tasks of school in an appropriate manner. The quality of teachers must be uplifted systematically and continuously so that they will have knowledge and skills for confronting different situations to ensure their work can achieve the organizational goals efficiently. This is consistent with a study conducted by Praiya Pengkaew (2017).

It can be concluded that the guidelines for promoting mental health of Sarasas affiliated school teachers consist of 3 aspects, namely, promoting mental health at work; creating a good mood at work, promoting one's own mental health; having good health, promoting interpersonal mental health; accepting other people. School administrators can use the guidelines to make a plan consistent with their needs to promote mental health of teachers in Sarasas affiliated schools to achieve the school goals.

5.3 Suggestion

5.3.1 General suggestion

According to the study results and discussion mentioned above, it was found that current status and desirable status and the needs of the guidelines for promoting mental health of Sarasas affiliated school teachers, from descending to ascending order, are promoting mental health at work; creating a good mood at work, promoting one's own

mental health; having good health, promoting interpersonal mental health; accepting other people can be applied to achieve the goals in mental health development of teachers in Sarasas affiliated schools as follow:

1) Promoting mental health at work; creating a good mood at work is the number one to be developed. Therefore, school administrators and relevant agencies should promote teacher to learn from working, teacher development training should be organized for teachers to be able to create nice atmosphere and environment at work, take pride in the tasks assigned, have satisfaction with and happiness at work, accept problems and obstacles happen to work and be able to solve the problems, be able to control their emotions and relieve stress and anxiety by themselves while working.

2) Schools should prepare a teacher development project on guidelines for promoting mental health of teachers in Sarasas affiliated schools. Training should be provided to give knowledge for handling and solving problems in a correct way. Mental health affects the quality of work and learning management for students. If teachers have mental health problems, they will have negative feelings towards work, making their work efficiency decline including teaching management which is the main duty of schools.

5.3.2 Suggestion for future research

5.3.2.1 A study should be conducted on factors affecting mental health of Sarasas affiliated school teachers to understand basic status and individual differences and to obtain a higher quality guideline for developing teachers in Sarasas affiliated schools that meets individual differences. According to the research results, mental health of Sarasas affiliated school teachers was overall at a high level. When the mean of each aspect was analyzed, it was found that each aspect had different means. Therefore, a study should be conducted on individual factors affecting mental health, such as individual belief, attitude, and goals in life.

5.3.2.2 A study should be conducted on factors affecting work efficiency of teachers in schools with different context from schools affiliated to Bangkok Metropolitan Administration, such as private schools and other organization to obtain a guideline for promoting mental health in accordance with appropriateness and feasibility of various context. The research results revealed that Sarasas affiliated school teachers have the number one need in promoting mental health at work; creating a good mood at work. In this regard, a study should be conducted on mental health in the point related to creating a good mood at work among teachers in different context to generate a guideline for promoting mental health of teachers in Sarasas affiliated schools that meets the context of the school.

5.3.2.3 The guidelines for promoting mental health of Sarasas affiliated school teachers should be tried out with a sample while the efficiency and effectiveness of mental health promotion should be assessed after the test so that the guidelines shall be improved and developed accordingly.

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