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The Mediating Role of Metacognitive Awareness in the Relationship Between Pragmatic Awareness and Communication Skill

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ABSTRACT

This study examines the relationship between pragmatic awareness and communication skills by exploring the mediating role of metacognitive awareness in this interaction. The research was conducted with pre-service teachers using a quantitative method based on a correlational survey model. The sample consisted of 235 pre-service teachers studying at the faculty of education of a state university in Turkey. A validity and reliability tested scales were used to collect data. These are Metacognitive Awareness Scale, Communication Skills Scale and Pragmatic Awareness Scale. In the study, the normality of the variables' scores was examined, and after confirming that the data followed a normal distribution, the analyses were conducted. The relationships between the variables were analyzed using Pearson's Product-Moment Correlation Analysis, revealing significant correlations. A mediation model was then established for the analysis. The data collected was analyzed to evaluate the connection between pragmatic awareness and communication skills, alongside the impact of metacognitive awareness on this relationship. Findings reveal that metacognitive awareness plays a significant mediating role between pragmatic awareness and communication skills. This study highlights that enhancing metacognitive awareness during the educational processes of pre-service teachers can significantly improve their communication skills.

Keywords: Pragmatic awareness, metacognitive awareness, communication skills, pre-service teachers, mediation model.

Introduction

In education, pragmatic and metacognitive awareness are essential for individuals to manage and enhance their learning processes more effectively. Successful interaction in educational settings requires pre-service teachers to develop not only linguistic skills but also pragmatic awareness, metacognitive awareness, and communication skills through an integrated approach. Pragmatic awareness facilitates understanding the social functions of language, while metacognition enables individuals to manage their cognitive processes strategically, thereby leveraging this awareness effectively. Communication skills, resulting from the combination of pragmatics and metacognition, strengthen the classroom interactions of preservice teachers.

Pragmatic awareness equips individuals to understand and appropriately apply the social and cultural rules of language. Context-sensitive language usage prevents misunderstandings and supports interpersonal communication (Kasper & Rose, 2002; Thomas, 1983). Blum-Kulka et al. (1989) describe pragmatic awareness as linguistic behaviors shaped by cultural sensitivity. For pre-service teachers, this skill fosters effective communication with students from diverse cultural backgrounds and promotes cultural sensitivity in educational environments (Brown & Levinson, 1987; Ishihara & Cohen, 2010).

Pragmatic awareness enhances not only linguistic abilities but also the social sensitivity of preservice teachers, contributing to intercultural communication. This sensitivity helps teachers foster social adaptation skills in students, enriching language education as a multidimensional experience (Deardorff, 2006). Thus, pragmatic awareness is one of the fundamental competencies supporting pre-service teachers' pedagogical interactions.

Effective use of this skill by preservice teachers is directly linked to metacognitive awareness. Flavell's (1979) metacognition theory suggests that being aware of one's

cognitive processes is crucial for organizing learning and communication strategies. Schraw and Moshman (1995) argue that metacognitive awareness aids individuals in developing strategic behaviors in linguistic and communicative contexts. Wenden (1998) emphasizes metacognition as a core skill for self-evaluating performance in language learning. By developing metacognitive awareness, pre-service teachers can better direct their own learning processes and provide strategies to support students' language acquisition (Paris & Winograd, 1990; Pintrich, 2002).

Considering the contributions of metacognitive awareness and pragmatic awareness to communication skills is essential. Individuals with high metacognitive awareness levels can monitor their thought processes and develop effective communication strategies (Zimmerman, 2002). Effective communication in native language education directly impacts students' learning experiences. The integration of metacognition with strategic language use allows individuals to adapt their linguistic behaviors to context (Doughty & Long, 2003). This capability transforms language and communication skills from mere technical competence to a broader consideration of social and cultural dimensions. Pintrich (2002) and Zimmerman (2000) note that metacognitive awareness supports strategic decision-making in communication processes, while Hattie and Timperley (2007) highlight the positive impact of metacognitively supported feedback on student achievement.

The combined development of pragmatic awareness, metacognition, and communication skills among pre-service teachers enables them to adopt a more sensitive, strategic, and effective approach in their interactions with students. Addressing these skills holistically encourages pre-service teachers to approach language teaching not only on a cognitive level but also from social and emotional perspectives, fostering a more effective learning environment.

Native language education is a process that goes beyond teaching grammar to encourage students to think, analyze, and manage their learning processes. In this context, enhancing pragmatic and metacognitive awareness should be a cornerstone of educational policies and curricula. Developing these awarenesses in pre-service teachers helps them deliver a more effective teaching experience for themselves and their students.

Purpose of the Study

This study aims to investigate the relationship between pragmatic awareness and communication skills and the mediating role of metacognitive awareness in this relationship among pre-service teachers. Understanding how pragmatic awareness affects communication skills provides opportunities to develop more effective strategies in educational practices. The following hypotheses are proposed for this research:

- H1: There is a positive and significant relationship between pragmatic awareness and communication skills.
- H2: There is a positive and significant relationship between pragmatic awareness and metacognitive awareness.
- H3: Metacognitive awareness mediates the relationship between pragmatic awareness and communication skills.

Method

Research Design

In this study, the correlational research design, one of the quantitative research methods, was used. Correlational designs are used to describe and measure the relationship between two or more variables and are especially preferred in social sciences and educational research (Fraenkel et al., 2012). These studies allow variables to be examined in their natural environment without intervention, so there is no experimental control or manipulation (Ary et al., 2018). Researchers use this design to observe the relationships among variables in a specific sample and reveal the relational structure, which enables generalizations about the potential connections among variables (Gay et al., 2011).

Population and sample

To examine the relationship between pre-service teachers' pragmatic and metacognitive awareness and communication skills, data was collected from pre-service teachers studying at a state university's faculty of education in Turkey. As the correlation between pre-service teachers' pragmatic awareness and communication skills was calculated as 0.15, calculations made with the G*Power program revealed that a total of 249 samples would be sufficient with 80% power and 95% confidence level. In this study, data were collected from 250 pre-service teachers. However, due to incomplete responses, the data of 15 pre-service teachers were excluded from the dataset to ensure data reliability. The distribution of the pre-service teachers according to their gender and academic year is presented in Table 1.

Table 1.
Distribution of Pre-Service Teachers by Gender and Academic Year

Variable		n	%
Gender	Female	158	67.2
	Male	77	32.8
Academic Year	Freshman	51	21.7
	Sophomore	66	28.1
	Junior	51	21.7
	Senior	67	28.5
Total		235	100.0

When the distribution of pre-service teachers by gender variable was examined, it was found that 158 (67.2%) were female, and 77 (32.8%) were male. When the distribution by academic year was examined, it was found that 51 (21.7%) were freshman year students, 66 (28.1%) were sophomore year students, 51 (21.7%) were junior year students, and 67 (28.5%) were senior year students. A total of 235 pre-service teachers participated in the study.

Data Collection Tool

The following data collection tools were used in this study:

Personal Information Form: Prepared to collect demographic information about participants.

Metacognitive Awareness Scale: Developed by Durdukoca and Arıbaş (2019) for pre-service teachers, the scale consists of 18 items and three factors. The scale explains 45.03% of the total variance and has a Cronbach's alpha reliability coefficient of .75. The Cronbach's alpha value calculated in this study was .863. Confirmatory factor analysis was conducted, and the scale structure was confirmed (χ^2/df = 1.500, RMSEA = .045, TLI = .91, CFI = .92, and SRMR = .06).

Communication Skills Scale: Developed by Akkuzu and Akkaya (2014), this scale consists of 36 items and four factors: "competence", "barrier", "body language", and "appreciation". It covers the affective, cognitive, and behavioral dimensions of communication and has a Cronbach's alpha reliability coefficient of .814. Confirmatory factor analysis was conducted, and the scale structure was confirmed (χ^2/df = 2.920, RMSEA = .053, TLI = .96, CFI = .96, and SRMR = .049).

Pragmatic Awareness Scale: Developed by Gerez-Taşgın (2023), the scale includes 20 items categorized under "politeness", "context", "cooperation", "relation" and "speech acts". It is a valid and reliable tool for assessing the affective, cognitive, and behavioral dimensions of communication. In this study, the Cronbach's alpha reliability coefficient was .836. Confirmatory factor analysis was conducted, and the scale structure was confirmed (χ^2/df = 1.461, RMSEA = .043, TLI = .916, CFI = .929, and SRMR = .0531).

The ethical process in the study was as follows:

- Ethics committee approval was obtained from Atatürk University University Educational Sciences Ethics Committee (Date: 23.06.2021, Number: E-56785782-050.02.04-2100161803)
- Informed consent has been obtained from the participants.

Data Analysis

The mediation model testing the effect of metacognitive awareness in the relationship between pragmatic awareness and communication skills was applied. In this research, Preacher and Hayes's (2004) procedural steps were followed when testing the mediation model. Additionally, the bootstrapping procedure recommended by Preacher and Hayes (2004) was used to demonstrate the significance of the indirect effect tested with the mediation model.

Results

Analysis of the Pearson correlation coefficients for the relationships among pragmatic awareness, metacognitive awareness, and communication skills is presented in Table 2.

Table 2.
Correlation Among Pragmatic Awareness, Metacognitive Awareness, and Communication Skills

		Pragmatic Awareness	Metacognitive Awareness	Communication Skills
Pragmatic Awareness	r		.324**	.152*
	p		.000	.025
Metacognitive Awareness	r	.324**		.484**
	p	.000		.000
Communication Skills	r	.152*	.484**	
	p	.000	.000	

The results show a significant positive correlation between pragmatic awareness and metacognitive awareness (r = .324, n = 218, $p < .01$), between pragmatic awareness and communication skills (r = .152, n = 218, $p < .05$), and between metacognitive awareness and communication skills (r = .484, n = 218, $p < .01$).

The model aimed at testing the mediating role of metacognitive awareness in the relationship between pre-

service teachers' pragmatic awareness and communication skills is presented in Figure 1.

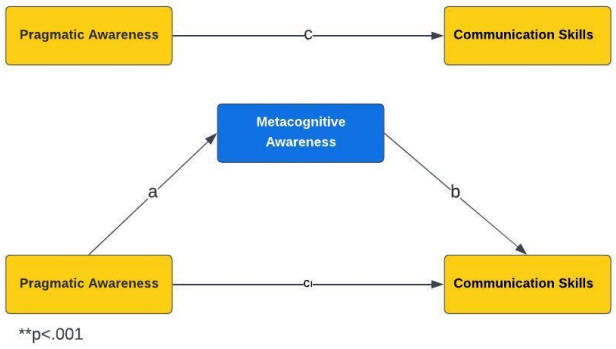


Figure 1.
Representation of the Mediation Model

To examine whether metacognitive awareness plays a mediating role in the relationship between pre-service teachers' pragmatic awareness and communication skills, descriptive statistics related to the variables included in the model were first calculated. Correlation analysis was then performed to determine the relationships between variables, and the results are presented in Table 3.

Table 3.
Correlation Values and Descriptive Statistics Among Variables

	1	2	3
(1)Pragmatic Awareness	---	.324**	.152*
(2)Metacognitive Awareness		---	.484**
(3) Communication Skills			---
$\bar{X}$	79.71	65.66	117.84
Sd	7.66	9.47	10.65
Kurtosis	-.457	-.434	.686
Skewness	-.059	.122	.260

** $p < .01$, * $p < .05$

The analysis revealed a positive and significant moderate correlation between pragmatic awareness and metacognitive awareness (r = .32, $p < .01$), between pragmatic awareness and communication skills (r = .152, $p < .05$), and between metacognitive awareness and communication skills (r = .484; $p < .01$). Skewness and kurtosis coefficients calculated to assess the normal distribution of data ranged between -.457 and .686, indicating that the dataset exhibits normal distribution. The normal distribution criteria were evaluated based on George and Mallery's (2010) guidelines.

The results of the analysis related to the mediating role of metacognitive awareness in the relationship between pragmatic awareness and communication skills are presented in Table 4.

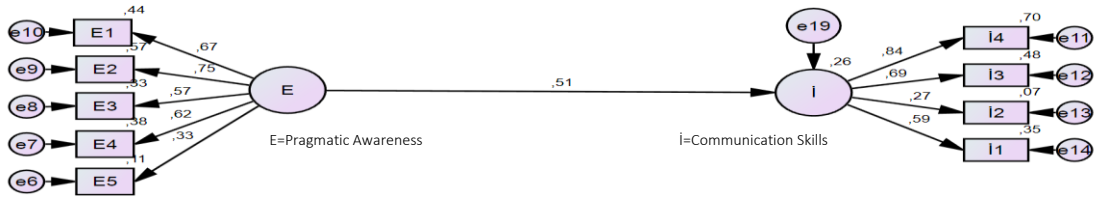
Table 4.
Mediating Role of Metacognitive Awareness in the Relationship Between Pre-Service Teachers' Pragmatic Awareness and Communication Skills

	Outcome Variables			
	Metacognitive Awareness		Communication Skills	
Pattern Paths	β	SH	β	SH
Pragmatic Awareness (c paths)			.891*	.232
R^2			.262	
Pragmatic Awareness (a paths)	.794*	0.229		
R^2	.165			
Pragmatic Awareness (c' paths)			.482*	.073
Metacognitive Awareness (b paths)			.462*	.160
R^2			.542	
Indirect Impact			.367* (.118- .742)	

* $p<.01$

The total effect of pre-service teachers' pragmatic awareness on communication skills was found to be statistically significant (β = .891, $p < .01$). Similarly, the total effect of pragmatic awareness on metacognitive awareness was also statistically significant, yielding a positive path coefficient (β = .794, $p < .01$). The indirect effect between pragmatic awareness and communication skills was calculated as .367 with a 95% confidence interval of .118–.742, and since this interval does not include zero, the indirect effect was found to be statistically significant.

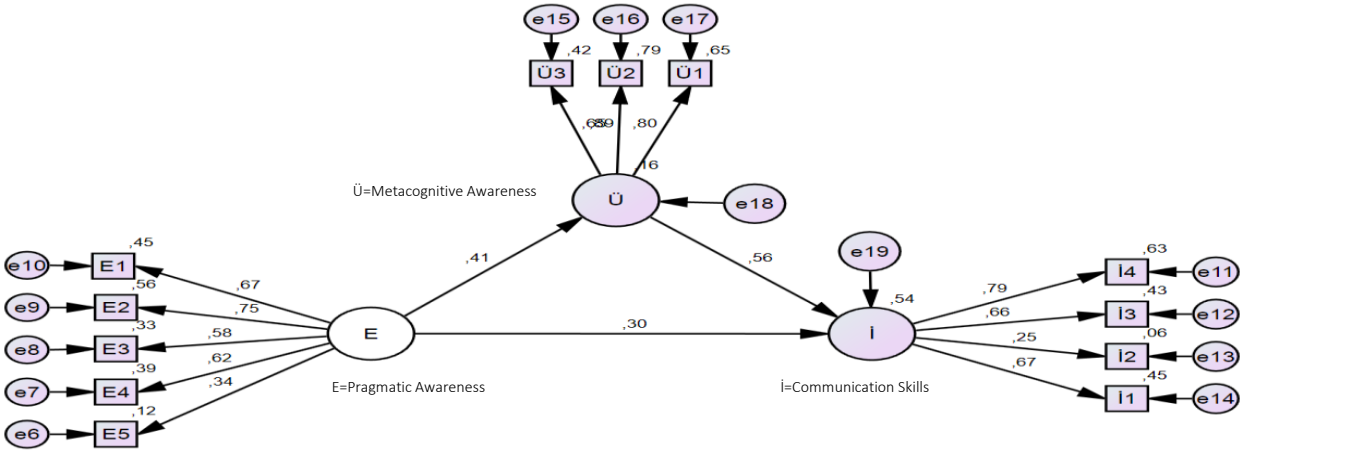
Path diagrams of the established model are presented in Figures 2 and 3.



CMIN=41,654; DF=26; p=,027; CMIN/DF=1,602; RMSEA=,051; GFI=,963; CFI=,965

Figure 2.

Path Diagram of the Relationship Between Pragmatic Awareness and Communication Skills



CMIN=94,796; DF=51; p=,000; CMIN/DF=1,859; RMSEA=,061; GFI=,933; CFI=,948

Figure 3.

Path Diagram of the Mediating Role of Metacognitive Awareness in the Relationship Between Pragmatic Awareness and Communication Skills

The analysis conducted to determine the mediating role revealed that after including metacognitive awareness in the model, the standardized regression coefficient representing the predictive effect of pragmatic awareness on communication skills decreased from .51 to .30, and this result was found to be significant ($p < .001$). This finding demonstrates that metacognitive awareness mediates the relationship between pragmatic awareness and communication skills.

Discussion

This study examined the relationships among pragmatic awareness, metacognitive awareness, and communication skills in pre-service teachers and revealed the mediating role of metacognitive awareness in these relationships. The findings align with the relevant literature, demonstrating the direct impact of pragmatic awareness on pre-service teachers' communication skills and how metacognitive awareness enhances this process. In this context, pragmatic awareness is emphasized as a factor that increases individuals' ability to establish more effective and conscious communication in social contexts (Bardovi-Harlig, 2013; Kasper & Rose, 2002). The ability to understand the social and cultural dimensions of language through pragmatic awareness improves not only pre-service teachers' verbal communication skills but also their relationships with students (Cohen, 2012; Taguchi, 2011). This supports teachers in employing a sensitive, empathetic, and culturally aware communication style in the classroom, which, in turn, boosts student motivation and participation.

Similarly, metacognitive awareness, as the ability to evaluate, regulate, and direct one's thinking processes, enhances the pedagogical effectiveness of pre-service teachers (Schraw & Dennison, 1994; Zimmerman, 2002). Flavell (1979) and later Pintrich (2002) highlighted the contribution of metacognitive awareness to the learning process, stating that it not only improves pre-service teachers' own learning strategies but also enables them to develop strategies to support their students' learning processes. Pre-service teachers with high metacognitive awareness can provide more effective feedback in communication with students and use more conscious language during lessons (Paris & Winograd, 1990; Paris & Paris, 2001). Therefore, improving metacognitive awareness allows teachers to better understand their students and provide appropriate learning strategies, contributing significantly to the quality of education.

Previous studies examining the relationship between pragmatic awareness and communication skills reveal the connection between these two concepts. For example, Schraw and Dennison (1994) investigated the impact of metacognitive strategies on learning processes, showing that these strategies effectively enhance individuals' learning abilities. Individuals with high pragmatic awareness better analyze texts and manage their learning processes more effectively. In the context of native language education, this enables students to develop better reading and writing skills.

The findings supporting the mediating role of metacognitive awareness in the relationship between pragmatic awareness and communication skills are consistent with significant studies in the literature. For instance, Zimmerman (2002) emphasizes the positive impact of metacognitive strategies on individuals' communication skills. Pre-service teachers with high metacognitive awareness are more competent in monitoring their thinking processes and developing effective communication strategies. This enhances the quality of the teaching process and directly impacts student success.

The results of this study highlight the critical role of these three variables in the pedagogical development of pre-service teachers while analyzing the effects of pragmatic and metacognitive awareness levels on communication skills. Communication skills in educational sciences have been supported by various studies as a determinant of pre-service teachers' professional competencies (Bardovi-Harlig & Dörnyei, 1998; Hattie & Timperley, 2007). Hattie and Timperley (2007) argue that teachers' ability to develop feedback mechanisms positively impacts student success, while individuals with high metacognitive awareness can use these skills more effectively. Bardovi-Harlig and Dörnyei (1998) also state that pre-service teachers with strong pragmatic awareness provide students with more meaningful and contextually relevant guidance during communication. In this regard, educational programs focusing on enhancing pre-service teachers' pragmatic and metacognitive awareness levels are essential for their strategic and effective use of communication skills.

Conclusion and Recommendations

In the context of native language education, these findings support the development of strategies aimed at increasing pre-service teachers' pragmatic and metacognitive awareness. In educational practices, increasing pre-service teachers' metacognitive awareness levels should be a decisive factor in improving communication skills. In this regard, teacher education programs should be structured to support metacognitive and pragmatic awareness (Hattie & Timperley, 2007).

Adopting policies to enhance these awareness levels in educational practices will enable pre-service teachers to develop their communication skills. Hattie and Timperley (2007) highlighted that evaluating learning processes is effective in improving individuals' communication skills. Effective communication for pre-service teachers directly affects student success. Therefore, educational programs should focus on developing these skills.

Finally, the findings of this study underscore the necessity of developing pedagogical approaches and policies that promote metacognitive and pragmatic awareness in teacher education. Zimmerman (2002) and Pintrich (2002) suggest that self-regulatory strategies and metacognitive skills enable pre-service teachers to contribute more consciously to educational processes. Similarly, Taguchi (2011) and Cohen (2012) emphasize that pragmatic awareness in language teaching provides deeper comprehension and contextual appropriateness in teacher-student interactions.

In light of these findings, future education policies and teacher training programs should be supported by content that encourages pre-service teachers to develop both cognitive and affective processes. Thus, pre-service teachers with high levels of pragmatic and metacognitive awareness can enhance their professional competence, ensuring an effective and empathetic teaching process.

Ethics Committee Approval: Ethics committee approval was obtained from Atatürk University Educational Sciences Ethics Committee (Date: 23.06.2021, Number: E-56785782-050.02.04-2100161803)
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The Comparison of Technology Integration Experiences of Teachers and Faculties: Distance Teaching Context

ABSTRACT

The study aims to compare the technology integration practices of teachers and faculties from their perspectives within the context of distance education. The study's research design is a cross-sectional survey. Technology Integration in Distance Education Questionnaire was prepared by the researchers. The instrument was administered to 189 faculties and 91 teachers with distance teaching experience. Both qualitative and quantitative methods were used to analyze data. The findings suggest that participants perceived themselves as proficient in designing instruction for distance education, but no significant differences were found between teachers and faculties. EFA was conducted to determine questionnaire structure, and results showed three factors; planning the instruction, process, and post instructional process. Comparison of these factors scores showed no significant differences in planning the instruction and post-instructional process but significant differences in process between teachers and faculties. Content analysis results show that material types are divided into six main themes, namely: (i)audio, (ii)visual, (iii)audio-visual, (iv)interactive, (v)textual, and (vi)real objects/models/sources. Instructional methods are divided into three main themes, namely: (i)student-centered, (ii)teacher-centered, and (iii)mixed. In addition, content analysis results also showed that participants perceived themselves as proficient but needed clarification about methods and materials used in distance education. These findings were discussed in detail.

Keywords: Technology integration practices, distance education, ICT competencies, exploratory factor analysis.

Introduction

Technology integration is related to various factors in different contexts. Recently, Mishra (2019) updated the TPACK (Technological Pedagogical Content Knowledge) model by naming the outer circle as “context,” which means that the boundaries of how teachers teach are built upon either the enablers or barriers of the context. In the pandemic, the context differed from traditional settings. Still, it was also much more different than distance education settings in which the premise of anytime-anywhere learning is at the center. During the pandemic, the basic assumptions of distance education were not met. For example, synchronous activities took place longer than a usual distance course. Some institutions had no official learning/course management systems to be used before the pandemic. There were no asynchronous activities included in the instructional design. Some target learners did not have access to the live sessions due to infrastructure issues. Not all institutions could stack the recordings of the live sessions, so learners might not have equal opportunity to access the course materials if they were absent. In addition to the issues about equal access (Tavares et al., 2021) the pandemic showed the gap in technology competence between learners and teachers/faculties (Akram et al., 2021; Pinto et al., 2021).

According to UNESCO’s 2020 report, educators' content and pedagogical skills still need improvement in many countries. Teaching at a distance is not a part of the official Turkish teacher education programs. There is” no prerequisite training for higher education to become a distance educator. The pandemic made a compulsory transition from a face-to-face to a full-online teaching environment. Familiarity with the distance teaching context is an essential factor influencing how people teach (Akram et al., 2021; UNESCO, 2020).

The ICT (Information and Communication Technologies) competency framework offered by UNESCO (2018) consists of three basic levels of ICT usage: knowledge acquisition, knowledge deepening, and knowledge creation. While simple usage of available tools and content

refers to a basic level, teachers may go beyond designing activities as they feel confident with the technology, which refers to knowledge creation. However, recent research studies point out that neither high levels of confidence nor positive beliefs guarantee innovative teaching (Alvarez & Cervera, 2015; Li, 2022; St-Onge et al., 2022; Yang et al., 2022). Having a closer look at the ICT integration practices of EFL teachers, Lestarina et al. (2022) reported that despite the positive beliefs of teachers, their ICT integration was limited to essential practices. Although individual factors affect the integration process, organizational factors influence the overall process (Ertmer et al., 2012; Padayachee & Moodley, 2022; St-Onge et al., 2022). The rich resources of learning management systems, data plans, live session tools, cloud spaces, devices, and equipment may only be available for some. The lack of resources may hinder the learning process of teachers/faculties and teaching (Hordatt-Gentles & Haynes-Brown, 2021). As a result, educators might need more preparation regarding technology integration.

Purpose of the Study

In this study, the technology integration experiences of educators within distance education settings were examined. With the emergence of the pandemic, the number of studies focusing on the transition from traditional settings to online ones has increased. The current study aims to extend the literature by comparing educators' perspectives from K-12 and higher education. This comparison highlights discrepancies between the practice of these two groups because teachers were subject to national platforms, whereas the universities found their solutions regarding technical backgrounds. The national platform EBA provided a live classroom tool to meet online synchronously, but the recordings and their distribution were impossible via the platform. Moreover, the schedule was pre-determined, i.e. it was not flexible. On the other hand, the platform already has a library offering a variety of sources, such as animation. The platforms used by universities generally supported recording and asynchronous distribution of resources. In addition, teachers all have to complete compulsory computer certificate courses held by the Ministry of National Education. At the same time, the National Council of Higher Education does not offer such compulsory certification for faculties. The following research questions will be utilized to understand and compare both groups' experiences:

- RQ1. What is the difference between teachers' and faculties' perceptions of general ICT competencies within the distance education context?
- RQ2. What is the difference between K-12 teachers' and faculties technology integration experiences within the distance education context?
- RQ3. Which methods and materials do teachers and faculties use within the distance education context?

Method

Research Design

The study's research design is a cross-sectional survey in which data collection occurs within a predetermined population (Fraenkel et al., 2012). In this study, teachers and faculties with distance teaching experience were involved. The data of the study was gathered from a single point in time and a specific population, so this study was cross-sectional. In this way, their experiences were focused on with the help of either qualitative or quantitative data. The questionnaire was developed by the researchers and was delivered online via Google Forms. The data collection occurred once, and then the sharing link was deactivated. Collected data was analyzed either qualitatively or quantitatively. The questionnaire items were subjected to quantitative analysis, while the open-ended questions were analyzed using qualitative methods.

Sample of the research

The instrument was administered to a total of 290 volunteer people who have distance teaching experience. 189 faculties and 91 teachers participated in this study. The data for this study were collected from two state universities in the same city and from a select group of teachers employed within the same city. The characteristics of the group are as follows: The average number of students in the faculties is 46, and the weekly course hours are 17. On the other hand, teachers have an average number of 22 students and 22 hours of lessons per week. The average number of students is 38, and the average course hour is 19 per week. Understanding these characteristics helps understand the impact of participants' experiences. In the current study, it is presumed that the participants have no experience with distance education.

Data Collection Instrument

The instrument in this study was constructed based on the instructional design process, having roughly five primary phases: analysis, design, development, implementation, and evaluation (ADDIE) (Reigeluth, 1999), by the researchers. The draft version of the instrument was piloted to determine unclear issues/items. In developing the item pool, expert opinions were solicited. Specifically, feedback was obtained from two experts specializing in measurement and evaluation within the fields of computer and instructional technologies. Based on their insights, modifications were made to the clarity of the items. A pilot

application was conducted through one-on-one interviews with a small group of individuals not participating in the main study. This was done to assess the clarity of the items, and any items that were not clearly understood were subsequently revised. As a result, some items were revised, some were deleted, and the final version of the instrument was composed. The final version of the instrument consists of general ICT demographics, and a Technology Integration in Distance Education Questionnaire (TIDEQ). The general information section includes the number of students, weekly course hours load, number of used materials, and methods with their names. These items were included in the questionnaire as open-ended questions. The ICT demographics section includes four items based on a 4-point Likert scale design (i.e., 4 = Absolutely proficient, 3= Proficient, etc. …). This part also includes two questions about ICT competency and instructional design skills for distance education; these items are based on a 1 (very weak) - 10 (very strong) scale design. The questionnaire was developed to understand how participants perceive their integration practices for distance education and their perceived ICT skills. Although the reference instructional design framework ADDIE includes 5 phases, the "analysis, design, and development" phases were classified as planning the instruction; the "implementation" phase was considered a process; and the "evaluation" phase was classified as a post-instructional process. Therefore, TIDEQ consists of three parts. The first part includes 11 items, the second part includes 15 items, and the last part includes five items based on a 4-point Likert scale design (i.e., 4 = Absolutely proficient, 3= Proficient, etc. …). The instrument was administered to faculties and teachers via Google Forms.

The ethical process in the study was as follows;

- Ethics committee approval was received from Ondokuz Mayis University Ethics Board of Social and Humanity Sciences (Date: 31.05.2024, No: 2024-506).
- All participants voluntarily involved to the study and completed an online consent form.

Data Analysis

The study aims to describe and compare teachers' and faculties' ICT demographics and technology integration practices within the distance teaching context, which was quite different from the literature, and thus sometimes called emergency remote teaching (Tavares et al., 2021). For this purpose, teachers' and faculties' responses were compared by conducting independent sample t-tests about general competencies of ICT in the first step of the data analysis. Before conducting the t-test, the univariate normality assumption was checked. As a result, skewness and kurtosis were between (-1, +1), which satisfies the normality assumption. Next, EFA was conducted to investigate the data's factor structure, and teachers' and faculties' factor scores were compared by conducting an independent sample t-test. In addition, the Cronbach alpha reliability of the TIDEQ questionnaire also was calculated, and the results were .96.

Finally, content analysis was performed to analyze the responses to open-ended questions. The number and names of the materials and methods used were asked as open-ended questions. The researchers used an induction approach to review the participants' responses, generate specific codes to classify the responses, and then determine the appropriate themes to categorize the coded items.

Results

In the data analysis process, general ICT demographics results and a comparison of them between teachers and faculties were made. This part provides an explanation of the findings related to RQ1.Then, EFA was conducted with TIDEQ questionnaire data to investigate factor structure. Then factor score was compared between teachers and faculties. This part also provides an explanation of the findings related to RQ2. Lastly, the responses to the open-ended questions were analyzed using content analysis, and results were presented.

General ICT Competencies

The general results of ICT competencies are summarized in Table 1. Y1, Y2, Y3, and Y4 are based on a 4-point Likert scale. The ICT ability and design ability are based on 1-10 ratings. It was assumed that as they were familiar with the terminology.

Table 1.
ICT Usage Profile

Demographic Item	$\bar{X}$
My ICT literacy level is proficient in designing instruction. (Y1)	3.27
I attend seminars, certification programs, etc. about distance education. (Y2)	2.91
I easily adapt to the distance education process. (Y3)	3.22
I share my experience with people giving instruction in distance education (Y4)	3.19
ICT ability	7.61
Instructional Design ability	7.17

The ICT ability and design ability between faculties and teachers were compared, and the results are presented in Table 2.

Table 2.
Comparison of ICT Ability and Design Ability

Variable		$\bar{X}$	sd	*t*	df	*p*
Y1	Faculty	3.31	.760	1.255	278	.211
	Teacher	3.19	.829			
Y2	Faculty	2.87	.883	-1.257	277	.210
	Teacher	3.01	.925			
Y3	Faculty	3.30	.752	2.478	277	.014
	Teacher	3.05	.848			
Y4	Faculty	3.25	.785	1.764	277	.079
	Teacher	3.07	.879			
ICT	Faculty	7.70	1.533	1.514	277	.131
	Teacher	7.41	1.520			
Design	Faculty	7.25	1.748	1.070	276	.286
	Teacher	7.00	1.972			

Participants generally perceive themselves as proficient in design instruction in distance education. They participate in courses about distance education, besides sharing their experience with their colleagues. A comparison of teachers' and faculties' results shows no significant differences in these items (Y1(t (278) =1.255, $p > .05$; Y2 (t (277) =- -1.257, $p > .05$; Y4 (t (277) = 1.764, $p < .05$). Participants reported that they quickly adapted to the distance education process. However, when comparing teachers and faculties, there are significant differences (Y3 (t (277) = 2.473, $p < .05$), and the faculties' mean score is higher than that of teachers. In addition, participants perceived their ICT ability and instructional design ability for distance education as high. A comparison of faculties' and teachers' results shows no significant difference in ICT ability (t (277) = 1.154, $p > .05$) and design ability (t (276) = 1.070, $p > .05$).

Factor analysis results

EFA defines factors that underlie a construct defined as a set of variables and indicates these factors' correlation level. Therefore, EFA is an essential contribution to the validation of test scores (Stapleton, 1997). This study used factor analysis as a part of construct validity procedures. The first step of this was the TIDEQ questionnaire, including 31 items representing the construct, which was developed according to the referenced ID framework. Then, data were gathered with this questionnaire. Lastly, EFA was conducted to determine the factor structure of the data. Six items were excluded from the data set according to this analysis results, and the final version of the questionnaire had 25 items. Principal component analysis with varimax rotation was conducted, and eigenvalues greater than one were taken cut-off point. Also, the scree plot (see Figure 1) indicated the data had three dimensions, and 62% of the total variance accounted for these three factors' structure. These three factors represent similar structures to the planned model while developing the questionnaire. In other words, empirical data confirms hypothesized model, so, this was taken as valid evidence.

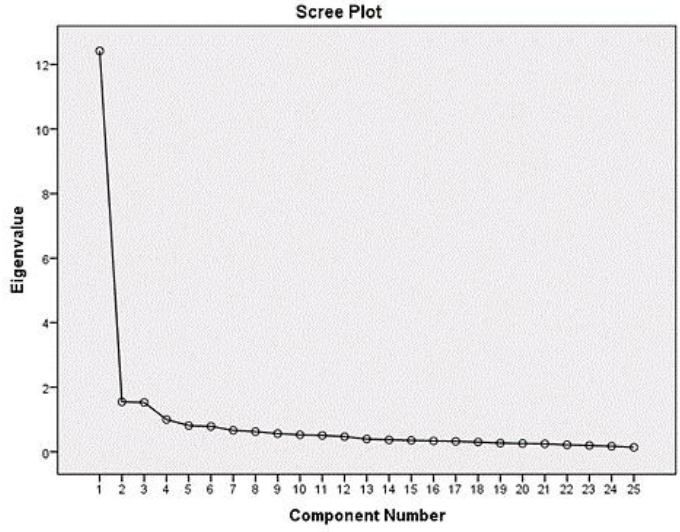

Figure 1.
Scree Plot

Indicating a similar structure to the hypothesized model, factor names were the same. The first factor is named planning the instruction (F1), the second factor has named a process (F2), and the last factor is named a post-instruction process (F3). Table 3 shows factors and factor loadings.

Table 3.
Factor Structures of the Data According to Efa

Items	Factors		
	F1	F2	F3
I can adapt course contents to distance education environment.	.767		
I can arrange instructional materials that are in line with the needs of distance education.	.745		
I can arrange the environment for students-material interaction.	.718		
I use materials, which I use for face-to-face education, same way in distance education.	.695		
I can plan for distance education during the content preparation.	.689		
I can suggest additional resources for pre-lesson preparation.	.687		
I take into account students' needs in designing instruction.	.647		
I can adapt methods and technics used in face-to-face education to distance education.	.628		
I can arrange the environment for student-student interaction.	.616		
I can use Information and Communication Technologies tools in designing instruction.	.568		
I can ensure the active participation of students in lesson.		.764	
I can control the flow of the lesson by monitoring the needs of learners		.752	
I can use methods which improve students' interest.		.745	
I can communicate effectively during synchronous sessions.		.700	
I can determine communication rules and methods during distance education.		.664	
I can give feedback to students during lesson.		.608	
I can use different instructional methods.		.602	
I can make diagnostic assessments before instruction.		.599	
I can use time efficiently.		.576	
I can use formative assessments during instruction.		.522	
I benefit from ICT to give homework.			.792
I can give feedback to students' works after instruction.			.785
I can prepare exams using ICT tools.			.725
I can provide post-instruction additional resources.			.667
I can support students with different communication tools after the course.			.642

F1, F2, and F3 factor scores were also compared with independent sample t-tests, and the results were presented in Table 4.

Table 4.
Comparison of Factor Scores Between Teachers and Faculties

Variable		$\bar{X}$	sd	*t*	df	*p*
F1	Faculty	-.039	.981	-.930	263	.353
	Teacher	.085	1.041			
F2	Faculty	-.135	.991	-3.303	263	.001
	Teacher	.295	.960			
F3	Faculty	.078	.982	1.887	263	.060
	Faculty	-.171	1.023			

Comparison of factor scores had no significant mean differences between teachers and faculties for F1 (t (263) = .930, $p > .05$) and F3 ($t(263) = 1.887$, $p > .05$). In contrast, there was a significant difference between teachers and faculties for F2 ($t(263)$=- -3.303, $p < .05$), and teachers' mean scores were higher.

Content analysis results

After factor analysis, teachers and faculty's responses about instructional materials and methods used in the distance teaching process were analyzed via content analysis. The results showed that although teachers' and faculties' number of materials varied between 1 to 12, the most frequent number was 3 for both groups separately. The number of instructional methods varied between 1 and 9; the most frequent number was 3 for teachers and 2 for faculties.

Instructional Materials

The reported material types were divided into six main themes, namely: (i)audio, (ii)visual, (iii)audio-visual, (iv)interactive, (v)textual, and (vi)real objects/models/sources. Most of the preferred materials generally showed similar tendencies between teachers and faculties. Teachers and faculties use sound clips as audio materials. This type of material was the least used one. On the other hand, audio-visual and digital textual materials had the highest ratings. For visual materials, teachers mentioned four subtypes, including flashcards, concept maps, charts/tables, and stock images, whereas the faculties reported only maps and stock images as visual materials. For audio-visual materials, the gap between teachers and faculties was large. That is, faculties reported the utilization of animations, session recordings, and videos much more than the teachers. Teachers did not use session recordings as instructional materials. For interactive materials, teachers provided a more significant portion of

usage than faculties, but their varieties were very similar. Teachers listed simulations, augmented reality maps, and other interactive materials created using Web 2.0 tools. Faculties also reported such interactive materials, task-based specific materials, and 3D interactive models. For textual materials, participants referred to two sub-types: printed and digital. Faculties reported much higher numbers of printed textual materials than teachers. Teachers prefer worksheets and books as printed textual materials, while faculties prefer textbooks, articles, theses, reports, notes, and guides. The gap between teachers and faculties gets larger in using textual materials. A similar pattern exists in the utilization of digital textual materials. Faculties reported much higher numbers of digital textual materials than teachers, but the subtypes were similar. They were limited to PowerPoint slides and e-books. For real objects/models/sources, teachers mentioned a variety of them, whereas only one faculty reported one real object. The instructional material types integrated into distance education settings by the current study participants were summarized in Table 5.

Table 5.
Instructional Materials in Distance Education

Instructional Material Type	Teacher (%)	Faculty (%)
Audio	3 (3.3%)	4 (2.12%)
Visual	13 (14.29%)	10 (5.29%)
Audio-visual	11 (12.09%)	56 (29.63%)
Interactive	21 (23.08%)	20 (10.58%)
Textual		
Printed	9 (9.89%)	61 (32.28%)
Digital	9 (9.89)	77 (40.74%)
Real objects/models/ sources	7 (7.69)	1 (0.53%)

On the other hand, not all responses given fell into the instructional material category. A few teachers assumed that the tools, such as the smartboard, were instructional materials, but this confusion was more frequent among faculties. A few participants confused the online learning platforms or course/learning management systems with instructional materials. Finally, a few faculty reported instructional methods as instructional materials. Table 6 summarizes the findings about misconceptions.

Table 6.
Misconceptions About Instructional Materials in Distance Education

Confused Construct	Teacher (%)	Faculty (%)
Tool (computer, smartboard, etc.)	12 (13.19%)	40 (21.16%)
Platform (cms/lms, etc.)	5 (5.49%)	8 (4.23%)
Method (assessment, evaluation, etc.)	-	8 (4.23%)

Instructional Methods

Participants' responses were investigated under three main themes, namely: (i)student-centered, (ii)teacher-centered, and (iii)mixed. In general, the mixed instructional methodologies were the least preferred methods, whereas the teacher-centered methodologies were the most preferred ones. For student-centered methods, faculties reported various subtypes, including problem-based learning, discussion, discovery learning, collaborative learning, game-based learning, project-based learning, etc. On the other hand, teachers' responses were limited to discussion, collaborative learning, and project-based learning. For teacher-centered methods, faculties are mentioned much more frequently than teachers. Both reported similar sub-types, including demonstrations and direct instruction. For the mixed method, teachers mentioned the eclectic approach while implementing the methods. Faculties using the mixed method generally combine the methods towards the student-centered approach. The summary of the methods preferred in distance education is presented in Table 7.

Table 7.
Instructional Methods in Distance Education

Instructional Methods/Techniques	Teacher (%)	Faculty (%)
Student-Centered (discussion, project-based, etc.)	16 (17.58%)	77 (40.74 %)
Teacher-Centered (direct instruction, demonstration, etc.)	37(40.66%)	141(76.60%)
Mixed	2 (2.20 %)	7 (3.70 %)

Some participants needed to be more specific about defining the instructional methods. Many faculties, besides a few teachers, assumed that materials are methods. Moreover, a few participants needed clarification on tools and activities with instructional materials. One teacher mentioned distance education as a type of instructional method. Table 8 summarizes the misconceptions.

Table 8.
Confused Construct

Instructional Methods/Techniques	Teacher (%)	Faculty (%)
Material	2 (2.20%)	17 (8.99 %)
Tool	1 (1.10 %)	7 (3.70)
Activity	4 (4.40 %)	7 (3.70)
Education format	1 (1.10%)	-

Discussion

This study demonstrates the comparison of technology integration practices of teachers and faculties from their perspectives. The findings were discussed within this context.

Participants rated their proficiency levels and comfort with technology integration, ICT, and instructional design practices for distance education. Their ratings were considerably high and similar to each other. They generally see themselves as proficient in ICT literacy and its integration into distance education settings, which aligns with recent studies (e.g., Hordatt-Gentles & Haynes-Brown, 2021; Tavares et al., 2021). The qualitative data provided reflections on participants' practices, and thus many misconceptions were explored, which were not supportive of the self-ratings. The material-method distinction was a bit problematic among participants, especially among the faculties, which is expected as not all of the participants had the pedagogical certificate. This aligns with a recent study showing the inconsistencies between teachers' beliefs and ICT integration levels (Lestarina et al., 2022). The ICT literacy level might be critical for eliminating misconceptions as digital sources can be evaluated critically. In Menz et al.'s (2021) study, non-scientific sources were reported as the leading sources of misconceptions of pre-service teachers. In order to discriminate reliable sources from unreliable ones is closely related to digital literacy. Further detailed studies can be designed to extract the patterns of misconceptions caused by a lack of digital or ICT literacy.

The only significant difference between teachers and faculties was about the adaptation process, i.e., faculties' ratings were higher than that of teachers. This may be because faculties have started to use the same PowerPoint presentations they used in distance education courses, as can be understood from the qualitative data. In contrast, teachers did not have much practice in using ICT before the pandemic. In Hordatt-Gentles and Haynes-Brown's (2021) study, teachers had no difficulties teaching online, but in the literature, the comparison of teachers and faculties in terms of adaptation is missing. Further investigation might reveal the differences among various levels of teaching.

Different participants might perceive things to be changed for distance settings differently. Specific studies of the pandemic report that technological competence needed to be improved during the integration process, contrary to content knowledge (Akram et.al, 2021). The qualitative data pointed out the existence of misconceptions among participants about both methods and materials. Some faculties needed clarification on specific terms, tools, and practices with either methods or materials. Although the faculties claimed they were significantly better at adapting, responses provided with examples did not confirm it. They generally referred to teacher-centered methods as direct instruction, which limits interactions among all essential elements of distance learning (Moore, 1991). The issue of misconceptions in the literature generally exists within the scope of pre-service teachers' misconceptions of particular subject areas (e.g., Gorham-Blanco, & Chamberlin, 2019) and students' misconceptions (e.g., Kaniawati et al., 2019). This study extends the literature by comparing teachers' and faculty's misconceptions about online teaching practice. In the literature, misconceptions about class size, testing effect, learning styles, etc., were reported frequently (e.g., Menz et al., 2021), and the findings of the current study enriched the list by focusing on the existence of misconceptions of not only teachers but also the faculties.

Although participants claimed that they were competent in terms of instructional design and the utilization of ICT, most of their responses only went beyond ready-to-use materials. In UNESCO's (2018) ICT competency framework, this is labeled knowledge acquisition and does not go beyond regular usage. A few participants mentioned materials developed via Web 2.0 tools. This might be an example of knowledge deepening (UNESCO, 2018) since these tools support students' development and collaboration. On the other hand, considering both participants' self-scores and qualitative data, it can be inferred that a gap exists between the knowledge and practice of ICT integration (Akram et al., 2021).

To understand the instructional design process of participants, the way they integrate technology into distance education settings was revealed and similarly investigated through three factors in the hypothesized model: preparation, implementation, and follow-up. In the preparation phase, the responses of either group of participants did not significantly differ. In other words, the participants were able to plan content, materials, and methods quickly, besides being sensitive to the needs of learners. They also stated that they could benefit from ICT

to prepare distance instructions. Such an attitude is crucial for technology integration since ICT readiness, acceptance, and literacy are closely related (Petko et.al, 2018).

In the implementation phase, teachers significantly differ from faculties in terms of technology integration practices considering active participation, high motivation, feedback, well-established communication, time management, and methods to monitor students' progress online. Teachers are used to managing a smaller range of face-to-face and online students. However, faculties have to communicate with a more significant number of students, and it might get harder to manage feedback, monitoring, or communication. One advantage of teachers can be the involvement of parents in the synchronous sessions, which might lead students to attend and participate actively. A similar case was reported by Hordatt-Gentles and Haynes-Brown (2021). However, for university students, the conditions were not comparable; hence, the teacher-centered methods and techniques might facilitate faculties' implementation stages. This finding supports Moore et.al (2016) that demonstrated how distance education students, especially graduate ones, do not demand student-student interaction because of a shortage of study time. Similarly, university students might be less eager to interact than K12 students.

Moreover, teachers had already known students better than the faculties. The teacher-centered nature of participants' adopted methods in the distance education context might also smooth the implementation process. This finding supports Li's (2022) results confirming EFL teachers' readiness for technology integration during the pandemic. Li (2022) also reported how teachers suffered from innovative ICT integration, as found in the current study.

In the follow-up phase, teachers and faculties were similar to each other regarding assessment and evaluation processes besides providing additional resources to support students. Although the EIN platform provides opportunities to support students' learning, the teachers might not have preferred it due to the technical barriers that students face. Having restricted data plans or no Internet connection were among the other challenges educators experienced during the pandemic. The case was not different for higher education despite the availability of LMS with rich features for asynchronous activities for follow-up. This might be because faculties were concerned about the ease of cheating offline (St-Onge et al., 2022). For either population, technology integration for assessment and evaluation seems to be challenging, and this confirms the claims of previous studies demonstrating the need for training or guidance specific to integration to overcome this barrier (Akram et al., 2021; Alvarez & Cervera, 2015; St-Onge et al., 2022; Yang et al., 2022).

Participants were asked to give examples from their instructional design for distance education about instructional materials and methods. Audio materials were the least frequent ones. Those who prefer this type of material use ready-to-use sound clips. This might not be surprising because it is not a widely preferred type due to its limitations in terms of attention (Mayer, 2009). Nevertheless, to be sensitive to students with special needs or students with limited data plans, the recordings in Mp3 format or podcasts can be complementary, i.e., as a follow-up source.

Both audio-visual and digital-textual materials were found the highly frequent among all participants. There are lots of ready-to-use instructional materials, even on commercial platforms. Hence, including them in either asynchronous or synchronous activities is effortless. Moreover, the faculties could record their sessions, upload them to LMS as course materials, and keep them in the cloud. The national platform for teachers needed this opportunity. Hence, they need to pay a special effort to deliver their session recordings, which might require a certain level of ICT literacy. Converting PowerPoint slides into Pdf files is very common in higher education, which might explain the high rates of digital-textual material usage.

Moreover, faculties prefer these types of material much more than teachers. This can be because of the need for more ready-to-use textual materials appealing to distance learners of younger ages. The available ones were generally designed for face-to-face instruction, but their integration was up to teachers during the pandemic. Based on the responses, teachers mentioned self-prepared textual materials such as a worksheet, but faculties had a wide range of textual materials, including scientific articles, reports, etc. For higher education learners, the digital-textual materials might be more practical and economical to follow the course content asynchronously. On the other hand, educators might have yet to produce their materials due to limited ICT practice despite high ICT knowledge levels (Akram et al., 2021).

Interactive materials were not rated at the top because they might require motivation to create materials besides ICT knowledge and skills. A few teachers mentioned Web 2.0 tools to create these materials, whereas faculties preferred ready-to-use simulations, models, etc. Such types of material improve the learner-content interaction. However, integrating them into distance courses might require knowledge of online pedagogy, organizational factors, perceived usefulness, and quality (Padayachee & Moodley, 2022). Authentic objects/models/sources are

rarely included in the synchronous activities. A few teachers provided some examples, but the inconvenience caused by lockdowns can explain it.

As participants claimed high levels of comfort in adapting their instructional design practices to distance education settings, they were expected to use various instructional methods eclectically. Qualitative data pointed out their teacher-centered methods, in which teachers are in charge of transferring knowledge instead of facilitating the construction of it. Compared to student-centered methods, teacher-centered ones require less effort because designing constructive feedback, creating various activities and materials, and keeping students' progress might be overwhelming in a distance education setting when the designer needs to learn how to benefit from technological tools. This finding is similar to Tavares et al.'s (2021) findings about educators failing while transitioning traditional pedagogies into online ones. On the other hand, the ones who claimed that they adapted quickly might not have changed their way of instruction, meaning they did not change their methods for distance settings, as mentioned in the literature (Akram et al., 2021; Li, 2022; Tavares et al., 2021; Yang et al., 2022). Teachers mentioned student-centered methods less. This can be related to the barriers caused by the platform's affordances. The usage was also limited for teachers and students. For higher education, CMS/LMS provides many features to create collaboration or keep students connected to the course. The duration of sessions and other affordances of platforms can leverage the level of teaching.

Conclusion and Recommendations

To conclude, the current study aimed to compare teachers' and faculties' perceived technology integration process, used materials, and also used methods in distance education. In addition, content analysis results showed that participants perceived themselves as proficient but needed clarification about methods and materials used in distance education. While participants said they participated in courses about distance education, the results showed they needed more training. In-service teachers and faculties should be given in-service training programs about distance education. They also designed these courses, including theory and practice, which may be more beneficial. Also, universities may be included courses about distance education in their curriculum. The study includes all K-12 teachers. Used materials and instructional methods may be affected by the level/ age of students. Also, the type was an essential factor that affected the materials used and instructional methods. For more detailed information, further studies should focus on one course and level. It was assumed that the participants had a foundational understanding of Information and Communication Technology (ICT) and competencies in ICT usage and instructional design. Additionally, the assessment of these constructs was confined to the items included in the survey.

Consequently, these assumptions and the measured items' scope represent the study's limitations. This study focuses on distance teaching practices and is limited to pandemic conditions. However, the practices in post-pandemic conditions might affect their practices. The additional items about how participants revised and improved their practices should be added to the questionnaire to understand how they evaluate their instructional design skills. The data were collected from two universities and a limited number of teachers in the same city; thus, the results cannot be generalized to all teachers and faculties. Similar studies will be conducted with more teachers from different cities and faculties from different universities.

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Teacher Candidates' Opinions on the Threshold Score and Formation Training in the Department of Fine Arts Education

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ABSTRACT

In this research, the aim was to examine the opinions of teacher candidates in the Painting-Teaching Program of Education Faculties, Fine Arts Education Department, on the "Basic Competence Test" exam score requirement to enter the Painting-Teaching Program and formation training. This research was designed within the scope of qualitative research, and data was collected through face-to-face individual semi-structured interviews. In the data collection phase of the research, teacher candidates at different class levels studying in the Painting-Teaching program of the Fine Arts Education Department at a state university were selected as the study group through a non-random non-probability sampling method, convenience sampling. The data obtained from the interviews were analyzed using content analysis, and the findings are presented in tables. Participants' opinions were supported by direct quotations in the tables. The most striking finding of this study is that teacher candidates believe that the 800 thousand threshold should be applied. However, teacher candidates are opposed to formation training. Therefore, it is recommended that the requirement to enter the 800 thousand threshold should also be applied to candidates receiving formation training.

Keywords: Basic competence test threshold score, pedagogical formation education, fine arts education, teacher candidate.

Introduction

When the concept of education is considered a word, it is seen that it has more than one definition. Education starts with birth and continues throughout life. The aim of education is to create behavioral changes in the desired direction. ‘‘Education is the learning work that enables a person to develop their abilities in line with their needs and the aims of society and all the methods and practices related to how to do this work. Education is a compulsory element of society and individual life. The need for education and learning is the most fundamental characteristic of human nature. For nations, education is an indispensable task for them to sustain their existence and ensure their development" (Kayıran, 1998, p. 781). In a way, education is to educate our personalities, our souls, our ears, our eyes, and many other aspects. This education continues throughout life. As Robertson (1923) stated, “Teaching ends in the classroom, but education only ends with life” (Milliyet, 2024). In this regard, education simultaneously educates intelligence and emotions rather than educating individuals. Emotion education can only be e realized through art because education is an inevitable end. Art has existed since the existence of humanity and has been effective in every aspect of human life. While expressing their emotions, daily lives, or future goals, people constantly interact with art, consciously or unconsciously (Balkaş, 2020). Güneştan and Ayrancıoğlu (2018, as cited in Demirel & Sözer, 2023, p. 29). For stated, “The development of a country in social, social, cultural, economic and technological fields can be achieved through an educational approach aimed at raising qualified people who can recognize themselves, shape their goals and objectives in line with their special talents, adequately comprehend the functions of art and adapt them to all areas of their lives” this reason, providing education related to art is very necessary in terms of revealing the individual’s development in many areas, especially self-recognition and expression.

Art education is a reliable field in which creativity is at the forefront and can be developed in accordance with individual personal development. Its main aim is to make the individual a person who sees, seeks, and is not afraid of experimentation. Art education should be provided for every individual at every educational level and should not be interrupted. With art education, individuals are aimed at being creative individuals who can express themselves in artistic ways, have developed visual perception, recognize the culture in which they live, take responsibility for transferring it to future generations, and respect the world cultural heritage (Buyurgan & Buyurgan, 2020).

Art-related courses are offered at all educational levels, beginning with preschool. These courses are 'Art Activities' in preschools and 'Visual Arts' in primary, secondary, and high schools. In universities, courses related to art are included in elective or compulsory courses. In addition, some individuals choose the field of visual arts as a profession. Those who specialize in this field and perform their profession professionally include painters, artists, and teachers. Those who prefer this profession receive education in the faculties of fine arts and fine art education departments of universities and graduate as experts in their fields. Individuals who choose art as a profession are given different courses according to the field they specialize in. These departments take their students according to both the score they get from the university exam (Basic Proficiency Test score) and the result of the special aptitude exam.

Since the last four years, to be a student in Fine Arts Education Departments, the Basic Proficiency Test exam ranking must be within 800 thousand (Higher Education Council, 2020), In order to become a visual arts teacher, it is necessary to graduate from the Fine Arts Education Department of the Faculties of Education or to receive pedagogical formation training by graduating from units such as the Faculty of Fine Arts. In addition to the Basic Proficiency Test, the Painting Teacher Training Program conducts a special talent exam. Kavuran (2003) stated that different problems are encountered in student recruitment to Art Education programs. Today, the most important of these problems is the threshold of 800 thousand because of the Basic Proficiency Test exam that students take before the special aptitude exam.

While in 2019 and before, the Higher Education Institutions Examination stated that "the Basic Proficiency Test score must be 150 and above" at the application stage to the relevant teaching departments (Higher Education Council, 2019), this was changed in 2020 and after, and the condition of "having a minimum success ranking of 800,000 in the Basic Proficiency Test" was sought regardless of the score (Higher Education Council, 2020). In this regulation, which was made in order to increase the quality of education in departments that take students with special aptitude exams in our country, it is aimed that the general culture knowledge of the students should be at a sufficient level as well as their abilities. After this regulation, it has been observed that the number of students who prefer the Painting and Art Teaching Programme has gradually decreased. This regulation is thought to have a negative impact on the students studying at Fine Arts High School in addition to universities. Students studying at Fine Arts High Schools may not be able to enter the Painting and Design Teaching Programme because they do not have the desired ranking as a result of the Basic Proficiency Test exam and may turn to different fields (Taşkesen, 2020). Since there is no requirement such as the 800 thousand threshold in these fields, students preferred these fields and then received the necessary formation from the faculties of education and obtained a teaching certificate.

As a fundamental part of the teacher training process, formation education is a program implemented to provide prospective teachers with pedagogical competence. Historically, formation education has its roots in the professionalization of teaching. In this process, it was emphasised that both theoretical and practical aspects of education should be handled in an integrated manner. Yılmaz and Altınkurt (2011) stated that formation education initially emerged as a right granted afterwards to individuals who did not pass teacher training programs in faculties of education. Although faculties of education were established to meet the need for teachers, formation education was introduced so that graduates of other faculties could become teachers by benefiting from this process.

In this context, one of the main justifications of formation education is to address teacher shortage and to afford graduates from different branches the opportunity to teach (Yılmaz & Altınkurt, 2011). However, this practice has been criticised over time. Dilmaç and Salman (2017) argue that the presentation of pedagogical formation education as an accelerated process creates a disadvantage for graduates of education faculties who take educational sciences courses for four years. In this study, it was determined that formation education received within a short period of one year did not provide sufficient equipment for the teaching profession.

In addition, Nartgün (2002) points out that formation education makes it difficult for graduates of education faculties to be employed. While graduates of education faculties prepare for the profession with comprehensive education they receive for four years, individuals who receive formation education compete with them by receiving a teaching diploma in a shorter period of time (Gurol et al., 2018). This situation has led to discussions on quality and equality of education opportunities.

After these regulations, it is observed that while the number of students in Fine Arts Faculties has increased, the number of students in the Painting and Business Teaching Program has decreased (Erdamar & Tengilimoğlu, 2021). When the basis of this problem is examined, it can be thought that the education given in Fine Arts High Schools, especially the low level of student success in general culture courses, and the negative effect of this situation on the university entrance exam success ranking (Dilekçi & Ece,

2012). Individuals who study at Fine Arts High Schools and whose aim is to have a profession in the field of art cannot achieve the desired success ranking within the scope of the Basic Proficiency Test because they cannot learn general culture courses sufficiently (Şen, 2018). These individuals prefer Fine Arts Faculties because they do not have the desired success ranking. The situation that creates a contradiction here is that individuals who study in these faculties obtain a teacher certificate by taking formation training without success ranking and different sanctions. Since these individuals do not have a basis in terms of general culture knowledge, they fail in the Public Personnel Selection Examination that they enter after graduation. As a result of all these, it can be observed that the number of students in the Fine Arts Education Department is gradually decreasing; the quotas are not fulfilled within the scope of many universities, and the department is in danger of closure. Therefore, this research is important in terms of examining prospective teachers' views on the subject, despite the current situation. In this regard, it emphasizes the importance of art education and address the problems faced by applicants who wish to receive such education. Mustafa Kemal Atatürk stated; "To succeed in Fine Arts means to succeed in all revolutions." Nations that do not succeed in the field of fine arts, unfortunately, will forever be deprived of occurring in the field of civilisation with the title of high humanity. When the literature is examined, there is no study in which the opinions of prospective teachers about the problems encountered in the admission of students to the Painting and Art Education program, the studies on the Basic Competence Testthreshold and formation education, which have become one of the most important problems today, are taken and interpreted. In this context, it is thought that this research will significantly contribute to the relevant programs of universities that take students with special aptitude exams, teacher candidates, students, and the field since it is a new field of study. Based on these considerations, the aim of the research is to determine the problems in the Painting and Drawing Teacher Education Programme of a state university and to develop solution suggestions in line with the positive and negative opinions of the students, with a success ranking of 800,000.

Purpose of the Study

This study aimed to examine the opinions of prospective teachers regarding the requirement to enter the 800 thousand threshold with the score obtained from the Basic Competence Testexam applied in the entrance to the painting and art teaching programme of the fine arts education department of the faculties of education and formation education. To achieve the purpose of the research, answers were sought to the following questions:

- What are the participants' opinions on the 800 thousand threshold requirement in the Basic Competence Test exam?
- What are the participants' opinions on formation education given without the 800 thousand threshold?
- What are the suggestions of the participants to the authorities who make these decisions?

Method

Research model

In this study, a qualitative research method was used to determine the results of these situations and to develop suggestions for improvement by examining the opinions and thoughts of the prospective teachers of the Art and Art Education programme about the 800 thousand success ranking threshold and formation education they encountered in the entrance to the faculty of education. In this context, the case study method was preferred, and a holistic single-case design was adopted. "The most basic feature of qualitative research is that it tries to examine the events, phenomena, norms and values researched from the perspectives of the people being researched" (Ekiz, 2003, p. 27). This study was carried out using a case study, which is a qualitative research method. The case study method is frequently used, especially in the social sciences. The main feature of this method is that it focuses on analysing an event, situation, individual or group in depth and evaluates them in detail (Ekiz, 2013). A case, as defined by Gerring (2007), is a phenomenon observed at a specific time or period. According to Creswell (2007) described a case study as qualitative research in which the researcher examines a limited or more than one situation in depth and defines themes. According to Chmiliar (2010), a case study is defined as a way of obtaining systematic and detailed information about a phenomenon by using different data collection methods. Yin (1984) defines holistic single-case design as a design in which a single unit of analysis and unique situations are investigated. This design was used to test a determined theory. Due to the interpretative structure of the qualitative research method, this method was preferred to examine the effects of the threshold and formation education and to develop solutions for problem situations, if any. The qualitative dimension of the research was formed in line with the findings obtained through interviews. This study aimed to examine the reflections of high school graduates from and the culture courses taken by prospective teachers on the 800 thousand threshold required to enter the faculty of education and the results of the formation education of other candidates who do not study at the faculty of education. For this reason, open-ended questions were prepared for prospective teachers to answer. Open-ended questions are important for obtaining detailed information and facilitating the study.

Participants

The sample group of this study consisted of 10 pre-service teachers studying at different grade levels in the Fine Arts Education Department Painting Education programme of a state university in 2023-2024. In the selection of prospective teachers to be interviewed, candidates were selected using a non-random convenience sampling method.

The participants consisted of 10 pre-service teachers studying at different grade levels in the art teaching programme. Participants were determined by considering the diversity of gender and high schools they graduated from. In the analysis, participants were coded from K1 to K10. Table 1 presents the demographic information about the participants.

Table 1.

Demographic Information of the Participants

Participant codes	Gender	Graduated High School
K1	Females	Fine Arts
K2	Females	Anatolian High School
K3	Females	Fine Arts
K4	Females	Anatolian High School
K5	Females	Anatolian High School
K6	Male	Fine Arts
K7	Male	Imam Hatip High School
K8	Females	Imam Hatip High School
K9	Male	Anatolian High School
K10	Females	Imam Hatip High School

When Table 1 is analysed, it is seen that the participants are 3 males (P6, P7, P9) and 7 females (P1, P2, P3, P4, P5, P8, P10). It was observed that 3 of the participants were graduates of Fine Arts (P1, P3, P6) and the rest of the participants were graduates of Anatolian High School, Imam Hatip High School.

Data Collection Tool

The data were obtained through face-to-face interviews. The interview questions were prepared by the researchers and presented to two visual art experts and one is an expert in measurement? Necessary arrangements were made in line with the expert opinions, and a pilot study was conducted with a participant who was not included in the study. It was determined that there was no problem in understanding the questions. Prior to the application, consent forms were obtained from the participants, and the interviews were recorded within the framework of ethical principles. The recordings were dictated and provided to the participants as written documents. The participants were informed that they could add anything they wanted. The data collection tool consisted of semi-structured questions. According to Stewart and Cash (1985), semi-structured interviews are interactive communication processes based on a question-answer format with a predetermined purpose (as cited in Yıldırım & Şimşek, 2005). This technique is more flexible than the structured interview technique because the researcher prepares pre-planned questions, but during the interview, depending on the flow of the interview, he/she can change the questions or add sub-questions to get more detailed answers from the respondent. According to Türnüklü (2000), "the main purpose of using interview techniques is not to test the hypothesis; on the contrary, understanding other people's experiences and how to use them is to try to understand what they mean" (p. 544).

The ethical process in the study was as follows:

- Ethics committee approval was obtained from Recep Tayyip Erdoğan University Local Ethics Committee (Date: 10.01.2024, Number: 2024-11/003)
- Informed consent has been obtained from the participants.

Validity Reliability

The interview questions were developed by the researchers based on Seidman's (1998) interview form development approach in accordance with the purpose of the study. The process was performed as follows:

1. Preparation of Interview Questions: The questions were developed in accordance with the purpose of the study and were clear and understandable. In the first stage, the questions were designed by considering three dimensions: context, process, and meaning.

2. Presentation to Expert Opinions: The questions were presented to the experts for evaluation in terms of their suitability for the purpose. The opinions of the three experts were obtained by ensuring that each question had an evaluation structure in the form of 'Appropriate- Not Appropriate'.

Pilot Implementation: The questions were tested in a pilot study before implementation. Necessary revisions were made according to the results of the pilot study.

1. Participant Interviews: The interviews with the participants were transcribed into written text and were given back to the participants and their confirmations were obtained regarding their accuracy. In addition, they were asked if there was anything they wanted to add or correct.

2. Describing the Data and Findings: The collected data and findings were analyzed in detail, and the context obtained was explained in detail.

Data Analysis

Miles-Huberman (1994) model was used to analyze the data. The answers given by the pre-service teachers to the interview questions were separately analyzed by two researchers and a faculty member other than the researchers. Themes and subthemes were formed from the data obtained as a result of these analyses, and during the examination of the themes, the issues of 'consensus' and 'disagreement' between the evaluators were determined. The reliability calculation of the study, the reliability formula proposed by Miles and Huberman (1994) was used. Reliability is calculated as follows: Reliability = Agreement / (Agreement + Disagreement).

As a result of the calculation, the reliability value of the research was found to be approximately 89%.

According to Miles and Huberman (1994), for the reliability of the study to be acceptable, the consensus rate should be at least 70%. This limit was accepted as an indicator that the results of this study were reliable.

Results

In this section, the findings obtained from the data of the research are given.

According to Table 2, the participants' views on the Basic Competence Test threshold scores were grouped into two main categories as positive and negative. A distinction was made between participants who expressed positive views (P4, P6, P10, P5, P7) and those who expressed negative views (P2, P3, P5). Positive opinions were generally focused on the theme of 'teacher competence', especially by P4, P6, P7 and P10 participants. On the other hand, negative opinions were generally focused on the theme of 'elimination of talented people', this theme was emphasised especially by P2, P3 and P5 participants.

Table 2.
Participants' Opinions on the Application of Basic Competence Test Threshold Score

Category	Theme	Participant codes	f
Positive Opinions	Teacher competence	K4, K6, K7, K10	4
	Elimination of competitors	K7, K5	2
Negative Opinions	Elimination of talented people	K2, K3, K5	3
	Exam-oriented studying kills creativity	K2	1

Teacher Competence

Teacher competence includes a teacher's general culture, general ability and knowledge in his/her own field. A teacher's being equipped does not only mean having knowledge in his/her own field, but also in other fields.

P10 states that "I think that we should have a certain knowledge and equipment because we are a faculty of education, so I find it right".

Elimination of competitors

The situation of elimination of competitors includes the fact that students with high Basic Competence Test score and ranking gain the right to take the aptitude exam, while other candidates do not have the right to take this exam because they cannot pass the Basic Competence Test threshold. This situation is thought to give an advantage to candidates with high Basic Competence Test scores in the aptitude test. This situation allows them to compete with fewer competitors. P5, sharing his own experience, stated that when he applied to a course, only 2 people in the class were eligible to take the university"s aptitude test. 'This is my second university, I wanted to enrol in a course and when I went to the course, it was as big as this hall and the walls were full of paintings and when I asked the teacher in charge there, he said that there were 20 people here and only 2 of them were allowed to take the university's aptitude test. Many people were eliminated because of this official thing you mentioned. In other words, many talented people were eliminated." This statement emphasises that students could not take the exam because they were stuck in the threshold score.

The opinions regarding the negative comments are listed below:

Elimination of talented people

Talented students cannot enter the 800,000 threshold because their performance in theoretical courses is weaker and they cannot apply for the Art and Crafts teaching program talent exam. K2 stated, "There are many students who have talent but cannot enter the exam, and now they fall into this separation."

Exam-oriented studying kills creativity

According to the student opinion that studying focused on exams weakens creativity, students attach more importance to the Basic Competence Test exam because they cannot enter the university talent exam without passing the 800,000 threshold with their Basic Competence Test score. This situation indicates that while focusing on theoretical courses, drawing skills and creativity remain in the background and weaken. K2 stated, "I focused more on the exam in the field of drawing this time. I think our studying and interpretation skills have decreased. Since the exam is focused on test-solving skills, I think our creativity has died a little."

When Table 2 is examined, it is seen that the participants have two different main views. The participants' views are stated under the themes of positive and negative. The

majority (K4, K6, K7, K10) expressed positive views under the theme of "teacher competence". The participants in this group may have placed more emphasis on teacher competence because they graduated from Anatolian high schools (except K6). For example, K1, a fine arts graduate, stated that the 800,000 threshold indicates that their appointments will be more difficult. Anatolian high school graduates may have a better command of the Basic Competence Test exam content compared to students studying fine arts, because they may have taken more Turkish and mathematics courses. Fine arts high school graduates may be at a disadvantage in the Basic Competence Test exam because they spend less time on theoretical courses due to workshop and art courses.

K2 confirmed this situation and stated that the exam was eliminatory. He stated that talented students who could not take the exam could not be evaluated and therefore the Art and Crafts Teaching program tended to be filled with students with intermediate level art skills who were interested in Turkish and mathematics. This situation emphasizes that a teacher should have theoretical knowledge but also be an expert in his/her field.

Table 3.
Opinions on Formation Training

Category	Theme	Participant codes	f
Positive Opinions	In terms of formation areas	K5, K7, K8	3
	Appointment barrier	K1, K4, K5, K7, K8	5
Negative Opinions	The inadequacy of the education they received	K4, K5, K9, K10	4
	Injustice	K2, K3, K6, K7	4

When Table 3 is examined, it is seen that the participants' views on formation training are gathered in two categories. These categories are divided into those who think formation training should be provided and those who do not think it should be provided. While 3 of the participants have a positive perspective on formation training (K5, K7, K8), the majority (K1, K2, K3, K4, K5, K6, K7, K8, K9, K10) have a negative perspective. Participants who expressed a positive view also shared negative views. Participants with a positive viewpoint were gathered under the theme of "in terms of formation training recipients" (K5, K7, K8). Participants with a negative viewpoint were divided into three main themes. The most emphasized theme among these themes was the "appointment barrier" theme (K1, K4, K5, K7, K8).

In terms of formation areas

Formation training includes comprehensive education science courses given to teacher candidates in education faculties for 4 years, spread over all years. Some departments of fine arts faculties can receive formation training in one year in order to gain the right to become a teacher. K5 stated, “Now, if I think about the example I gave earlier, if those people are left idle or if they cannot pass the 800 thousand threshold and receive formation training after the faculty of fine arts, here one has to choose between two choices. I think formation is good for those people.”

Appointment barrier

Candidates studying in the art teaching program, in order to enter this department, work to pass the 800 thousand threshold by studying for the Basic Competence Test exam in addition to the aptitude test. However, candidates who graduated from other institutions and faculties gain the right to participate in the KPSS exam with the same rights as teacher candidates by receiving formation training. This situation has a negative effect by causing the rankings of candidates who graduated from the art teaching program to decline and facing more competitors in the KPSS exam. Participant K5 expressed his opinion on the subject as "I will have more competitors in the KPSS exam, it is not nice in this respect", and K1 expressed his opinion as "The other party will be able to get a job more easily by getting a training."

Injustice

While candidates studying in the art teaching program make extra efforts to enter this department, others can choose different departments and receive formation training; this situation creates an unfair situation for art teacher candidates. K3 expressed his opinion as follows: “I mean, depending on who you ask, I definitely think that the problem is injustice in itself. We made an effort and came with a threshold, took the talent exams and despite that result, we came here, while others received formation training, it is unfair that they are given such a thing despite our skills.”

The inadequacy of the education they received

Candidates studying in the art teaching program comprehensively absorb and study educational sciences courses for four years. However, candidates who become teachers with formation education take educational sciences courses in one year. This situation reveals that there is very little time to absorb many subjects such as how to approach students, developmental stages of students, teaching principles and methods in one year. K10 expressed his opinion as follows: “I really do not agree with this because we take hours of lessons in the field of education for four years, including teaching principles and methods, designing many activities, and more than our own field in the field of education, and I never think that they are equivalent to the formation education they receive for one

or two terms. First of all, we come across formation students a few times, we are never equal in terms of both knowledge and the methods we will apply, and thinking that we will be in the same class under the same conditions, I think there is no point in being in this faculty of education."

Examining Table 3, the participants' opinions about formation training fell into two categories. These categories are divided into those who believe that formation training should be and those who do not. While 3 of the participants have a positive perspective on formation training (K5, K7, K8), the majority (K1, K2, K3, K4, K5, K6, K7, K8, K9, K10) had a negative perspective. Participants who expressed positive opinions also shared negative opinions. Participants with a positive perspective were gathered under the theme "in terms of formation areas" (K5, K7, K8). Participants with negative perspectives were divided into three main themes. Among these themes, the most emphasised theme was the "appointment barrier" theme (K1, K4, K5, K7, K8).

Table 4.
Recommendations Regarding the Decisions Taken

Category	Theme	Participant codes	f
Those who do not express an opinion	-	K4, K5, K6, K7, K8, K9	6
Negative Opinions	Must be changed	K2, K3	2
	Wrong decision	K1	1
	A pilot application should be carried out	K10	1

When Table 4 is examined, it is seen that the minority of the participants expressed negative views on the decision taken, while the majority did not want to comment. It was observed that the participants generally avoided talking about this question. K6 answered this question as "I want to say a lot but I cannot". The participants with a negative perspective were divided into 3 main themes. The theme titles were "A wrong decision, it should be changed, Pilot application should be done". The most emphasized theme among these themes was "Changing the decision".

Changing the decision taken

It has been stated that the current threshold ranking and formation training practices should be rearranged and changed. These changes aim to prevent teacher candidates from being evaluated based solely on their exam results and to take their general competencies and pedagogical skills into consideration more comprehensively. These improvements in the education system can increase the quality of the teaching profession and better reflect the qualifications of the candidates. K3 stated, "I would like the decisions to be changed and for rights, law, justice, equality, and these to be taken into consideration in more detail."

Wrong decision

Regarding the issue, K1 thinks that the dam ranking and formation training practices are wrong practices.

Pilot application

The system to be implemented is the process of putting it into effect after working on an experimental group and looking at the results. K10 stated, "Well, I think this pilot application needs to be tried, I don't know if this has been tried. What is the difference between this formation and why it was put in, research needs to be examined, it should not be like this, it is removed, something is done, there should be a clear decision in my opinion."

Discussion

In 2019, the Council of Higher Education (YÖK) introduced a success rank restriction for students to be admitted to teaching programs with a special talent exam. Candidates must be ranked at least 800,000th in the Basic Proficiency Test, which is the first session of the Higher Education Institutions Exam. Based on the data obtained in this study, it was stated that positive results were obtained with the Basic Competence Test threshold being 800,000. This finding of the research overlaps with the findings of the study conducted by Üçer, Gürer, Yılmaz, and Sonsel (2023). The reasons for these positive thoughts were "teacher competence and elimination of competitors". In addition to those who think positively, there is also a group of students who think negatively. The common explanation of the students who think negatively was the thought that students with high talent levels from Fine Arts could not apply to the university exam because they could not enter the 800,000 threshold ranking. When the high schools from which the students graduated are also taken into consideration, it is observed that the students who graduated from high schools other than Fine Arts expressed a positive opinion about the 800 thousand threshold.

Some students stated that they have a positive approach to the 800 thousand threshold. It is thought that the reason why students who graduated from other Fine Arts High Schools gave a positive response is because they have different curricula than Fine Arts High Schools. Fine Arts High Schools take Patterns, Imaginative Painting, Basic Art Education, Aesthetics, History of Turkish Islamic Art, Analysis of Artworks, Two-Dimensional Art Workshops, Three-Dimensional Art Workshops, Graphic Design, Museum Education, Basic Patterns, Pattern Studies, Digital Graphics and Photography courses, while in other high school types, only the Visual Arts course is an elective (Ministry of National Education, 2023). This shows that they can reach the 800 thousand threshold more easily. This situation has been evaluated as an advantage for students

in other high school types.

With the 800 thousand threshold application, it was observed that the quotas of students who registered for the Art Teaching Programs of the Education Faculties were not filled in many universities and there was a decrease in the number of students. This situation affected the student admission to the faculties and was negatively affected, especially when students from Fine Arts High Schools who aimed to study in the Art Teaching Programs could not meet the Basic Competence Test threshold requirements (Demirel & Sözer, 2023).

In many countries, minimum score applications for university entrance are seen as a way of measuring students' academic competence. According to Zwick (2007), although applying a certain threshold score in university entrance exams is a traditional way of measuring student success, this system can create negative pressure on some students and limit their access to educational opportunities.

It is necessary to make the 800 thousand success rank threshold decision accessible to students. If students cannot reach it after the necessary measures, it is recommended to review the quality of the education provided. It is observed that in the state school where the study group studied, the class size increased to 50 people before the 800 thousand threshold came, but after the threshold came, the class size decreased to 10-15 people. This situation is the same not only in the university where the research was conducted but also in other universities. In the study conducted by Başbuğ and Kaya (2022), the findings regarding how much the number of students decreased were also presented with numerical values. It is thought that the 800 thousand threshold application reduces the number of Art Teaching Program graduates. This situation shows that candidates who will study Art Teaching Program should give importance to theoretical solving skills rather than painting talent. As a result, it is predicted that the graduates of the Department of Art Teaching will be teacher candidates who have general culture but low art talent. According to Çetin (2000), the fact that teachers have a general culture is an important factor in communicating with students and it is emphasized that teachers who are trained in accordance with the needs of the age play an important role in increasing the welfare level of the society (Yetim, 2004). However, due to reasons such as the fact that the curriculum is art-oriented, students state that their talents have dulled because they have to focus on Basic Competence Test subjects and that this situation causes anxiety, stress and loss of motivation in students.

Conclusion and Recommendations

As a result, it shows that there is a positive tendency towards the Basic Competence Test threshold application and a general negative tendency towards formation training. The basis of these negative views are factors such as the obstacle to appointment, injustice, easier profession acquisition and inadequate education. Fine Arts High School students think that the situation of "putting talented students ahead" of students coming from other high schools depending on the courses they take causes injustice in departments accepting students with the talent exam of the Basic Competence Test threshold (Demirel & Sözer, 2023). There are concerns, especially among art teaching graduates, that formation training increases competition in the KPSS exam, creates injustice and makes it difficult to have a profession.

The basis of positive views on the Basic Competence Test threshold is based on "teacher competence and elimination of competitors". Participants; They supported that a teacher should also be at a sufficient level in the field of general culture. At the same time, they stated that candidates who could not exceed 800 thousand in the Basic Competence Test exam provided an advantage for them. In the study of Gül and Mercan (2022) regarding the threshold score; academics mostly stated that they were not in favor of removing the threshold scores. Because they stated that the quality of education would decrease, students who were unsuccessful in the field of general talent would come to universities, and the unqualified student profile would increase.

Teaching is one of the fundamental building blocks of society. A teacher is not only a figure who transmits knowledge but also plays a key role in shaping the future. He contributes to the development of students' character by teaching them not only course content but also values, a sense of responsibility and social skills. The impact of a teacher on students is evident not only in the classroom but also as a source of guidance and inspiration throughout their lives. The teaching profession is critical to the progress of society and the transfer of knowledge between generations.

However, it is seen that current practices are inadequate in training qualified teachers. Although there were practices such as village institutes in the past, unfortunately, there is no tradition of training teachers today and it is observed that frequent interventions are made in the teacher training system. However, these interventions are usually practices that take the system backwards instead of improving it (Yılmaz & Altınkurt, 2011). One of the biggest examples of this is formation training. Formation training is considered as a right granted later to individuals who were

not qualified to enter the education faculties of the relevant universities at the time. Although the Education Faculties exist to meet the need for teachers, graduates of other faculties who have employment problems due to unplanned growth have also been seen as potential teacher candidates and this has been tried to be justified with the logic of "those who know teach". This situation basically brings up an important manpower planning problem (Yılmaz & Altınkurt, 2011).

Darling-Hammond (2010) states in his study that short-term certification programs (including formation training) are inadequate in developing teachers' classroom activities and pedagogical skills. It is emphasized that such programs generally lack practical training and that this situation prevents the development of critical teaching skills, especially classroom management and student relations. According to Darling-Hammond, formation training based solely on theoretical knowledge cannot adequately prepare teacher candidates to deal with real problems they will encounter in the classroom environment.

The results of the research also show that all participants have a negative view of fine arts faculties receiving a teaching diploma by taking formation training. The reasons for the participants' negative views are gathered under three main headings. The reasons for these negative thoughts are "obstacles to appointment, injustice and inadequate education". The participants' negative views are mostly gathered under the heading of "obstacle to appointment". In addition to negative views, there are also those who have a positive view of formation training. Those who have a positive view have evaluated this situation "in terms of those who receive formation training".

Since individuals who receive formation training are granted the right to become teachers, these candidates become competitors to education faculty graduates by taking the KPSS exam. In this case, this situation is reflected as an obstacle to appointment for education faculty graduate teacher candidates. When the relevant literature is scanned, Nartgün's study in 2002 confirms that individuals who receive formation training later block the path of education faculty graduate teacher candidates.

One of the criticisms made on formation training in Turkey is that the content of the programs is inadequate and the application periods are short. Kaya (2014) argues that formation training is particularly inadequate in providing teacher candidates with pedagogical competence. According to Kaya, candidates who receive formation training start teaching without having sufficient experience, which can lead to a decrease in the quality of education. This short-term training provided to graduates from non-education faculties is considered as a practice that weakens the professionalization of the teaching profession.

Since teacher candidates who graduated from the faculty of education receive formation training by internalizing it for four years, they graduate equipped in every way. However, candidates who receive formation training in an accelerated manner within one year without internalizing it compete with education faculty graduates by graduating with insufficient knowledge and skills. Literature sources show that formation training is insufficient for the teaching profession. According to the study conducted by Dilmaç and Salman (2017), it was observed that visual arts teacher candidates who received pedagogical formation training were generally insufficient for the teaching profession. This shows that formation training given in one year and educational sciences courses taken by internalizing for four years do not create the same effect.

Another study with similar results, Cochran-Smith and Villegas (2015), states that short-term formation and certification programs teach basic teaching skills superficially instead of providing in-depth pedagogical knowledge to prospective teachers. This approach can lead to negative results in the quality of education in the long term by simplifying the complexity of the teaching profession and pedagogical knowledge. According to them, this situation can also negatively affect students' academic success.

Individuals who want to enter the art teaching program of education faculties prepare for both culture courses and special talent exams in order to meet the 800 thousand ranking requirement. Individuals who want to go to the faculty of fine arts focus only on the special talent exam. As a result, students of the faculty of fine arts can have the right to become teachers by taking formation training without meeting the 800 thousand threshold requirement, which creates an unfair situation for individuals who graduate from the faculty of education. According to the data obtained, granting formation rights to other faculties while there are already faculties of education to train teachers creates an unfair system. Formation training creates a backlog in the number of teachers waiting for appointment.

Since individuals who receive formation training do not need to meet the 800 thousand threshold requirement, they can find a profession much more easily.

These views point to the current problems in the education system and appointment processes. Reforms and improvements can alleviate these concerns and provide a more equitable balance between education fields.

When these results are compared with the studies conducted in the relevant literature, it is seen that there are similar results. Before changing the examination systems,

pilot applications can be carried out and the effects of the system to be implemented can be evaluated (Atik & Kasapoğlu-Tankutay, 2023).

The 800 thousand threshold required in the Basic Competence Test exam should also be sought in individuals receiving formation training or the practice should be removed from every department. Otherwise, candidates who are not subject to the 800 thousand threshold when entering the university will take formation training and be in an equivalent position to candidates who are subject to the 800 thousand threshold. The injustice in formation training should be eliminated and a fair system should be created so that individuals who have the chance to become teachers by taking formation training are not more advantageous than graduates of the art-crafts teaching program. This should include a review of the appointment processes and the conditions that differ in the KPSS exam.

If the reason for the application of a threshold score for university entrance is to train qualified teachers, the same threshold score should be applied to those who want to receive formation training, and the existing unfair situation should be eliminated.

For future studies on this subject,

Further studies can be conducted with teacher candidates studying at different universities, and the study group can be expanded.

Further studies can also be conducted in different art education institutions such as fine arts high schools, education faculty fine arts education departments, fine arts faculties and conservatories, and comparative studies can be conducted.

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The Attitudes of Secondary School Students Studying in Different School Types Towards Physical Education and Sports Lessons: Comparison of Village and City

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ABSTRACT

The main aim of this study was to determine the attitudes of secondary school students towards physical education and sports lessons by making comparisons according to settlement and school types. In selecting the study group, the stratified purposeful sampling method, which is a type of purposive sampling method and one of the non-random sampling methods, was adopted. The data were collected and evaluated using a personal information form and BES course attitude scale. SPSS statistical program was used to analyze the data and the significance value was accepted as .05. As a result of the analysis, it was determined that the data were normally distributed and t-test was used for pairwise comparisons, Post-Hoc Tukey and One-Way Variance Analysis (ANOVA) were used for more than two comparisons. According to the results of the research, no significant differences were found in the mean scores of the students' attitudes towards the BES course according to variables such as gender, residence in the city center or rural area, mother's occupation, father's education level, school type and place of residence. However, significant differences were found in the mean scores of the students' attitudes towards the BES course in terms of factors such as being on the school team, gym status, class levels, transportation to school, location of the school, father's occupation, mother's education level.

Keywords: Physical education and sports, attitude, school types.

Introduction

Human history arose as a result of the accumulation of previous generations. Humans differ from other living creatures in that they form social cultures as a result of living together. Education ensures that this culture is passed on to future generations. Education imparts to us the information and experience that humans have accumulated throughout history. People who lived in the past contributed to today's life. We support its construction by donating to it. Education elevates us to this level, and we use our knowledge and experiences to advise future generations (Aras, 2019). In the changing international order, education is one of the most crucial components for nations to keep up with global changes and innovations while also progressing by adapting to the present system.

Studies in the field of education and training emphasise the importance of PES (Physical Education and Sports) lessons. These courses can increase students' motivation, make school more fun, help them cope with stress and help them avoid bad habits. Therefore, it is important for students to be interested in sports in order to complete their personal development. The most basic aim of education is to guide the individual in the process of self-knowledge and discovering his/her own abilities. The aim of constructivist education is to prepare each individual for future life in a way that each individual will develop in parallel with each other in cognitive, kinetic, social and spiritual areas. For this reason, PPS should be considered as an indispensable building block of general education (Eroğlu, 2011).

Education is obliged to reveal the hidden powers and talents of individuals and to help them develop them to the highest level. One of the main aims of modern education is to develop individuals in physiological, intellectual, spiritual and social competence and to participate in life. This aim can be realised through the mental and physical education of the individual. For social progress and development, the individual must be physically healthy and feel happy in his/her inner world (Kangalgil et al., 2006). In addition to developing students' abilities and increasing their knowledge, education should also make individuals self-sufficient in emotional, cognitive, social and physical

dimensions. Raising qualified individuals is the most important task of the education system. The main principle adopted in our PPS courses is to ensure that all individuals in the field of education develop according to their own abilities. The teaching method of the PPS course should be determined according to the physical and cognitive needs, interests and abilities of children (Taşmektepligil et al., 2006).

In education, it is not only enough to develop students' knowledge and skills, but also their emotional, social, mental and physical aspects should be developed and they should be helped to become self-sufficient as a whole (Ar, 1998). Individuals who are open to continuous learning in social life can also realise harmful learning when they are left alone. Therefore, the education system has a great duty in raising qualified individuals and efforts should be made for this purpose (Yanik & Çamliyer, 2015). The aim of PES lessons is not to educate all children equally, but to ensure that each child grows according to the skills they have. For this reason, in physical education lessons, physical and cognitive needs of students, the areas they like, their ability status should be evaluated comprehensively and the transfer method should be selected (Ar, 1998; Şirinkan et al., 2007; Yanik & Çamliyer, 2015).

The main purpose of the physical education course is to contribute to the education of healthy individuals. Thanks to this course, students who adopt an active lifestyle are expected to maintain an active life throughout their lives. This is an important factor in coping with today's rapidly developing technology and increasing stress. Physical education classes provide positive effects on students' physical, social and psychological development and help them overcome a wide range of problems. Physical education classes are considered as an activity that provides physical and psychological relaxation. These lessons help to prevent psychological problems that arise due to many factors such as a rapidly changing world, technological developments, problems in business life, communication problems, monotonous life. In order to increase student and teacher motivation, it is important how the BES lessons are taught. It is known that students are more motivated in lessons where they are happy, and similarly, teachers are more motivated when they think that the lessons are taught in a useful way (Kangalgil et al., 2006).

In addition to the age factor, the people around them also have an important effect on the formation of students' feelings and attitudes towards physical education class. It is known that the attitudes of parents play an important role especially in childhood, but the influence of other social factors increases with adolescence (Aicinena, 1991 ; Morgan, 2006; Morey & Karp, 1998). In adolescence, the attitudes of the people around the students such as friends, relatives and teachers are effective in the formation and continuation of students' attitudes towards physical education course (Sakallı, 2001). It is known that peer groups and teachers have a great influence on the formation of the attitudes of secondary school students who spend a lot of time at school.

Religion, which is a deep-rooted institution that affects social life and whose existence is as old as human history, is a factor that protects and stabilises social order and is one of the main elements that regulate human life. Religion is a great power that keeps societies together and is related to social change (Okumu, 2003). In our country, it is thought that there is a widespread prejudice that sports are perceived negatively from a religious point of view and that doing sports may be contrary to the commandments of religion. For this reason, it was predicted that students studying in imam hatip secondary school, whose education is based on religion, may exhibit negative attitudes by having negative thoughts towards the BES course (Topalli, 2019).

In Turkey, there are various types of secondary schools: general secondary school, imam hatip secondary school and Regional Boarding Secondary School (YBO) (MoNE, 2008). YBOs are boarding schools that require students to stay at school completely. Therefore, the fact that students in these schools spend more time away from their families may lead to the emergence of problems that they do not feel in the family environment. Therefore, it is important that schools have appropriate physical structures (sports halls, libraries, hostels, cafeterias, etc.) for students to spend their free time efficiently. In addition to these factors, personal information such as the type of school, masculinity or femininity of the student, transportation, areas such as halls where activities are carried out, team membership, number of siblings, study room, parents' occupation may also have an effect on the feelings and attitudes that students develop towards the BES course. For this reason, it is necessary to evaluate the attitudes and opinions of students studying in different types of secondary schools towards the BES course in detail and to determine whether the variables at hand create differences (Arı, 2000; Kafadar, 1997; Karataş, 2006).

Method

Research Design

This study followed cross-sectional design as one of the survey designs. Survey designs aims to quantify and qualify the ideas of large population and provides the opportunity to find answers to questions such as 'what, where, when, in what majority, at what level, in what situation'. Cross-sectional designs are the tudies conducted with the aim of describing and transferring the existing event in a certain period of time as it occurred (Karasar, 2002). In our research, the dependent variable is attitudes towards the PPS course, the independent variables are gender, school type, urban centre and rural area, being in the school team, grade level, age groups, parents' occupation and education level.

Study Group

The population of the study consists of students in Kars city centre and villages connected to the centre. The sample consists of a total of 688 secondary school students, 383 female and 305 male, in Kars city centre and villages connected to the city centre in 2022-2023 (Table 1). Non-random sampling methods are classified as systematic sampling, purposive sampling and convenience sampling in accordance with Fraenkel and Wallen's (2006) classification. Patton (1990) analysed purposive sampling in 14 different strategies. One of these strategies is stratified purposive sampling. In our study, stratified purposive sampling, which is one of the types of purposive sampling method, was used. In sample selection, the estimated sample formula for continuous variables used by Çıngı, 19949 was used to calculate the sample size. The population size was N=7300, Likert-type five-point rating was used for the responses. For the estimation of the mean, the estimated deviation d= .05 points and standard deviation .5 were used, and the confidence level (1-α) = .95 was taken. The t value corresponding to the confidence level is 1.96. When we substitute the values in the formula N0=[(txS)/d)2, the sample size can be taken as 365.

Table 1.

Sample Table

School location			YBO	General Secondary	Imam Hatip	Total
City Center	Gender	F	48	78	134	260
		M	46	68	98	212
		Tot.	94	146	232	472
Village Connected to Center	Gender	F	35	54	34	123
		M	22	40	31	93
		Tot.	57	94	65	216

Data Collection Tools

Physical Education and Sports Attitude Scale

Primary Education (10-12 years old) IPS course attitude scale developed by Phillips and Silverman (2012) and adapted into Turkish by Varol and colleagues (2016) was used.

Personal Information Form

'Personal Information Form' was used to examine the attitudes of the students towards the BES course in terms of some variables. The personal information form was created by the researchers by conducting the necessary research to determine the demographic characteristics of the individuals participating in the study such as gender, class, age, school type, school location, availability of a sports hall in the school, participation in the school team, number of siblings, disability status, and parental occupation.

The Primary Education (10-12 years) IPS course attitude scale developed by Phillips and Silverman (2012) and adapted into Turkish by Varol et al. The scale is a 5-point Likert-type scale consisting of 15 items, 8 of which are positive (items 2, 6, 7, 8, 10, 12, 13, 15) and 7 of which are negative (items 1, 3, 4, 5, 9, 11, 14). The points to be given to each item are in the range of 1 to 5. The rating items consist of '1) Strongly disagree, 2) Disagree, 3) Undecided, 4) Agree, 5) Strongly agree' options.

The ethical process in the study was as follows:

- Ethics committee approval was obtained from Ardahan University Rectorate Scientific Research and Publication Ethics Committee (Date: 04.07.2022, Number: E-67796128-000-2200017508)
- Written informed consent was obtained from participants who participated in this study.

Validity and Reliability

Cronbach Alpha value for the overall scale is 0.83. In this study, evaluations were made on the total score obtained from the PPS course attitude scale.

Data Collection Process

In the 2022 - 2023 academic year, the necessary permissions were obtained from the Provincial Directorate of National Education of the Governorship of Kars and data were collected by reaching 688 students, 305 male and 383 female, who were secondary school students studying in different school types in Kars city centre and villages connected to the centre.

Data Analysis

SPSS statistical package programme was used in the analysis of the data and the significance value was accepted as .05. Number, percentage, mean and standard deviation

were applied as descriptive statistical methods in the evaluation of the data. As a result of the analyses, it was determined that the data were normally distributed and t test was used to compare two groups and Post Hoc Tukey tests and One Way Variance analysis were used to compare more groups.

Results

In this section, the demographic information of the students, the findings related to the general information given in the scale and the interpretation of the findings obtained by comparing the information given in the scale with the demographic information are given. Independent sample t test was used to analyse the statistical significance of the difference between the students' attitudes towards the PPS course according to their gender and the results are given in Table 2.

Table 2.

Comparison of Attitudes Depending on Gender

Gender	N	$\bar{X}$	sd	*t*	*p*
Famele	305	4.02	.862	.648	.517
Male	383	3.98	.852		

An independent sample t-test was conducted to evaluate the attitudes of male and female students towards the PPS course. According to the results obtained from the test, there was no significant difference between the mean scores of girls ($\bar{X}$=4.02, sd= .862) and boys ($\bar{X}$=3.98, sd= .852; t(686)=0,648, p =.517) (p > .05). According to the location of the school of the students participating in the study, the mean scores of the attitudes towards the PPS course were analysed by t-test for independent samples and the findings are given in Table 3.

Table 3.

Comparison of Students' Residence Status and Attitudes

School location	N	$\bar{X}$	sd	*t*	*p*
City Center	472	4.004	.89	.039	.969
M. Affid. Village	216	4.002	.784		

An independent sample t-test was conducted to compare the attitudes of the students participating in the study towards the PPS course with their residence in the city centre and rural areas. According to the results of the test, there is no significant difference between the scores obtained in the city centre ($\bar{X}$=4.004, sd= .890) and the village ($\bar{X}$=4.002, sd= .784; t(686)= .039, p = .969) (p > .05). Independent sample t test was used to examine the statistical significance of the difference between the attitudes of the students participating in the study towards the PPS course according to their participation in the school team and the results are given in Table 4.

Table 4.

Comparison of Attitudes with Participation in School Teams

Taking part in school team	N	$\bar{X}$	sd	*t*	*p*
Yes	187	4.14	.847	.465	.007
No	501	3.94	.949		

The t-test was applied to evaluate the attitudes of the students participating in the study towards the PPS course and their participation in the school team. According to the data obtained from the test, there is a significant difference (p < .05) between the scores obtained by those who are in the school team ($\bar{X}$=4.14, sd= .847) and those who are not in the school team ($\bar{X}$=3.94, sd= .949; t (686)= .465, p = .007). It was seen from the statistical results that there was a significant difference between the attitude scores of the students who participated and did not participate in the school team in favour of those who participated in the school team. In order to look at the statistical significance of the difference between the attitudes of the students participating in the study towards the BES course according to the presence of a sports hall in the school where they study, it was analysed with the independent sample t test and the findings are given in Table 5.

Table 5.

Comparison of Sports Hall Status and Attitudes

Availability of sports hall	N	$\bar{X}$	sd	*t*	*p*
Yes	401	4.07	.850	2.403	.017
No	287	3.91	.860		

The t-test was applied to examine the statistical significance of the difference between the attitudes of the students participating in the study and their attitudes towards the PPS course. According to the data obtained from the test, there is a statistically significant difference (p < .05) between the scores obtained from students who have a gym in their school ($\bar{X}$=4.07, sd= .850) and students who do not have a gym in their school ($\bar{X}$=3.91, sd= .860; t(686)=2.403, p = .017). It was seen from the statistical results that there was a significant difference between the attitude scores of the students with and without a sports hall in their school in favour of the students with a sports hall in their school. In order to look at the statistical significance of the difference between the attitudes of the students participating in the study towards the BES course according to their grade levels, it was analysed with one-

factor variance and the findings are given in Table 6.

Table 6.
Comparison of Attitudes According to Class Levels

Classes	N	X̄	sd	*F*	*p*
5th grade	172	4.17	.795	1.204	.229
6th grade	185	4.02	.788		
7th grade	189	3.96	.939		
8th grade	142	3.80	.866		

A one-factor between-groups analysis of variance was conducted to examine the effect of grade levels on PPS attitudes as measured by the PPS Course Attitude Scale. Participants were divided into four groups according to their grades. 5th grade, 6th grade, 7th grade and 8th grade did not reach statistical significance at the $p > .05$ level. Whether there is a significant difference between the attitudes of the students participating in the study towards the PPS course according to their age in terms of school type was analysed with one-factor variance and the findings are given in Table 7.

Table 7.
Comparison of Attitudes According to Age in Terms of School Type

School type		N	X̄	sd	*F*	*p*
YBO	11 years <	115	4.13	.75	3.411	.036
	12-13 years	23	3.85	3.852		
	14 years >	13	3.64	3.641		
G. Middle School	11 years <	132	3.97	3.976	.896	.409
	12-13 years	86	3.92	3.926		
	14 years >	22	4.21	4.215		
Imam Hatip Secondary School	11 years <	153	4.06	4.067	2.403	.92
	12-13 years	77	4.03	4.035		
	14 years >	67	3.79	3.798		

In order to determine the effect of the age of the students participating in the study on the BES attitudes, one-factor intergroup analysis of variance was used. Participants were divided into three groups according to their ages (11 years and below, 12-13 years and over 14 years). Although the attitude scores for the three age levels reached statistical significance at $p < .05$ level for YBO students, it is seen that the difference in mean scores between the groups is small. Eta square effect size was found as .02. This is considered as a small effect size according to Cohen (1988). Cohen categorises .01 as small effect, .06 as medium effect and .14 as large effect. 14 as a large effect. Post-hoc comparisons using the Tukey HSD test show that the mean attitude scores of general secondary school and imam hatip secondary school students are different from the mean attitude scores of YBO students. This difference is in favour of students aged 11 years and younger. In order to statistically examine the attitudes of the students participating in the study towards the BES course according to their mode of transportation to school in terms of school type, it was analysed with one-factor variance and the findings are given in Table 8.

Table 8.
Comparison of Attitudes According to School Type and Transport Status

School type		N	X̄	sd	*F*	*p*
YBO	On Foot	38	4.29	.644	4.84	.003
	With service	66	4.15	.722		
	Special Vehic.	19	3.65	.875		
	Transportation	28	3.76	.845		
General Middle School	On Foot	60	3.84	1.055	2.84	.039
	With service	164	4.06	.843		
	Special Vehicle	9	3.27	.547		
	Transportation	7	4.15	.84		
Imam Hatip Secondery School	On Foot	169	3.98	.779	1.38	.24
	With service	84	4.12	.898		
	Special Vehicle	21	3.8	1.068		
	Transportation	23	3.8	1.054		

One-factor analysis of variance between groups was used to examine the effect of the modes of transport of the students participating in the study on the BES attitudes. Participants were divided into four groups according to their mode of transport (walking, shuttle service, private vehicle and transport). There is no significant difference in attitude scores for the three types of transportation to school, since $p > .05$ in imam hatip secondary schools. It reached statistical significance at the level of $p < .05$ in YBO and general secondary schools. The effect size was found to be .04. This is considered as a small effect size according to Cohen (1988). Post-hoc comparisons using the Tukey HSD test showed that there were no significant differences between the averages obtained from imam hatip secondary school students, while YBO and general secondary school students were different in terms of

attitude score averages. This difference was significant in favour of those who walked to school in YBO students and those who came to school by shuttle service in general secondary school. In order to check the statistical significance of a significant difference between the attitudes of the students participating in the study towards the PPS course according to their mode of transportation to school in terms of the location of the school, it was analysed with one-factor variance and the findings are given in Table 9.

Table 9.

Comparison of Attitudes According to Place of Settlement and Transport Status

School type		N	X̄	sd	*F*	*p*
City Center	On Foot	174	3.97	.87	1.191	.313
	With service	230	4.06	.882		
	Special Vehicle	35	3.79	.977		
	Transportation	33	3.93	.94		
Village Connected to the Centre	On Foot	93	4.03	.783	7.124	.03
	With service	84	4.17	.677		
	Special Vehicle	14	3.29	.67		
	Transportation	25	3.69	.908		

One-factor intergroup analysis of variance was conducted to examine the effect of the types of transportation to school on the attitudes of the students participating in the study according to the location of the school. Participants were divided into four groups according to their mode of transport (walking, shuttle service, private vehicle and transport). There is no significant difference in the attitude scores for the four types of transportation to the school in terms of transportation type since p>.05 in the city centre. Although it reached statistical significance at the level of p<.05 in the village connected to the centre, it is seen that the actual difference in mean scores between the groups is very small. The effect size was found to be .03. This is considered to be a small effect size according to Cohen (1988). It is seen that the mean scores obtained from the students studying in the city centre do not have significant differences among themselves, while the mean attitude scores of the students studying in the villages connected to the centre are different. This difference was significant in favour of those who came to school by shuttle service in the villages connected to the centre. In order to examine the statistical significance of the difference between the attitudes of the students participating in the study towards the BES course according to their mothers' occupations, it was analysed with one-factor variance and the findings are given in Table 10.

Table 10.

Comparison of Attitudes According to Mother's Occupation

Mother's profession	N	X̄	sd	*F*	*p*
Housewife	624	4	.851		
Officer	30	3.82	.997		
Farmer	6	4.03	.629		
Worker	10	3.53	.924	1.523	.168
Self employment	7	4.68	.412		
Owner	9	4.11	.886		
Retired	2	4.26	1.037		

One-factor intergroup analysis of variance was conducted to examine the effect on the BES attitudes of the students participating in the study according to their mothers' occupations. Participants were divided into 7 groups according to their mother's occupation and there was no significant difference in terms of mother's occupation since $p > .05$ in attitude scores for 7 occupational groups. In order to examine the statistical significance of the difference between the attitudes of the participant students towards the PPS course according to their fathers' occupations, it was analysed with one-factor variance and the findings are given in Table 11.

Table 11.

Comparison of Attitudes According to Father's Occupation

Father's profession	N	X̄	sd	*F*	*p*
Unemployed	143	3.96	.909		
Officer	111	3.9	.893		
Farmer	147	4.01	.79		
Worker	122	4.08	.79	2.11	.04
Self employment	83	4.2	.741		
Owner	73	3.8	1.016		
Retired	9	4.28	.778		

One-factor analysis of variance between groups was used to examine the effect of the fathers' occupations on the attitudes of the students participating in the study. Participants were divided into seven groups according to their fathers' occupations. There is a significant difference in attitude scores for seven occupational levels in terms of fathers' occupations. It reached statistical significance at the $p < .05$ level, but this difference is very small. Eta square effect size was found as .02. This is considered as a small effect size according to Cohen (1988). Post-hoc comparisons using Tukey HSD test showed that there was a significant difference between attitude scores and father's occupations. This difference was significant in

favour of those whose fathers were retired and self-employed. In order to look at the statistical significance of the difference between the attitudes of the students participating in the study towards the PPS course according to their fathers' occupations in terms of the location of the school, it was analysed with one-factor variance and the findings are given in Table 12.

Table 12.

Comparison of Attitudes According to Place of Residence and Father's Occupation

Location of the school		N	X̄	sd	F	p
City Center	Unemployed	109	3.95	.926		
	Officer	104	3.9	.902		
	Farmer	60	4.09	.0826		
	Worker	66	4.15	.773	**2.781**	**.011**
	Self employ.	63	4.24	.732		
	Owner	63	3.72	1.054		
	Retired	7	4.42	.619		
Village Connected to the Centre	Unemployed	34	4	.861		
	Officer	7	3.88	.822		
	Farmer	87	3.96	.764		
	Worker	56	4	.808	**.312**	**.93**
	Self employment	20	4.08	.776		
	Owner	10	4.26	.576		
	Retired	2	3.76	1.367		

Variance analysis was used to examine the effect of fathers' professions on students' attitudes towards BES based on the location of their school. For two groups, since the attitude scores in the city center showed a significance level of $p < .05$, there is a meaningful difference in terms of fathers' professions. In villages connected to the center, since $p > .05$, there is no significant difference regarding fathers' professions. In the city center, statistical significance was reached at $p < .05$, but this difference is minimal. The effect size, measured by Eta squared, was found to be .03, which, according to Cohen (1988), is considered a small effect size. When the data is evaluated, it is observed that there is no significant difference in the attitude scores of students residing in villages. The statistical results indicate a significant difference in favor of students attending schools in the city center. This difference was notably in favor of those whose fathers were retired or self-employed. To examine the statistical significance of the difference in students' attitudes towards the BES course based on their fathers' professions and the type of school they attend, a one-way ANOVA was conducted, and the findings are presented in Table 13.

Table 13.

Comparison of Attitudes Based on School Type and Fathers' Professions

School type and father's occupation		N	X̄	sd	F	p
YBO	Unemployed	22	4.46	.519		
	Officer	6	4.21	.823		
	Farmer	73	3.78	.804		
	Worker	23	4.17	.69	**3.798**	**.002**
	Self employment	15	4.15	.734		
	Owner	7	4.6	.382		
	Retired	5	4.36	.942		
General Secondary School	Unemployed	50	3.83	.889		
	Officer	46	3.78	.984		
	Farmer	27	4.3	.717		
	Worker	52	4.13	.811	**2.772**	**.13**
	Self employment	32	4.25	.757		
	Owner	30	3.64	1.085		
	Retired	3	4.33	.692		
Imam Hatip Middle School	Unemployed	71	3.91	.973		
	Officer	59	3.95	.825		
	Farmer	47	4.22	.706		
	Worker	47	3.98	.817	**1.362**	**.23**
	Self employment	36	4.18	.748		
	Owner	36	3.78	.986		
	Retired	1	3.73	.86		

A one-factor intergroup analysis of variance was conducted to examine the effect of the school type of the students participating in the study on their attitudes towards BES according to their fathers' occupations. When the data obtained are evaluated, it is seen that the mean attitude scores obtained from the students studying in general and imam hatip secondary schools according to their fathers' occupation are not significantly different among themselves, while the mean attitude scores of the students studying in YBO are different according to their fathers' occupation. This difference was significant in favor of those whose fathers were business owners and unemployed. In order to examine the statistical significance of the difference between the attitudes of the students participating in the study towards the PPS course according to their mother's education status, it was analyzed with one-factor variance and the findings are given in Table 14.

Table 14.

Comparison of Attitudes According to Mother's Education Level

Mother's education status	N	X̄	sd	*F*	*p*
İlliterate	67	3.93	.905		
Primary School	183	3.98	.82		
Middle School	219	4.07	.769	**1.001**	**.406**
High School	142	4.02	.955		
University	77	3.86	.946		

One-factor analysis of variance between groups was used to evaluate the mean attitude scores and mother education levels of the students participating in the study. Participants were divided into five groups according to their mothers' occupations. When the data obtained were analyzed, it was seen that there was no significant difference since $p > .05$. Whether there is a significant difference between the attitudes of the students participating in the study towards the PPS course according to their mother's education level in terms of the location of the school was analyzed with one-factor variance for independent samples and the findings are given in Table 15.

Table 15.

Comparison of Attitudes According to Place of Residence and Mother's Education Level

School Location		N	X̄	sd	*F*	*p*
City Center	Illiterate	43	4.09	.834	**1.167**	**.324**
	Primary School	104	3.99	.821		
	Middle School	137	4.08	.808		
	High School	115	4	1.012		
	University	73	3.81	.95		
Village Connected to the Center	Illiterate	24	3.65	.975	**2.26**	**.064**
	Primary School	79	3.97	.823		
	Middle School	82	4.05	.704		
	High School	27	4.12	.667		
	University	4	4.68	.295		

For the two groups, there is no significant difference in attitude scores for the city center and villages connected to the center since $p > .05$. However, the mean attitude scores of those residing in the city center (3.99) are lower than those residing in the villages connected to the center (4.09). In order to look at the statistical significance of the difference between the attitudes of the students participating in the study towards the PPS course according to their mothers' education levels in terms of school type, it was analyzed with one-factor variance and the findings are given in Table 16.

Table 16.

Comparison of Attitudes According to School Type and Mother's Education Level

School type and mother's education		N	X̄	sd	*F*	*p*
YBO	Illiterate	19	3.8	.932	**4.393**	**.002**
	Primary School	48	3.83	.785		
	Middle School	62	4.11	.697		
	High School	17	4.48	.601		
	University	5	4.05	.381		
General Secondry School	Illiterate	10	3.89	1.252	**1.066**	**.374**
	Primary School	43	4	.951		
	Middle School	80	4.13	.709		
	High School	68	3.89	.986		
	University	39	3.82	.955		
Imam Hatip Middle School	Illiterate	38	4.01	.802	**.796**	**.528**
	Primary School	92	4.06	.768		
	Middle School	77	3.96	.877		
	High School	57	4.05	.971		
	University	33	3.76	.935		

Since $p > .05$, there is no significant difference in terms of mother's education level in general secondary schools and Imam Hatip secondary schools. RDS reached statistical significance at the level of $p < .05$. The eta squared effect size was found to be .03. This is considered a small effect size according to Cohen (1988). When the data obtained were evaluated, it was found that there was no significant difference between the attitude scores of the students studying in general and imam hatip secondary schools. It is seen that there is a difference in the mean attitude score of the students studying in YBO according to their mother's education level. This difference was significant in favor of students whose mothers were high school graduates. The statistical significance of the difference between the attitudes of the students participating in the study towards the PPS course according to their father's education level was analyzed with one-factor variance and the findings are given in Table 17.

Table 17.

Comparison of Attitudes According to Father's Education Level

Father's education status	N	X̄	sd	*F*	*p*
Illiterate	31	3.81	.959		
Primary School	108	3.99	.823		
Middle School	195	4.04	.817	**1.041**	**.385**
High School	206	4.05	.867		
University	148	3.92	.897		

When Table 17 is examined, it is seen that there is no significant difference between the type of transportation and attitude score averages since $p > .05$. In order to look at the statistical significance of the difference between the attitudes of the students participating in the study towards the BES course according to their father's education status in terms of the location of the school, it was analyzed with one-factor variance and the findings are given in Table 18.

Table 18.

Comparison of Attitudes According to Place of Residence and Father's Education Level

School location		N	X̄	sd	*F*	*p*
City Center	Illiterate	23	3.81	1.017	**1.335**	**.252**
	Primary School	62	4.01	.794		
	Middle School	107	4.02	.853		
	High School	149	4.06	.893		
	University	131	3.89	.929		
Village Connected to the Center	Illiterate	8	3.8	.83	**1.179**	**.321**
	Primary School	46	3.81	.835		
	Middle School	88	4.07	.774		
	High School	57	4.02	.801		
	University	17	4.16	.555		

When Table 18 is examined, it is seen that there is no significant difference between the attitude scores in terms of settlement and father's education level since $p > .05$. In order to look at the statistical significance of the difference between the attitudes of the students participating in the study towards the PPS course according to their fathers' education levels in terms of school type, it was analyzed with one-factor variance and the findings are given in Table 19.

Table 19.

Evaluation of Attitudes According to School Type and Father's Education Status

School type and literacy		N	X̄	sd	*F*	*p*
YBO	Illiterate	8	3.56	1.037	**3.931**	**.005**
	Primary School	34	3.78	.803		
	Middle School	66	4.08	.718		
	High School	29	4.17	.797		
	University	14	4.58	.331		
General Secondry School	Illiterate	5	3.45	1.022	**2.565**	**.039**
	Primary School	20	4.01	.82		
	Middle School	48	4.24	.907		
	High School	96	4.02	.835		
	University	71	3.76	.963		
Imam Hatip Middle School	Illiterate	18	4.01	.907	**.697**	**.595**
	Primary School	54	4.12	.825		
	Middle School	81	3.89	.817		
	High School	81	4.05	.932		
	University	63	3.94	842		

When Table 19 is examined, it is seen that there is no significant difference between the level of education of the fathers whose children study in imam hatip secondary schools and the mean scores of the attitudes, while the mean scores of the attitudes of the students studying in YBO and general secondary schools are different according to the level of education of their fathers. This difference was significant in favor of students whose fathers were university and high school graduates.

Discussion

According to the results of the attitude scale in the overall study, when the general average of the scale, which is 4.00 points, is taken into consideration, it is determined that the thoughts and attitudes of the students participating in the study towards the PPS course are positive at an acceptable level (Table 2). This result is supported in line with previous studies. In the studies of Kangalgil and colleagues (2006), Güllü (2007), Yağcı (2012) and Kaya-Sarıdede (2018), it was concluded that the emotional states of the students towards the PPS course were at a very good level. In addition, in the study conducted by Kaya and colleagues (2010), it is seen that primary school students are generally positive about the physical education course. In their study, Koç et al. (2015) found that students have a positive attitude towards the concept of sport and see sport as entertainment, health and a quality life.

When the data related to the difference between the attitudes of the female and male secondary school students towards the PPS course were analyzed in detail,

the mean score of the attitude towards the PPS course of the female secondary school students participating in the study was $\overline{X}$= 4.02, while the mean score of the male students participating in the study was $\overline{X}$=3.98. Based on the data obtained between the attitudes of male and female secondary school students towards the PPS course, more positive results were obtained for female students and significant differences were found compared to male students (Table 2).

In their study, Güllü at al. (2016) examined the attitudes of secondary school students towards the PPS course according to gender. The findings show that the attitude scores of male and female students are similar and positive. However, no statistically significant difference was found between genders (Güllü et al., 2016).

In a study conducted by Gürbüz and Özkan (2012), attitudes towards the PPS course were examined between genders. The findings showed that the mean attitude scores of male students were higher, but there was no statistically significant difference between genders (Gürbüz et al., 2012). Şişko and Demirhan (2002) reached a similar conclusion in a study they conducted and stated that female students were more closed to communication than male students due to factors such as family and social environment (Şişko & Demirhan, 2002).

In a study conducted by Özyalvaç (2010), secondary school students' attitudes towards the PPS course were examined according to gender. The findings showed that there was a statistically significant difference and the difference was in favor of male students (Akandere et al., 2010; Aslan, 2019; Çelik & Pulur, 2011; Doğan, 2011; Kaya-Sarıdede, 2018).

In general, in most studies, it is observed that female students' attitudes towards the PPS course are lower than those of male students. However, it is observed that the gap in attitude scores closes over time and the differences between genders are generally not significant. However, there are many studies that have observed an increase in women's attitudes towards sport. We can say that factors such as encouraging sports more in schools, improving the communication skills of physical education teachers, increasing awareness raising activities on obesity, and the effect of social media contribute to the positive progress of women's attitudes towards sports. Therefore, in general, it is seen that women's attitudes towards sports and physical education have changed in a positive direction. In addition, by increasing the compulsory BES class hours in Imam Hatip Secondary School, more comfortable choices can be made in the clothes that students should wear to do activities during the lesson. As a preference, it can be ensured that the student can participate in the lesson in the clothes he / she wants, feel happy with this method, adopt the lesson and draw a path for himself / herself in the sportive sense in the future.

When the findings related to the difference between the attitudes of the middle school students participating in the research towards the PPS course according to the location of the school were examined (Table 3), it was seen that the average of the attitude towards physical education course in the city center was $\overline{X}$=4.004 and the average of the attitude towards physical education course in the villages connected to the center was $\overline{X}$=4.002. It is seen that there is no statistically significant difference between the attitudes of the students towards the PES course and the averages are close to each other.

When the findings related to the difference between taking part in the school team and the attitudes of the middle school students participating in the study towards the BES course are examined (Table 4). It was seen that the mean attitude score of the students who wanted to take part in the school team was $\overline{X}$=4.14, while the mean attitude score of the students who did not take part in the school team was 3.94. The mean attitude score of the students who wanted to take part in the school team was statistically significant compared to the students who did not want to take part in the school team. The mean attitude scores of the students who wanted to take part in the school team were statistically significant in favor of the students who did not want to take part in the school team.

In a study conducted by Yanik and Çamliyer (2015), a total of 849 students, 451 girls and 398 boys, studying in the 9th grade in secondary schools selected by random sampling method in Balıkesir province center. As a result of the study, a significant difference was found between the attitude scores of the students according to variables such as academic achievement, active participation in the lesson and participation in the school team (Yanik & Çamliyer, 2015).

When the findings related to the difference between the presence of a gymnasium and the attitudes of the secondary school students participating in the study towards the PPS course are examined (Table 5), it is seen that there is a statistical difference in the attitudes of the students with a gymnasium towards the PPS course. The mean attitude score of the students whose school has a gymnasium is $\overline{X}$=4.07 and the mean attitude score of the students whose school does not have a gymnasium is 3.91 and $p < .05$. In studies such as Yetim (2001), Mamak (2010) and Orhan (2017), appropriate physical space and facilities were emphasized in terms of the activities to be done for the PPS course. In these studies, it was stated that one of

the factors affecting students' attitudes was the gymnasium. It was stated that it is important to have a suitable gymnasium for students to perform their sportive activities comfortably. Such gyms provide students with the opportunity to explore different sports branches, to exercise in these branches and at the same time to make it a professional discipline.

The findings related to the difference between the grade levels of the middle school students participating in the study and their attitudes towards the PPS course were analyzed (Table 6). The mean attitude scores of 5th grade students were $\overline{X}$=4.17, 6th grade students were $\overline{X}$=4.02, 7th grade students were $\overline{X}$=3.96 and 8th grade students were $\overline{X}$=3.80. As can be understood from the results, as the grade level increases, there is a negative decrease in students' interest in physical education and sports lessons. In their study (Mücevher et al., 2016), in which the effect of sportive activities on academic achievement was emphasized, it was stated that the academic achievement of students who do sports is higher. When the mean attitude scores are compared, it is seen that the mean attitude scores of students with lower grade level are higher. Similar results were found in previous studies such as Koca and Aşçı (2006), Güllü (2007), Yağcı (2012) and Özyalvaç (2010). In these studies, it was also observed that students' attitude scores towards the PPS course decreased as the grade level increased. It was stated that students' future professional and academic concerns, their worries about the university exam and their focus on academic success instead of sportive achievements were effective in this decrease.

The findings related to the difference between the attitudes of the middle school students participating in the study towards the PPS course according to their age in terms of school type were analyzed (Table 7). Participants were divided into 3 groups according to their grades. It was observed that the mean attitude scores of the students decreased as the age of the student increased. When analyzed in terms of school type, the difference between the mean attitude scores of general secondary school and imam hatip secondary school students was statistically significant (p > .05). There was a statistically significant difference between the mean attitude scores of YBO students and age groups (p < .05). This difference was in favor of students aged 11 and under. According to the studies of Güllü (2007), Taşğın and Tekin (2009) and Göksel and Caz (2016), it is seen that there is variability in the attitude scores of students according to their age groups, but these differences are not statistically significant. Although the studies we cited are not in parallel with our study, they show that there is no significant difference between age groups in attitudes towards the IPS course.

The differences between the attitudes of secondary school students towards the IPS course according to their transportation to school in terms of school type were examined (Table 8). Participants were divided into four groups according to their mode of transportation (walking, service, private vehicle and transportation). There is no significant difference in the attitude scores for the four age levels in terms of the type of transportation in imam hatip secondary schools. When the data obtained are examined, it is seen that the averages obtained from imam hatip middle school students do not have significant differences among themselves, while YBO and general middle school students are different in terms of attitude score averages. This difference was significant in favor of those who walked to school in YBO students and those who came to school by shuttle service in general secondary school. Transportation to activities is seen as an important factor in recreation practices. In this case, it is important to show that the presence of sports halls next to our schools is very useful in increasing the effectiveness of physical education classes.

The findings related to the difference between the attitudes of secondary school students towards the IPS course according to their transportation status to school in terms of the location of the school were examined (Table 9). Participants were evaluated into four groups according to their mode of transportation (walking, service, private vehicle and transportation). There is no significant difference in attitude scores for the four transportation levels in terms of transportation type since p>.05 in the city center. It reached statistical significance in the village connected to the center, but this difference is very small. Post-hoc comparisons using the Tukey HSD test show that there are no significant differences between the mean attitude scores of the students in the city center, while the mean attitude scores of the students studying in the villages connected to the center are different. This difference was significant in favor of those who came to school by shuttle service in the villages connected to the center.

The findings related to the difference between the attitudes of middle school students towards the PPS course according to their mothers' occupations were analyzed (Table 10). Participants were divided into 7 groups according to their mothers' occupation. For 7 occupation levels, there is no significant difference in attitude scores. Post-hoc comparisons using the Tukey HSD test showed that there were no significant differences between the averages of the data obtained from the students participating in the study. Levent and Asma 2020 did not find a statistically significant difference in terms of mother's occupation attitude scores.

As a result of this study, it was determined that mother's

occupation did not make a difference in students' attitudes towards the PPS course. Similarly, it was observed that similar results were reached in previous studies such as Koçak and Humeriç (2006), Güllü (2007), Özyalvaç (2010) and Yağcı (2012). The data on the attitudes of middle school students towards the PPS course according to their fathers' occupations were analyzed (Table 11). Participants were divided into seven groups according to their fathers' occupations. There is a significant difference in attitude scores for seven occupational levels. There was statistical significance in father's occupations, but this effect was very small. The eta squared effect size was found to be .02. This is considered a small effect size according to Cohen (1988). Post-hoc comparisons using the Tukey HSD test revealed that there was a significant difference between attitude scores and father's occupations. The highest mean attitude score was observed in the students of retired parents and the lowest mean attitude score was observed in the students of parents of business owner occupational group.

The findings related to the difference between the attitudes of the secondary school students participating in the study towards the IPS course according to their fathers' occupations in terms of the location of the school were evaluated (Table 12). There is no significant difference in terms of the father's occupation of the students studying in the village connected to the center. In the city center, it reached statistical significance at $p < .05$ level, but this difference is very small. The eta squared effect size was found to be .03. This is considered a small effect size according to Cohen (1988). It was seen from the statistical results that there was a significant difference between the attitude scores in favor of the students studying in the city center. This difference was significant in favor of those whose fathers were retired and self-employed. Levent and Asma (2020) did not find a statistical difference between father's occupation and attitude scores in their study.

The data on the attitudes of the secondary school students who participated in our study towards the PPS course according to their fathers' occupations in terms of school type were analyzed (Table 13). When the obtained data are examined, it is seen that there is no significant difference between the mean attitude scores according to the father's occupation obtained from the students studying in general and imam hatip secondary schools, while the mean attitude scores according to the father's occupation of the students studying in YBO are different. This difference was significant in favor of those whose fathers were business owners and unemployed.

The findings related to the difference between the attitudes of middle school students towards the PPS course according to their mother's education level were analyzed (Table 14). Participants were divided into five groups according to their mothers' occupations. There is no significant difference in attitude scores for five education levels since $p > .05$. The group with the highest mean attitude scores were the students whose mothers were middle school graduates.

In Yağcı's (2012) study, it was stated that mothers' education levels had a significant effect on students' attitudes, but fathers' education levels did not have a significant effect. In the studies of Özyalvaç (2010) and Kaya Sarıdede (2018), it was observed that parents' education levels did not have a significant effect on students' attitudes towards the PPS course. The results obtained are consistent with our own study.

Özkan (2011), on the other hand, stated that the educational status of mothers who were educated in different education types did not make a significant difference on the attitudes of students. Yaldız (2013) investigated the attitudes of mothers and fathers towards physical education course according to their school graduation positions, but did not find a significant difference. Kumartaşlı (2010), on the other hand, did not find a significant difference between mother's education level and students' attitudes towards physical education course. These studies are also incompatible with our study.

However, in Yıldız's (2015) study, there was no statistical difference in students' attitudes towards the PPS course according to the level of mother's education. In this study, it was stated that the attitude scores of the children of university graduate mothers were higher than the attitude scores of the children of mothers with other education levels. In Yıldız's study, it was seen that students' attitudes towards the PPS course increased as the level of education increased. This result is not compatible with our study.

In general, most of the studies conclude that parental education level does not affect students' attitudes towards the PPS course. However, in some studies, it is seen that the educational level of students' parents has an effect on their own attitudes. These different results may be due to the fact that different samples and variables were taken into account. It is an important point for future research to bring these studies together and evaluate them from a broader perspective and to examine in more detail how different factors affect attitudes.

The findings related to the difference between the attitudes of the middle school students participating in the study towards the PPS course according to their mother's education level in terms of the location of the school were examined (Table 15). There is no significant difference in terms of mother's education level in the city center and

villages connected to the center. The mean attitude score of the city center was found to be $\overline{X}$=3.99 and the mean attitude score of the villages connected to the center was found to be $\overline{X}$=4.09. It was observed that the mean attitude score of the students residing in the villages connected to the center was higher.

The data on the attitudes of the secondary school students participating in the study towards the PPS course according to their mother's education level in terms of the type of school were analyzed (Table 16). When the obtained data are evaluated, it is seen that the mean attitude scores of the students studying in general and imam hatip secondary schools according to their mother's education level are not significantly different, while the mean attitude scores of the students studying in YBO are different according to their mother's education level. This difference was significant in favor of students whose mothers were high school graduates.

The data related to the difference between the attitudes of the middle school students participating in the study towards the PPS course according to their father's education level were analyzed (Table 17). Participants were divided into 5 groups according to father's education level. For 5 education levels, there is no significant difference in attitude scores since $p > .05$. Post-hoc comparisons using Tukey HSD test, it was obtained from the statistical results that there was no significant difference between educational status and attitude scores.

In Yaldız's (2013) study, it was observed that the educational status of the father did not create a significant difference in students' attitudes towards the PPS course. Kumartaşlı (2010) examined students' attitudes towards the PPS course and their productive outlook on life by taking into account the level of father's education, but no significant difference was found between the attitude towards the course and father's education. In the study conducted by Yıldız (2015), a significant difference was found in the attitudes of students towards the PPS course according to the father's education level by looking at statistical data. These studies support the results of our study.

The findings related to the difference between the attitudes of the middle school students participating in the study towards the IPS course according to their father's education level in terms of the location of the school were examined (Table 18). When the data obtained were examined, it was seen from the results that there were no significant differences between the mean attitude scores of students studying in the city center and villages connected to the center according to their father's education levels ($p > .05$).

The data on the attitudes of the secondary school students participating in the study towards the PPS course according to their father's education level in terms of the type of school were analyzed (Table 19). When the results are evaluated, it is seen that there is no significant difference between the mean attitude scores obtained from the parents of the students studying in imam hatip schools according to the level of father education, while the mean attitude scores of the students studying in YBO and general secondary schools are different according to the level of father education. This difference was significant in favor of students whose fathers were university and high school graduates.

Conclusion and Recommendations

In the preparation phase of the course programs, the individual wishes of the student, the expectations of the lesson should be taken into consideration, and learner-oriented programs should be prepared in accordance with the constructivist education approach, in which the student can perform more comfortable, active and willing behaviors.

The norm staffing status of teachers in urban centers and villages is not the same. In rural areas, more paid teachers are employed. It is thought that addressing such situations, which are to the detriment of students between schools, in a planned manner will affect attitudes.

Since more rural areas are opened for initial assignments, the difference in the professional seniority of physical education teachers working in urban centers and rural areas may have influenced their attitudes and behaviors toward students, thereby affecting students' attitudes towards physical education. To eliminate such discrepancies, incentives could be implemented to encourage more experienced teachers to work in rural areas through specific regulations.

Since teachers working in villages have transportation problems, BES lessons may be squeezed into a certain day of the week. By solving the transportation problems of teachers, they can spend more time with their students at school.

Providing material opportunities such as equipment, teacher norm status, physical and social area, and provision of course materials and equipment among YBO, general secondary schools and imam hatip schools will directly affect the student's attitude towards BES. Situations like these need to be arranged in a way that is based on equal opportunities among schools.

Based on the data we obtained from the results of our study, if the evaluation is made by concluding that the attitudes of female students towards the BES course are

more negative than male students, it is assumed that the attitudes of female students will increase if activities that are appropriate for their physical characteristics, self-esteem and real-life needs are frequently carried out.

The number of professional areas where we can carry out our activities in our educational institutions should be increased, physical facilities should be improved, and financial resources should be created for the purchase of course materials and equipment, which we always have difficulty in obtaining, in order to be a practical course.

Clubs operating in various branches should be opened in our schools, and incentives should be provided to increase the number of licensed students who will engage in activities in this way.

Considering the family pressures on students in choosing a career, parents should be informed about the importance of the BES course at certain periods.

Future studies can be compared with other studies conducted in different cities and with groups at different levels of education and with different demographic characteristics.

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Evaluation of Student Opinions on The Implementation of The Flipped Classroom Model in Health Education

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ABSTRACT

This study investigates fourth-year students' perspectives on using the Flipped Classroom Model (FCM) in Health Education at Ataturk University. Employing a case study design, eight interns from the Family Practice department participated. Data collected via semi-structured interviews were analyzed using content analysis. When the perspectives of the participants regarding the implementation of the Flipped Classroom Model (FCM) in health education were scrutinized, it was deduced that, despite the initial anxiety experienced by students and their belief that they would be required to exert double the effort upon being informed that the instruction would occur via FCM, they articulated that the experience did not align with their expectations and was not as laborious as they had presumed. In contrast to this initial apprehension, they also conveyed a favorable outlook, asserting that the dual study requirement would ultimately enhance their learning outcomes. The students underscored that the FCM approach facilitated a more enduring retention of knowledge, contributed positively to their academic performance, and provided a level of engagement in class activities that had not been previously encountered, thus allowing for improved self-expression within this educational framework. Moreover, they indicated that their level of engagement paralleled that of the course instructor and proposed the integration of FCM into additional courses across all educational levels.

Keywords: Flipped classroom, health education, students' view.

Introduction

The FCM is generally applied in the traditional education system. It is the model in which students are taught at home by the lecturer in the classroom environment, the system in which homework is given outside the classroom, and the lecture materials are prepared on the computer and the web, and the homework is taught in the classroom under the guidance of the lecturer (Bergmann & Sams, 2014). The FCM provides an environment that can be accessed via the web, from home, office, work, etc., regardless of the location, to the materials prepared by the instructor of the parts of the subjects that are suitable for individual learning outside the classroom. In the classroom, it provides an environment where learning takes place with individual or group problem-solving practices and homework. The main purpose of the FCM is to increase the quality of education in the classroom by transferring high-level cognitive activities, such as the student's assimilation and permanence of knowledge beyond memorization to the classroom environment, and the transfer of the act of learning knowledge outside the classroom regardless of time and place (Chankvetadze, 2024; Sams & Bergmann, 2014; Strayer, 2012). The main purpose of the FCM is to increase the quality of education by reversing the traditional education system. The FCM carries high-level cognitive activities such as the student's assimilation and retention of knowledge beyond memorization into the classroom environment and transfers the act of learning knowledge out of the classroom independent of time and place (Ernesto & Manlapig, 2024; Sams & Bergmann, 2014; Strayer, 2012). Since the FCM requires individual learning, individuals living in a technologically developing and changing society have to access information, where and how to use that information, share information, interpret, classify, evaluate information according to changing conditions, and confirm whether the information obtained is correct (Gençer et al., 2014). In addition, since the materials prepared by enriching with technology appeal to more than one sense organ, it will provide more enjoyable and faster learning, unlike traditional teaching (Yalın, 2003).

The FCM has its implementation steps. The FCM includes the steps listed below (McGivney-Burelle & Xue, 2013):

- The student's preparation for the lesson at home or outside the classroom environment,
- The teacher's evaluation of the student's preparation for the lesson,
- Preparing an environment for collaborative and problem-based learning as well as listening to the student and taking notes during the lesson,
- Giving immediate feedback under the teacher's guidance by allowing the student to practice.

It is also important to design in-class applications after the implementation of the extracurricular applications prepared in the FCM (Sağır & Sakar, 2017). In-class application steps designed by Frydenberg (2012) are listed in Figure 1;

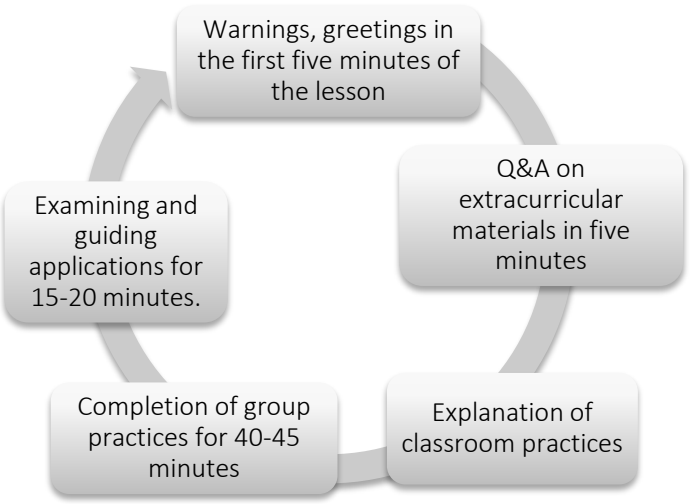

Figure 1.
In-Class Application Steps

As seen in Figure 1, the duration of an average lesson is about 2 lesson hours. Students are greeted by the instructor, and necessary warnings are made. Questions and answers are made about the materials that were previously delivered to the students for their evaluation outside the classroom. Then, the applications to be made in the classroom are explained and explained. Students are given approximately 45 minutes to complete their practice. During this period, necessary guidance is provided to the students in need. At the end of the period, about 20 minutes, the student's work is completely controlled, and the work done by guidance is examined.

Students in medical faculties have the competence to comprehend most of the theoretical courses in the basic courses of medical faculties if their courses are taught with rich educational programs in the web environment (Kara, 2016). At this point, one of the current and effective methods for using technological changes and transformations in education by blending them with the traditional education model is the FCM (Bursa, 2019; Tomasouw et al., 2024). In addition, the education and training process that will be formed with the FCM is of great importance in terms of appealing to more than one sensory organ of the learners and directing the learners to the basic resources and research (Al-Zahrani, 2015; Fiqri et al., 2024). The FCM enables learners to have a very productive process in applied courses. Especially in clinical training, they stated that they see more patients taking longer clinical training in this model, where the instructor is the guide instead of long course hours. In addition, it was determined that they spent more time with the lecturer (Kara, 2016). Thus, with the FCM, learners take on their learning responsibilities and spend more time with activities in the classroom (Ernesto & Manlapig; 2024; Gençer, 2015).

There is a need for new studies to reveal the advantages and limitations of the FCM in terms of the application and dissemination of the FCM in health education courses at the undergraduate level. It is evaluated that the findings to be obtained as a result of this study will determine the students' views on the use of the FCM in health education and will provide results regarding which of the above methods will be appropriate in giving the learning outcomes related to the course content. In addition, it is estimated that this study will give an idea to the teachers and academicians giving health education about the teaching environments of the courses to be taught with the FCM, and will guide possible future studies.

Purpose of the Study

This study aims to examine the views of fourth-year students, studying at Faculty of Medicine, Atatürk University, on the use of the FCM. In this context, answers to the following research questions were sought:

- What are the students' views on the advantages of the FCM in health education?
- What are the students' views on the limitations of the FCM in health education?
- What are the students' views on the suggestions of the FCM in health education?

Method

Research Model

The case study, one of the qualitative research method designs, was used in this study. Qualitative studies aim to describe all the features in detail and to reveal the depth of meanings by making descriptions (Büyüköztürk et al., 2013). A case study is a detailed description and analysis of a limited system (Merriam & Tisdell, 2015). In case studies, determinants of one or more situations are investigated in all their aspects and in-depth research is conducted on how they affect the relevant situation and how they are affected by the relevant situation (Yıldırım & Şimşek, 2016). In addition, case studies are used when examining a topic in depth based on how questions (Yıldırım & Şimşek, 2003). For these reasons, in this study, a case study was used since students' views on the use of the FCM in health education were investigated in all aspects and how they were affected.

Study Group

The convenience sampling method, one of the purposeful sampling methods, was used in the study group. The most important reason for choosing this method is the Covid-19 outbreak, which was declared a pandemic by the World Health Organization. For the implementation of the FCM, fourth-year medical students attending face-to-face education were preferred. This research was carried out with 8 fourth-grade students studying at Atatürk University Faculty of Medicine. These students were selected because of the ease of access to students, the limited number of schools providing face-to-face education during the pandemic period, and the fact that face-to-face education continues in the fourth, fifth and sixth grades at the Faculty of Medicine. The data of the students in the study group are shown in Table 1.

Table 1.

Data of Students in the Study Group

Groups	Female (f)	Percent (%)	Male (f)	Percent (%)	Total (f)	Percent (%)
Sample	5	62.5	3	37.5	8	100

Data Collection Tool

A semi-structured interview form consisting of 14 open-ended questions developed by the researcher by scanning the literature was used to learn the students' views on the FCM. The opinions were taken from 3 experts and the interview form was finalized as a result of the evaluations to ensure the validity and reliability of the semi-structured interview form. While forming the interview questions, as Karasar (2009) mentioned in his study, it was taken into account that the questions were appropriate for the students, fit for the purpose, and were easy to answer.

The ethical process in the study was as follows:

- Ethics committee approval was obtained from the Atatürk University Social and Humanitarian Sciences Ethics Committee (No: 56785782-050.02.04-E-2000285284, Date: 12.11.2020)
- Informed consent has been obtained from the participants.

Process

The application took 4 weeks. Each week, before the lesson, whether the students watched the videos shared on the Edpuzzle educational platform and the scores they got from the answers to the questions were shared.

Table 2.

Weekly Implementation Process

Week	Topic	Practice-Homework
1. Week	Giving information about the model to the students and registering for the Edpuzzle application. Also the creation of WhatsApp groups.	
2. Week	As part of the Healthy Child Monitoring course • Newborn screenings, • Monitoring of growth-development • Vitamin-mineral supplements As part of the Complementary Nutrition course • Breast milk, • Time to start additional food, • Principles of supplemental nutrition	• Watching lecture videos • Question-answer method performed in the classroom.
3. Week	As part of the Vaccines course • Extended immunization program • Off-schedule vaccinations As part of the Newborn Care course • Newborn's eye-navel-skin care, • Newborn bath, • Newborn feeding, • Newborn's room and clothes	• Watching lecture videos • Question-answer method performed in the classroom.
4. Week	Conducting interviews with students.	

1. Week

Edpuzzle and Whatsapp platforms were preferred in the

FCM. Edpuzzle platform was used to create classes in the virtual environment, upload videos, check whether the videos are watched or not, and check the answers to the questions embedded in the video. The Whatsapp platform was also used for quick communication with students, announcements of uploading videos to the system, and reminders to students who did not watch the videos. The students, who were informed about the FCM, were registered on the Edpuzzle platform and a class group was created in the WhatsApp application to communicate quickly. Students who had problems with their registration to the Edpuzzle platform were assisted and their problems were resolved. The videos to be watched next week and the questions to be added to these videos were reviewed and uploaded to the system together with the lecturer.

2. Week

All students attended the lesson after watching all the videos. In the Edpuzzle platform, the lessons were introduced by repeating the relevant headings according to the questions that were not understood through the answers given by the students and that the majority of them made wrong. The questions of the students who asked questions in the context of the subjects were answered. In-class application was made by using the question-and-answer technique covering the 2nd week's topics. The instructor of the course made a mini-exam using this technique and the students had the opportunity to reinforce the subject by making questions and answers among themselves. The videos to be watched next week and the questions to be added to these videos were reviewed and uploaded to the system together with the lecturer.

3. Week

All students attended the lesson after watching all the videos. The lesson was started by sharing the reports of the videos and the analysis of the answers to the questions in the videos with the class. The titles that were not understood in the video were repeated and the questions of the students were answered. In-class application was made by using the question-and-answer technique covering the 3rd week's topics. The instructor of the course made a mini-exam using this technique and the students had the opportunity to reinforce the subject by making questions and answers among themselves.

4. Week

A schedule of meetings is planned with students. In order for the students not to be affected by each other during the interview, interviews were planned in different periods according to their availability. According to this calendar, interviews were made with the students whose appointment time was voluntary. They were recorded with the permission of the students to be analyzed later and to prevent data loss.

Data Analysis

In the study, the data obtained with the semi-structured interview form were analyzed by the content analysis method. Content analysis was chosen because it helps to define the data and reveal the truths that may be hidden in the findings (Yıldırım & Şimşek, 2016). NVivo program, one of the qualitative data analysis programs, was used for content analysis.

Researcher Role

A virtual classroom named "Medical Faculty 4th Class" was created by the researcher in the Edpuzzle application. The videos prepared by the lecturer were uploaded to the system by the researcher. Afterwards, the students were contacted and added to the group by creating a group called "Flipped Classroom Model" on the WhatsApp communication platform. Necessary information has been provided for the students to register for the Edpuzzle application. The problems of the students who could not register were resolved and they were integrated into the system. The viewing status of the videos in Edpuzzle and the answers and comments in the video were followed by the lecturer. Interviews were conducted by the researcher. For the analysis of the data, categories, sub-categories, and codes were created together with the expert lecturer.

Validity and Reliability

In this study, comprehensive measures were taken to ensure both validity and reliability, with careful planning at each stage of the research process.

In terms of Validity, the role of the researcher and the use of qualitative methods for data collection were carefully considered to support the credibility of the findings. The researcher adopted a neutral observer role in interviews with students, creating an environment where students could express themselves more freely. Assumptions and limitations of the study were explicitly stated, and the methodology, participant group, data collection, implementation, and analysis processes were described in detail. To enhance the validity of the interviews, necessary permissions were obtained, and the sessions were recorded to prevent data loss.

The planning of activities and lesson design was carried out in collaboration with a field expert. The theoretical framework of the study was thoroughly developed, providing a robust foundation for the research. NVivo 12 software was utilized for data analysis, allowing a

systematic approach to coding and categorizing data. Additionally, the interview questions were reviewed by three subject-matter experts to ensure their relevance and clarity, and a language expert confirmed the accuracy and comprehensibility of the questions.

Regarding reliability, the course was conducted by a different instructor, while the interviews were carried out directly by the researcher. This approach minimized potential biases from the researcher and allowed students to feel more comfortable expressing themselves. The interview recordings were carefully preserved to prevent data loss and maintain data accuracy. The collected data were reviewed by three different field experts to ensure accuracy and reduce the possibility of overlooked elements due to researcher bias.

To enhance the reliability of the data collection tool (the interview form), revisions were made based on feedback from three field experts to ensure the questions accurately conveyed the intended thoughts and were understandable. Furthermore, data analysis was conducted using NVivo 12, which supported systematic, consistent, and replicable coding.

These measures of validity and reliability ensured that the findings of this research were obtained and interpreted in an objective, systematic manner, consistent with the theoretical foundation of the study.

Results

In this study, the views of fourth-year students at the Faculty of Medicine on the use of the FCM were examined. Findings were formed based on research questions. The findings were formed in the form of advantages and limitations of the FCM and students' suggestions for the implementation of the FCM. As a result of the analysis made, the opinions of the students of the Faculty of Medicine regarding the FCM are summarized as follows (Figure 2).

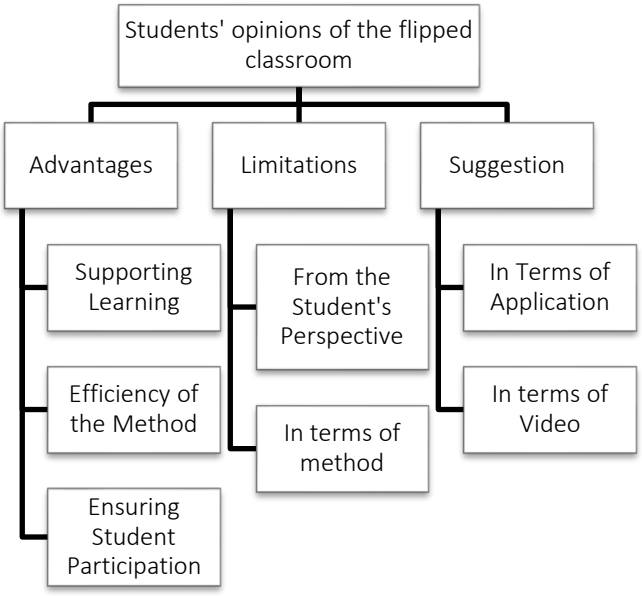

Figure 2.
General Views of Medical Faculty Students About FCM

Students' opinions on the advantages of the FCM

The advantages category consists of three sub-categories: supporting learning, the efficiency of the method, and ensuring student participation. The advantages category consists of a total of 15 codes.

Participants expressed positive views on the advantages of the FCM. In the model, the participants said that they were as active as the lecturer, especially in the face-to-face part, because they came to the lesson prepared, especially in the face-to-face part, where working twice in the model reinforced the subject, having ideas about the subject and the lecturer with videos relieved them, and they were able to identify the issues that the lecturer attaches importance to, especially in the face-to-face part. As a result, they stated that they asked more confident questions and it was a more sincere environment.

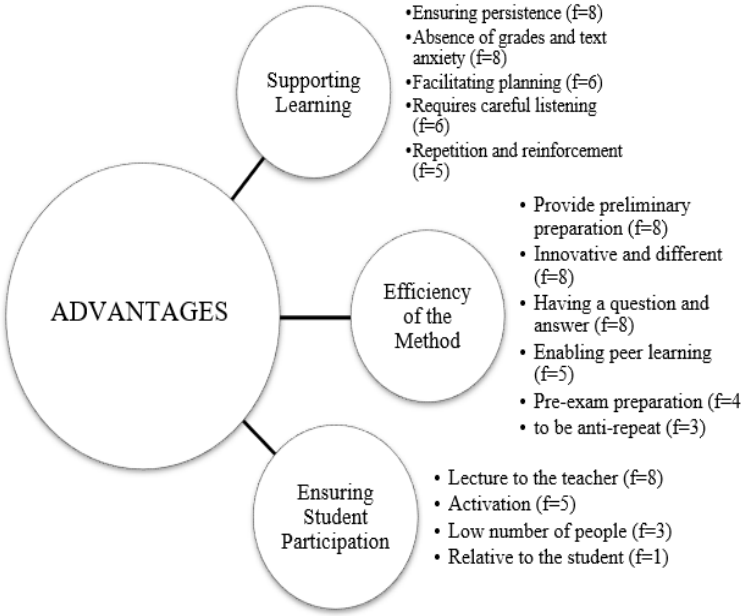

Figure 3.
Students' Views on the Advantages of the FCM

Sample participant opinions are given below.

P2: *I was more active. Traditionally, my teacher, for example, our lesson was obstetrics. The teacher asks 1-2 questions at most in the lesson, you know, he wants us to follow a logical flow. Nobody answers. Even online, no one answers. Also, our name appears there, when people say what nonsense this is, the recording is taken and it will be watched again. Now, being face-to-face is a distinct advantage here, and since we also work, the teacher asks us to do this extra. Now that we are active, we have to focus on all kinds of lessons.*

P3: The advantages are that we can repeat it, that is, we have an idea about the teacher before the lesson.

P4: In the system, we normally use right now, we don't have a situation to learn the subject very much. The teacher comes and tells the lesson and then we say that we don't repeat the subject because we don't have time, but we can't repeat it even if we have time. All 4 topics are in my mind right now because I repeated them after the lesson, we asked questions, we answered, and constantly went over the topic.

P5: This model is better, of course, I like it more. In the other way of operation, we were going to the lesson without knowing anything. The teacher was talking there and we couldn't focus very much, so we broke up after a part of the lesson because we didn't know anything. But we listen to the teacher better because we know something because we watch it in this, I remember what the teacher tells much better.

Students' views on the limitations of the FCM

The category of limitations consists of two sub-categories, from the students' perspective and in terms of method, and consists of a total of 6 codes.

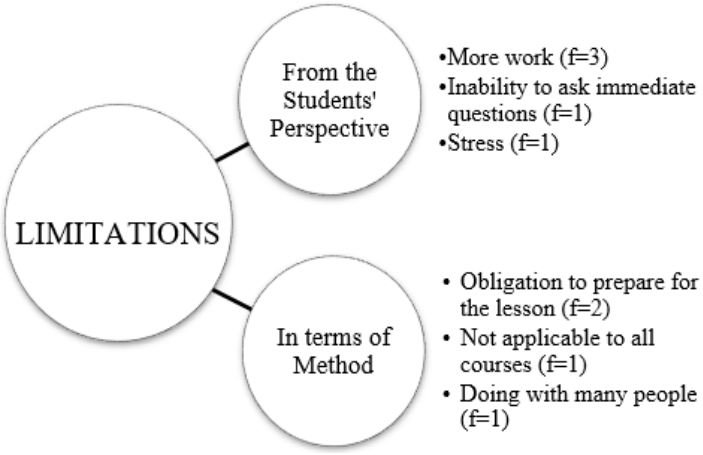

Figure 4.
Students' Views on the Limitations of the FCM

Participants expressed fewer views on the limitations of the FCM. Except for one participant, all the other participants mentioned a different limitation, only two participants said that the obligation to prepare for the course was a limitation. Other participants stated that it would be difficult to apply the FCM to the whole course, there would be deficiencies even if it was applied, it would not be efficient in this way, it was a limitation not to ask questions immediately in the pre-lesson preparation part, and it would not be efficient to use this model with many people. When the participants' views were evaluated, they realized that the participants were stressed at first, thought they would work harder, and later became more active and learning was permanent.

Sample participant opinions are given below.

P1: *You need to work harder. Of course, we were stressed at first because you would say that in front of your teacher and you would go out with that thing. In the second, we were not stressed, it was a comfortable environment, but yes, so the first week was stressful. It had no other limitations, so it was generally advantageous.*

P7: You know, I couldn't see limitations, I liked it very much, I really couldn't see any limitations.

P5: Before you go to school, watching videos before going to school was very difficult. In other words, it was for my good that I would go to work even if it was normal, it actually felt bad for me that evening from that point of view, but the teacher's seeing what percentage of his videos I didn't always watch impressed me.

P4: A problem arises, since we have a lot of lessons, it may be difficult to apply this to all lessons because if we teach 8 lessons that day, we may not be able to allocate them for 2 hours.

Students' suggestions for the implementation of the FCM

The suggestions of the participants for the implementation of the FCM consist of two categories: method and application. There are 6 codes in total in the suggestions category.

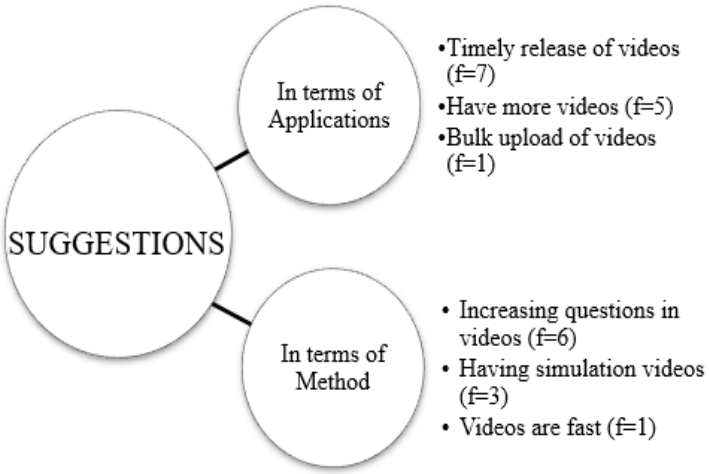

Figure 5.
Students' Suggestions for the İmplementation of the FCM

Participants presented suggestions for the implementation of the FCM. They emphasized that it is important to publish the videos on time, especially for the application, and that more videos should be used in the application. In addition, they stated that it would be good for the effectiveness of the application to upload videos collectively in the application. In their suggestions for the FCM, they stated that the questions in the video should be more and they should be added in the simulation-style videos. They also suggested adding features such as 1.25, and 1.50 playback speeds to make the videos progress faster.

Sample participant opinions are given below.

P1: *I think the videos were very instructive. It was very instructive. That was nice. For example, it could be shown how the heel blood was taken with video. It's better than this online course, it's definitely better than it because when we stop, you don't miss it, you can take it back. You can watch it again, I took it back and watched it again and again. It has such advantages, I think, compared to an online course, you can't miss any place, you can learn everything in detail. As I said, it could have been a video; it could have been supported with additional videos, with simulations or something.*

P2*: There's no way I can stop it. For example, traditionally, if I listen to my teacher for the first 15-20 minutes, I listen, after that, it breaks. But since we have a chance to stop it, it is a huge advantage, especially for someone like me. I can stop. I can restart. And I don't miss a place by focusing more. Even if I watch it in one go, I can understand many places, but we don't have such a chance in traditional. You know, the teacher is not in the mood to sit and wait for you.*

P5: *There is no application after the online lessons, a face-to-face application, so it is not very permanent. We watch, but after a while, we get bored, we stop, we don't feel compelled to watch, we can leave the computer on and deal with other things. But we have to listen to that too, I felt it. It was a driving force for me. That's why online classes were very right for me. Asking questions in between, not knowing when it would come, and not being able to continue when the question was not answered. It also encourages you to watch. And then having a face-to-face interactive lesson is better the next day.*

P6: *As I said, it happens in online classes as well, but then there is no opportunity to leave the lesson, there is no opportunity to rewind, and I do not hear a sentence, for example, I was taking notes, it was at this moment that I did not understand, so that I could look at the recording again, of course, from time to time, distraction or something stuck in your head or something else. I have a job, and that is my biggest problem in online classes. It is not clear when the lesson will take place. I'm just getting ready, I'm going to go out, they text me, for example, the teacher will start the lesson, you know, I have to go out, I listen to the lesson on the bus, so you know, it's more productive that way, I watch when I'm available.*

Discussion

Students' Views on the Advantages of the FCM

Participants stated that working twice in the model ensures permanence and reinforces the subject and that they can determine the subjects that the lecturer attaches importance to with the question and answer method. In addition, they stated that they were as active as the lecturer, especially in the face-to-face part, because they came to the lesson prepared, they asked more confident questions as a result of the pre-class preparation, and it was a more sincere environment. It is also stated in the literature that the FCM provides academic success and contributes in terms of responsibility (Baepler et all, 2014; Bursa, 2019, Elian & Hamaidi, 2018; Fautch, 2015; Galway et all., 2014; Gillispie, 2016; Gong et al., 2024; Güç, 2017; Kara, 2016, Lee & Wallace, 2018; Pierce & Fox, 2012; Samadi et al., 2024; Touchton, 2015; Tune et all. 2013). In the same way, it was stated that the FCM was interpreted as a self-confidence-increasing model, ensuring the

permanence of learning, activating the learners, and strengthening the audio-visual memories by learning in accordance with the individual pace of the learners (Topalak, 2016).

Galway et al. (2014), emphasized that students should be given a quiz on the subjects they learned outside of school in to provide motivation. McLaughlin et al. (2014) also stated in their study that classroom discussions improved their learning, thus reducing this burden by studying less for exams. The students stated that in this way, they are not nervous, they can concentrate better on the lesson as they are not nervous, and as a result, they will tell the teacher, that is, they work more carefully and understand the logic of the question and answer method they will do in the classroom, and because they come to the lesson by making preliminary preparations, the information is more permanent in this way.

The absence of grades and test anxiety was seen as the advantage of the model by the students. It shows that these findings are in line with the study by Ökmen (2020). Ökmen (2020) concluded that out-of-school tasks make it easier for students to do in-class practices so that out-of-school tasks are beneficial for students. The students stated that in the face-to-face part if the subject could not be fully understood while watching the video, the lecturer and their friends made up for this deficiency in the classroom.

McLaughlin et al. (2014), in the study conducted to determine student experiences within the scope of the Basic Pharmacy II course, stated that students who were educated with the FCM participated more in classroom discussions and that the questions and answers they made with their classmates contributed to the learning of the discussions. Johnson et al. (2014) stated that in the ideal classroom environment, all learners work together with other learners, participate in the education process with other learners with pleasure, and take responsibility for their self-independent learning. On the other hand, Cummins-Sebree and White (2014) stated in their study that for the students in the statistics course they teach with the FCM, the learning they do before the lesson increases their motivation to attend the lesson. The use of pre-class materials, often in video format, provides flexibility for students to learn at their own pace. This flexibility is appreciated by students, as it allows them to manage their learning more effectively (De-Brito & Terrado, 2024).

However, in some studies, unlike the current study, it was concluded that there was no statistically significant difference in the academic achievement of students (Çarpıcı, 2019; Davies 2013; Harrington et all., 2015; Yong, 2015). It is thought that these differences may be related to lesson planning, the teacher's approach to students, and students' self-discipline. In addition, Kara (2016) stated in his study that the FCM can be used successfully in clinical education with an instructional design that suits the needs.

Students' Views on the Limitations of the FCM

Participants expressed limitations in terms of themselves and the method. He said that it requires more work and the necessity of preparing for the course is a limitation. They also stated that not being able to ask questions immediately in the pre-lesson preparation part is a limitation, and it would not be efficient to use this model with many people. When the participants' views were evaluated, the participants stated that they were stressed at first and that they thought they would work more. Students later realized that they were more active and learning was permanent. These findings are in line with other studies in the literature in which the FCM is applied. Avery et al. (2018) determined that the students stated that the FCM imposes more responsibilities than the traditional model. In the study conducted by Al-Zahrani (2015), it was stated that the FCM requires a lot of work. De Brito & Terrado (2024) report that the FC model requires significant time and effort to prepare for classes, as they must engage with pre-class materials extensively. Mason et al. (2013) stated that lecture videos require a lot of time, while Yacout and Shosha (2016) stated in their study that 4.8% of students did not immediately ask questions and get feedback while watching videos outside of the classroom, which is a limitation. In the study conducted by Turan and Göktaş (2015), students mentioned similar limitations and said that the necessity of watching videos, having to prepare lessons, not being able to ask questions to the instructor immediately, and the need to work harder is the limitations of the model. In the study conducted by Alsancak Sarıkaya (2015), students stated the limitations of the FCM by stating that the increase in out-of-school duties and responsibilities cannot be taken by every student.

Students' Suggestions for the Implementation of the FCM

The participants stated that they were satisfied with the questions embedded in the video and that these questions should be added and increased after each topic. There are studies in the literature that support this finding. In the study conducted by Kara (2016), students suggested interactive applications such as asking questions more frequently and giving a grade immediately when these questions are answered. In the study conducted by Bursa (2019), they stated that the factors underlying the success of the students are the videos they watch outside of school, the ability to watch these videos repeatedly, and the effectiveness of the questions embedded in the video.

Wilson (2016) tried to reveal the usefulness of the questions embedded in the videos he used on the Edpuzzle platform and concluded that the students who watched the videos in which the questions were embedded improved their learning compared to the students who watched the videos without the questions. Deng et al., (2023) study found that embedding questions in pre-class videos significantly improved learning performance. This was attributed to increased engagement with the material, as students were prompted to think critically and reflect on the content. Vivianingsih et al., (2023) research demonstrated that using Edpuzzle-assisted interactive videos positively impacted student learning outcomes, suggesting that such tools can serve as effective alternative learning resources. This finding is research that supports our current study. It was concluded that watching the videos and the question-answer method in the classroom contributed to their careful listening. Participants concluded that it is a negative situation that the videos for the videos cannot be forwarded. In the suggestion subcategory, they stated that the theoretical information is sufficient, but additional video and applied lessons may be more productive, otherwise, the subject may remain in the air. In addition, it was concluded that simulations should be used if possible, that the playback speeds should be added to 1.25, 1.50 for the videos to progress faster, and the videos should be uploaded at least 4 days before the lesson.

Conclusion and Recommendations

In conclusion, the Flipped Classroom Model (FCM) offers numerous advantages for enhancing student learning, including increased engagement, self-confidence, and academic responsibility. Students found the model beneficial in promoting active participation, reinforcing knowledge retention, and creating a more relaxed, collaborative learning environment. However, certain limitations such as increased workload, the need for better preparation, and the inability to ask immediate questions during pre-class preparation were identified. To address these concerns, participants suggested incorporating more interactive elements in the videos, such as embedded questions, increasing the availability of practical applications like simulations, and allowing for faster video playback options. Based on these findings, it is recommended that instructors enhance the FCM by integrating more dynamic and flexible learning tools while ensuring that students are well-supported during the pre-class preparation phase. This approach could further improve student satisfaction and learning outcomes.

Ethics Committee Approval: Ethics committee approval was obtained from Atatürk University Social and Humanitarian Sciences Ethics Committee (No: 56785782-050.02.04-E-2000285284, Date: 12.11.2020)

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Examining the Global Climate Change Awareness of Social Studies Teacher Candidates: Mixed Method Research

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ABSTRACT

The aim of the research is to examine the awareness of social studies teacher candidates' awareness of global climate change and to determine their views on the subject. For this reason, the research was conducted using explanatory sequential design from mixed research methods. Convenience sampling method was used in determining the participants. Accordingly, quantitative data was collected from 357 social studies teacher candidates, and after the quantitative data were analyzed, 20 teacher candidates were selected on a voluntary basis and interviews were conducted. In this context, "Global Climate Change Awareness Scale", "Semi-Structured Interview" and "Personal Information Form" were used as data collection tools. Quantitative and qualitative data were analyzed by descriptive statistical methods and content analysis respectively and the collected data were combined and interpreted. As a result of the research, it was determined that social studies teacher candidates' awareness of global climate change was at a high level. While it was determined that there was no statistically significant difference in the global climate change awareness levels of social studies teacher candidates in terms of gender, grade, taking courses on environmental education and being a member of environmental protection organizations variables, a statistically significant difference was found between global climate change awareness levels and the variable of following visual publications on the environment. It was determined that the results obtained from the qualitative findings of the research were similar to the results obtained from the quantitative findings.

Keywords: Global climate change, awareness, social studies, teacher candidate.

Introduction

Human beings, who have tried to adapt to their environments since the moment they existed on Earth, have made various interventions in the environment in line with their own interests over time. These interventions have increased especially with the technological developments that started to gain momentum with the industrial revolution, causing the environment to be more affected by human elements than natural elements, and causing various environmental problems such as air, water, soil pollution and climate change (Özer, 1974). Climate change, which is expressed as one of these problems, differs from other environmental problems because it is indirectly affected by other environmental problems and covers a more global area due to its impact size.

Climate change is defined as natural or human-induced changes in the basic characteristics of the climate system (temperature, precipitation) that can be detected over a long period of time (ten years or more) by statistical studies (IPCC, 2022). It is stated that natural processes such as volcanism, orogenesis and eirogenesis occurring on earth also cause climate change (Erinç, 1984). However; incorrect land use, destruction of forest areas (Justus & Fletcher, 2006) and increase in greenhouse gas emissions (Doğan & Tüzer, 2011) are known to have a greater impact on it. According to the Intergovernmental Panel on Climate Change (IPCC), this impact is 95% (IPCC, 2022) and the most important reason for climate change is human activities (UN, 1992). Climate change causes a decrease in biological diversity, the destruction of natural resources, the formation of extremely dry and extremely cold climates, the melting of glaciers and a rise in sea levels (Öztürk, 2002). At this stage, the impact of human activities on climate change and the magnitude of the problem has necessitated a global struggle (Intergovernmental Panel on Climate Change, 2001), and conferences and agreements have been made around the world to prevent this change.

When considered within the historical process, it can be seen that many international conferences have been held and agreements have been signed regarding climate change since the second half of the 20th century. The issue of climate change was indirectly mentioned in the context of environmental problems in the "1972 United Nations Conference on Man and Environment Stockholm Report", "1975 United Nations Environment Program (UNEP)", "1977 Tbilisi Declaration" and "1987 Brundlant (Our Common Future) Report". It was directly addressed in the 1992 Rio Declaration Climate Crisis Convention", "2005 Kyoto Protocol", "2015 Paris Climate Agreement" and "2022 United Nations Climate Change Conference" (Mitchell, 2003; Mitchell et al., 2020; Spycher & Winkler, 2022).

Both in the signed agreements and in the conferences held on the subject, it is frequently emphasized that combating the global climate change problem cannot be achieved only through legal measures and that young generations should also be educated about global climate change (Kwauk, 2020; Urbańska et al., 2022). One of the aims of the training to be carried out is to increase the awareness level of students on the subject. It is thought that, through training to raise awareness about global climate change, the negative consequences caused by the problem can be largely stopped or reduced (Boeve-de Pauw & Van Petegem, 2011), and students will be willing to produce long-term solutions on the issue (Mochizuki & Bryan, 2015).

In Turkey, issues related to global climate change are tried to be introduced to students within the scope of the "Social Studies" course at the secondary school level. In 2022, "Teaching Fields, Appointment and Teaching Principles" was updated by the Head Council of Education and Morality (MoNE, 2022) a course titled 'Environmental Education and Climate Change' was added to the courses to be taught by social studies teachers (MoNE, 2022). In this context, social studies teachers are expected to be knowledgeable and to have high awareness about global climate change, which is thought to be directly proportional to their professional development as well as the quality of the education they receive at the university. The environmental knowledge, skills, attitudes, values and awareness that teachers acquire during their university education will also affect the awareness of the students they will educate. For this reason, it is believed that teachers and teacher candidates who will educate future generations should have high levels of global climate change awareness (Fortner, 2001). In the literature review on the subject, it was seen that there are studies on global climate change awareness of teachers and teacher candidates (Eze, 2020; Khalidi & Ramsey, 2021; Tok & Cebesoy, 2017; Ünal & Önder, 2022). However, no study has been found that addresses the global climate change awareness of teacher candidates who will be the instructors of the social studies course, which has a different place from other branches regarding global climate change. Considering the fact that the subject of global climate change is included in the newly added "Environmental Education and Climate Change" course and the Social Studies course, the absence of such a study in the literature shows the importance of this study.

Purpose of the Study

It is thought that determining social studies teacher candidates' awareness of global climate change and the factors causing this awareness during their education will affect the quantity and quality of the further education to be given to teacher candidates on global climate change. In the long term, it is expected that the awareness of climate change as a global problem will increase and precautions will be taken. For this reason, the aims of the study were determined as to examine the global climate change awareness levels of social studies teacher candidates and their opinions as to the variables that affect their global climate change awareness. Within the scope of the research, answers were sought to the following problems:

- What is the level of global climate change awareness of social studies teacher candidates?
- Does social studies teacher candidates' awareness of global climate change vary according to gender, grade, and following printed and visual publications?
- Do the opinions of social studies teacher candidates whose global climate change awareness levels are high also support this awareness?

Method

Research Model

In this research, a mixed research method was preferred in order to deeply examine the participants' perspectives on the global climate change awareness of social studies teacher candidates. In mixed research methods, explanatory sequential design constituted the research pattern. The explanatory sequential design is based on starting with the quantitative phase and then conducting a qualitative study to explain the quantitative results (Creswell, 2021). For this reason, the research was conducted by taking the following steps into consideration (Figure 1):

1. Quantitative data were collected and analyzed.
2. Qualitative questions were created in line with the results obtained.
3. Interviews were conducted to explain the quantitative results.
4. Qualitative data was analyzed.
5. Interpreted by explaining the qualitative results and the quantitative results.

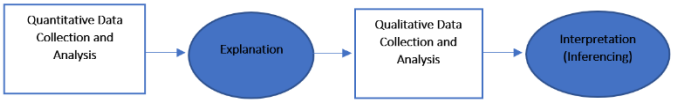

Figure 1.
Data Collection Processes

Study Group

Convenience sampling method was used to determine the participants. 357 social studies teacher candidates studying at 3 state universities in the Central Anatolia Region constitute the study group of the quantitative and qualitative part of the research. Quantitative data were collected from 357 social studies teacher candidates, and after the quantitative data were analyzed, 20 teacher candidates were selected from the same group on a voluntary basis and interviewed. Convenience sampling is expressed as a sampling type preferred in cases where it is close to the researchers and easy to access and other sampling types cannot be used (Baltacı, 2018).

Data Collection Tool

"Global Climate Change Awareness Scale", "Semi-Structured Interview" and "Personal Information Form" were used as data collection tools.

The ethical process in the study was as follows:

- Ethics committee approval was obtained from Niğde Ömer Halidemir University University Ethics Committee (Date: 29.11.2022, Number: E-86837521-050.99-285534)
- Informed consent has been obtained from the participants.

Global Climate Change Awareness Scale

The "Global Climate Change Awareness Scale" developed by Deniz et al. (2021) was used to determine the global climate change awareness levels of social studies teacher candidates. In the exploratory factor analysis conducted by the researchers, the KMO value was found to be .866, the Bartlett Sphericity test was found to be significant, and a scale consisting of 21 items and 4 factors was obtained. The Cronbach Alpha coefficient calculated to determine the internal consistency of the scale was found to be reliable with .826. In the confirmatory factor analysis, CMIN/sd, AGFI, IFI, CFI and RMSEA values showed perfect fit. It was determined that GFI and SRMR values showed acceptable compliance.

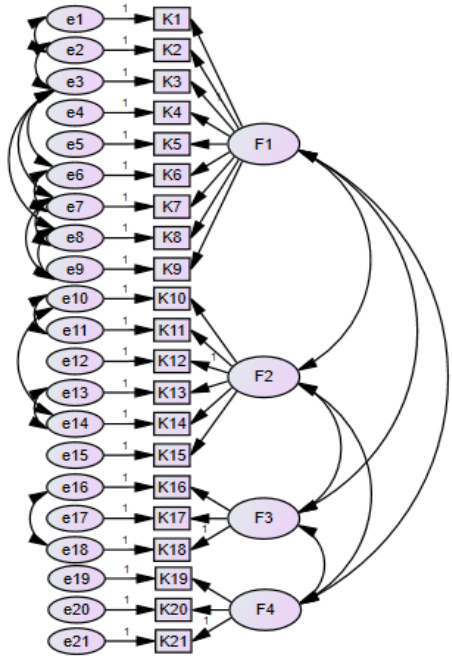

Figure 2.
Confirmatory Factor Analysis

According to confirmatory factor analysis, the values of AGFI (.90), NFI (.90) and GFI (.92) were calculated to be at an acceptable fit level, while the values of X^2/df (1.66), IFI (.96) and CFI (.95) were found to be at good fit level.

Table 1 shows the compliance measurement values stated by Schermelleh-Engel and Moosbrugger (2003).

Table 1.
Compliance Measurement Values

Compliance Measures	Good Fit Values	Acceptable Fit Values
X^2/df	<3	3 < (X^2/df) < 5
IFI	.95 < IFI < 1.00	.90 < IFI < .95
GFI	.95 < GFI < 1.00	.90 < GFI < .95
AGFI	.90 < AGFI < 1.00	.85 < AGFI < .90
NFI	.95 < NFI < 1.00	.90 < NFI < .95
CFI	.95 < CFI < 1.00	.90 < CFI < .95

Personal Information Form

The personal information form created in the research includes the variables "Gender, grade level, whether students have taken an environmental education course, and whether students follow visual and printed publications on the environment".

Semi-Structured Interview Form

In the qualitative section of the research, a semi-structured interview form was prepared as to social studies teacher candidates' awareness of global climate change. While preparing the semi-structured interview form, first the relevant literature was examined and draft questions were prepared accordingly. Draft interview questions were presented to 2 faculty members who are experts in social studies education in order to obtain expert opinions. In line with expert opinions, the draft form was reshaped and presented to a faculty member working in Turkish education to determine compliance with grammar rules and difficult-to-understand expressions. A pilot application was conducted with two teacher candidates according to the final version of the semi-structured interview form.

Data Analysis

Analysis of Quantitative Data

SPSS 21 and AMOS 24 package programs were used to analyze the data. After deleting extreme values from the scale, Skewness and Kurtosis values were examined to determine distribution normality. Skewness and Kurtosis values of the data obtained from the personal information form and the global climate change awareness scale were examined and it was determined that the values were within the range of -1.5/+1.5, which means that the data is normally distributed (Tabachnick & Fidell, 2013). Accordingly, parametric tests such as independent groups t-test and one-way analysis of variance (ANOVA) tests were used (Tanriverdi, 2019). One-way analysis of variance (ANOVA) was used for the grade level variable, and independent groups t-test was used for the variables of gender, whether students had taken an environmental education course, and whether they followed visual and printed publications on the environment. The Cronbach Alpha reliability coefficient of the global climate change awareness scale was calculated as .837.

Analysis of Qualitative Data

A semi-structured interview form was used for the qualitative data of the research. Semi-structured interview is defined as a data collection tool prepared to obtain detailed information by adhering to pre-prepared questions and to obtain the same type of information from different people (Yıldırım & Şimşek, 2021). In this research, a semi-structured interview form was directed to 20 teacher candidates studying in the department of social studies education and they were asked to answer it in a quiet environment. The participants' answers to the semi-structured interview form were transferred to the computer environment for analysis. Content analysis method was used to analyze the data. Content analysis is expressed as a systematic technique that helps to make inferences in order to determine human behavior and nature (Boyraz & Tepe, 2019). Themes, categories and codes were created in line with the content analysis.

In the qualitative section of the research, the relevant literature was taken as a basis in the preparation of the data collection tool used to ensure its credibility, and utmost care was taken to be objective. To achieve transferability, the steps of the process are presented to the reader in detail and direct quotations are included. In order to check the consistency of the codes obtained during the analysis process, a different researcher was also asked to make an additional coding. To calculate the consistency of the coding made by two different researchers, the [Reliability=Consensus/(Consensus + Dissensus)] formula prepared by Miles and Huberman (1994) was used. The calculation concluded that there was a consistency between 92% and 96%. Finally, the data obtained in the research are stored by the researchers to ensure confirmability, which is external validity.

Results

In this section, the findings obtained as a result of the analysis of the data are discussed under two headings: findings obtained from the quantitative and qualitative sections.

Findings from the Quantitative Section of the Research

The findings obtained from the quantitative part of the research are included in this section.

Table 2 includes the findings regarding the total mean scores of social studies teacher candidates regarding their global climate change awareness levels.

Table 2.

Findings on Global Climate Change Awareness Levels of Social Studies Teacher Candidates

Global Climate Change Awareness Scale	n	$\bar{x}$	Level
Total Score Average	360	3.54	I agree

In calculating the arithmetic mean scores of the answers given by social studies teacher candidates to the questions on the global climate change awareness scale, a 5-point likert type from "Very Low (Strongly Disagree) ($1.00 < \bar{x} \leq 1.80$)" to "Low (Disagree) ($1.81 < \bar{x} \leq 2.60$)", "Medium (Undecided) ($2.61 < \bar{x} \leq 3.40$)", "High (Agree) ($3.41 < \bar{x} \leq 4.20$)" and "Very High (Strongly Agree) ($4.21 < \bar{x} \leq 5.00$)" was used. In line with the data obtained, it can be interpreted that the total score average of social studies teacher candidates obtained from the global climate change awareness scale is at a high level ($\bar{x}$=3.54 (I agree) ($3.41 < \bar{x} \leq 4.20$). Based on this finding, it can be stated that social studies teacher candidates' global climate change

awareness is high.

Table 3 includes the findings regarding the global climate change awareness levels of social studies teacher candidates according to the gender variable.

Table 3.

Independent T-Test Results on Global Climate Change Awareness Levels of Social Studies Teacher Candidates in terms of Gender

Gender	n	$\bar{x}$	Ss	sd	t	*p*
Female	262	3.56	.564	358	1.172	.242
Male	98	3.48	.551			

When Table 3 is examined, it can be seen that no statistically significant difference was detected between the global climate change awareness levels of social studies teacher candidates in terms of gender variable. [$t_{(358)}$= 1.172; *p*. > 05]. Based on this finding, it can be asserted that gender does not affect the global climate change awareness levels of social studies teacher candidates.

Table 4 presents the findings regarding the global climate change awareness levels of social studies teacher candidates according to the grade level variable.

Table 4.

One-Way ANOVA Results on Global Climate Change Awareness Levels of Social Studies Teacher Candidates in terms of Grade

Grade	n	$\bar{X}$	Ss	VK	KT	sd	KO	F	*p*
1st Grade	100	3.60	.580	Between Groups	1.353	3	.451		
2nd Grade	107	3.53	.527	Within Groups	111.570	356	.313		
3rd Grade	93	3.45	.570	Total	112.923	359		1.439	.231
4th Grade	60	3.58	.561						
Total	357	3.54	.560						

It is seen that there is no statistically significant difference global climate change awareness levels of social studies teacher candidates [$F_{(3-356)}$= 1.419, *p* > .05] in terms of the grade levels they study at. As a result, it can be claimed that the grade levels at which social studies teacher candidates' study have no effect on their global climate change awareness levels.

Table 5 presents the findings regarding the global climate change awareness levels of social studies teacher candidates according to the variable of their following of visual publications.

Table 5.

Independent T-Test Results Regarding the Global Climate Change Awareness Levels of Social Studies Teacher Candidates in terms of the Variable of Following Environmental Visual Broadcasts on the Environment

Following visual broadcasts on the environment	n	$\bar{x}$	Ss	sd	t	*p*
Yes	243	3.59	.564	358	2.771	.006*
No	117	3.42	.536			

*$p < .05$

Table 5 shows that there is a statistically significant difference between social studies teacher candidates' global climate change awareness levels in terms of the variable of following visual publications on the environment. [$t_{(358)}$=2.771; *p* < .05]. Considering this finding, it can be expressed that visual content publications are effective in the global climate change awareness levels of social studies teacher candidates.

Table 6 presents the findings regarding the global climate change awareness levels of social studies teacher candidates according to the variable of their following of printed publications.

Table 6.

Independent T-Test Results Regarding the Global Climate Change Awareness Levels of Social Studies Teacher Candidates in terms of the Variable of Following Environmental Printed Publications on the Environment

Following printed publications on the environment	n	$\bar{x}$	Ss	sd	t	*p*
Yes	112	3.66	.530	358	2.752	.006*
No	248	3.48	.537			

*$p < .05$

Table 6 shows that there is a statistically significant difference between social studies teacher candidates' global climate change awareness levels in terms of the variable of following printed publications on the environment. [$t_{(358)}$=2.752; p < .05]. Accordingly, it can be stated that printed publications are effective in social studies teacher candidates' awareness of global climate change.

Findings from the Qualitative Part of the Research

In the findings section of the research, the data were presented in the form of categories, themes and codes the opinions of social studies teacher candidates regarding their global climate change awareness were tried to be determined.

The participants were first asked: "*What kind of impact do you think global climate change has on the natural and human environment you live in? Explain*.'' The codes and categories in Table 7 were obtained based on the replies to the question.

Table 7.

Opinions of Social Studies Teacher Candidates Regarding the Effects of Global Climate Change on The Natural and Human Environment

Category	Theme	Code	f
Impact on the environment	What might happen as a result of global climate change	Melting glaciers	8
		Extreme temperatures	8
		Drought	7
		Forest fires	7
		Change in seasonal periods	6
		Increase in epidemics	4
		Migrations	4
		Global warming	3
		Excessive rainfall	3
		Deforestation	3
		Famine	3
		The extinction of species or the decrease in biodiversity	3
		Increase in the amount of acid in ocean waters	3
		Wars	3
		Floods	2
		Increase in ocean water levels	2
			Total: 68

When the data in Table 7 is examined, it is seen that the participants' opinions on the effects of global climate change on the natural and human environment are diverse. As a result of the analysis of the question posed to the participants, the codes in Table 7, the theme of "*What may occur as a result of global climate change*" and the category of "*Impact on the Environment*" were reached. Accordingly, the fact that the participants mostly expressed the consequences that are likely to be experienced as a result of global warming instead of the consequences that may be experienced as a result of global climate change shows that they experienced conceptual confusion. In response to the question, the participant nicknamed F2 stated, "*Forest fires occurred in our country due to drought and extreme heat caused by global climate change. Especially in the fires that occurred last year, many forest areas burned. Living creatures became extinct*." The participant M8 asserted "*The melting of glaciers and the increase in ocean water levels as a result of global warming caused by global climate change negatively affect the order of the natural and human environment.*"

The second question to the participants was "*Are you informed about the agreements and organizations regarding the prevention of global climate change?*" In reply to the question, the categories and codes in Table 8 were obtained.

Table 8.

Opinions of Social Studies Teacher Candidates on the Agreements and Organizations Regarding the Prevention of Global Climate Change.

Code	Theme	Code	f
International Treaty	Measures	Kyoto Protocol	10
		Paris Climate Agreement	3
		UN Framework Convention on Climate Change (UNFCC)	2
		Rio Convention	1
		Intergovernmental Panel on Global Climate Change	1
			Total: 17

When the data in Table 8 is examined, it is seen that the participants' opinions on the agreements and organizations regarding the prevention of global climate change are not at a sufficient level. As a result of the analysis of the question posed to the participants, the codes in Table 8, the theme "Precautions" and the category "International Agreements" were reached. Accordingly, it appears that the participants have insufficient knowledge about agreements and organizations regarding the prevention of global climate change. The participant F8 expressed her opinion through the following statement; “As far as I know, the purpose of the Framework Convention on Climate Change is to ensure that the amount of greenhouse gases in the atmosphere is kept constant in a way that does not pose a danger to the climate system. The purpose of the

Kyoto Protocol is to reduce the greenhouse gas emissions of industrialized countries." The participant M9 stated; "I don't have much information. But I know that the Kyoto Protocol was signed to reduce greenhouse gas emissions. However, countries such as America do not comply with this protocol, and other countries also violate the articles of the protocol using this situation as an excuse."

The third question to the participants was, "*What are the issues that cause global climate change according to printed and visual publications? Please explain*." and the themes, categories and codes in Table 9 were reached.

Table 9.

Opinions of Social Studies Teacher Candidates on the Issues That Cause Global Climate Change

Category	Theme	Code	f
Causes	Causes global climate change	Fossil fuels	16
		Greenhouse gas	14
		Forest fires and destruction	10
		Depletion of the ozone layer	7
		Global warming	5
		Chemical wastes	3
		Industrial activities	3
		Deodorants	3
		Rapid population growth	2
		Formation of urban heat islands	1
		Increase in carbon footprint	1
			Total: 65

When the data in Table 9 is examined, it is seen that the participants' opinions on the issues that cause global climate change are diverse. As a result of the analysis of the participants' replies, the codes in Table 9, the theme "Causes of global climate change" and the category "Causes" were reached. Based on the answers given by the participants, it was concluded that harmful gases that mostly enter the air affect global climate change more. Participant F12 revealed her opinion on the issue by saying; "*We can consider the most important cause of global climate change as human-induced activities. These activities can be listed as the burning of fossil fuels, especially coal, the increase in greenhouse gas emissions and the resulting increase in the rate of carbon dioxide in the atmosphere*." The participant M6 stated "*The depletion of ozone layer due to the excessive use of fossil fuels and chemicals such as oil, natural gas, perfume and deodorant is among the factors causing global climate change.*" and underlined the effect of ozone layer depletion.

The fourth question was asked to the participants: "*Is there a relationship between global climate change and energy consumption? Please explain.*" and the themes, categories and codes in Table 10 were obtained.

Table 10.

Social Studies Teacher Candidates' Views on the Relationship Between Global Climate Change and Energy Consumption

Category	Theme	Code	f
Energy consumption	The effect of increasing energy consumption on global climate change	Increase in greenhouse gas emissions due to excessive use of fossil fuels	10
		Increasing use of fossil fuels with the increase in industrial activities	6
		Increasing energy consumption with rapid population growth	5
		Changes in energy consumption rates with changing seasonal periods	3
			Total: 24

When the data in Table 10 is examined, it is understood that the participants' hav ediverse opinions on the relationship between global climate change and energy consumption. As a result of the analysis of the question posed to the participants, the codes in Table 10, the theme "The impact of increasing energy consumption on global climate change" and the category "Energy consumption" were reached. When the data in Table 10 is examined, it is seen that the participants' opinions on the relationship between global climate change and energy consumption are limited. The participant F1 presented her opinion on the issue with these words; "*Our energy consumption is increasing due to the increasing world population day by day. For this reason, renewable energy sources should be used instead of fossil fuels.*" Emphasizing the role of industrialization, the participant F12 stated, "*With industrialization, excessive consumption of fossil fuels such as coal, oil and natural gas and greenhouse gas emissions in the atmosphere increase uncontrollably, negatively affecting global climate change*."

The fifth and final question to the participants was, "*What are the personal measures you have taken to combat global climate change? Please explain*." and the themes, categories and codes in Table 11 were obtained.

Table 11.
Opinions of Social Studies Teacher Candidates Regarding the Measures They Personally Take to Combat Global Climate Change

Category	Theme	Codes	f
Personal precautions	In the fight against global climate change	Using public transportation	12
		Using energy-saving products	7
		Reducing deodorant use	6
		Not throwing garbage into the environment	6
		Protecting green areas and planting trees	5
		Saving water	2
		Using recycle bins	2
			Total: 40

The data in Table 11 shows that the participants' opinions on the measures they personally take to combat global climate change are diverse. As a result of the analysis of the question posed to the participants, the codes in Table 11, the theme of "Combating global climate change" and the category of "Personal precaution" were reached. Considering the data in Table 11, it can be stated that the participants' opinions on the relationship between global climate change and energy consumption are limited. Also, it can be seen that the opinions of the participants regarding the measures they personally take to combat global climate change are diverse but not sufficient. The participant F10 asserted, "*I try to be very careful about drought, which is one of the consequences of global climate change. I take care not to let the tap water flow in vain*." And underlined the importance of water. Approaching the issue with a broader perspective, the participant F13 said, "*I am careful not to use more perfume than necessary, I do not throw away my garbage in the environment, I protect the green areas, I take care not to let the tap water flow in vain. I attach importance to recycling*."

Mixed Findings

This section of the research includes findings on blending the data obtained from quantitative and qualitative analyses according to the mixed research design. It was determined that social studies teacher candidates have a high level of global climate change awareness. The fact that social studies teacher candidates explain the effects of global climate change on the natural and human environment and the precautions they take against global climate change also supports the finding that their global climate change awareness is high. However, the fact that social studies teacher candidates explain the relationship between global climate change and energy consumption only as increasing population, fossil fuels and industrial activities is seen as insufficient compared to their global climate change awareness levels. This finding also explains why social studies teacher candidates' global climate change awareness is not at a "Very High" level. When social studies teacher candidates' global climate change awareness is considered according to gender and class variables, it was determined that there was no statistically significant difference. The qualitative findings also show that the gender and class of social studies teacher candidates do not have any effect on their global climate change awareness. In the qualitative section, the fact that social studies teacher candidates state the factors causing global climate change in these publications supports and explains the quantitative findings.

Discussion

The results obtained based on the findings are discussed in this section of the study, which aims to reveal the global climate change awareness levels of social studies teacher candidates and their views on global climate change.

Firstly, the average of the total score of the teacher candidates, who were determined as the study group, from the global climate change awareness scale and the range of this score were examined. Accordingly, it was concluded that social studies teacher candidates' awareness of global climate change is at a high level. This result is similar to that of other studies on the subject in the literature (Ay & Yalçın-Erik, 2020; Beasy et al., 2023; Howard-Jones et al., 2021; Romero Aliza et al., 2021). Based on the results, teacher candidates were asked about the effects of global climate change on the natural and human environment. It was determined that social studies teacher candidates expressed answers such as "melting of glaciers, extreme heat and drought, forest fires, seasonal changes, excessive rainfall, extinction of living things" as the effects of global climate change. In addition, it was observed that teacher candidates expressed the importance of "using public transportation, using energy-saving products, reducing the use of deodorant, not polluting the environment, protecting green areas, forestation, saving water and using recycling bins" as the precautions they personally took in the fight against global climate change. In the relevant literature (Salo & Nissinen, 2017; Tolppanen & Kärkkäinen, 2021; Wynes & Nicholas, 2017) it is understood that teacher candidates emphasize that individual measures to be taken will be effective in reducing climate change. The answers given by the participants also support the conclusion that their awareness of global climate change is high. However, it is thought that teacher candidates'

explanation of the relationship between global climate change and energy consumption in terms of only increasing population, fossil fuels and industrial activities is insufficient compared to their global climate change awareness levels.

It is seen that social studies teacher candidates mostly include extreme temperatures or global warming in their answers to the results of global climate change. It is noteworthy that none of the participants stated that global climate change causes extreme cooling. This situation shows that social studies teacher candidates have insufficient knowledge of the subject and also have misconceptions. This result coincides with results of several studies in the literature (Güler et al., 2020; Matkins & Bell, 2007; Michail et al, 2007; Papadimitriou, 2004; Seroussi et al., 2019).

When social studies teacher candidates' awareness of global climate change was considered in terms of gender, it was determined that there was no statistically significant difference. The fact that global climate change awareness is more related to the affective field rather than the characteristics attributed to the individual from birth may explain this result. The results of several studies in the literature (Ambusaidi et al., 2012; Ay & Erik, 2020; Aydın, 2010; Eroğlu & Aydoğdu, 2016) also support this result.
When the global climate change awareness levels of social studies teacher candidates are examined according to the variable of the grade level, it is seen that there is no statistically significant difference between the grades. This result is similar to the result of the study conducted by Karadağ and Acar (2020). The fact that the majority of teacher candidates, regardless of grade, agreed on the Kyoto Protocol answer to prevent global climate change indicates that the subject was learned from different sources rather than course content at grade levels. In this context, it is thought that issues related to global climate change should be addressed in various course contents in social studies teaching departments.

Conclusion and Recommendations

It was concluded that a statistically significant difference existed between the global climate change awareness of social studies teacher candidates in favor of the teacher candidates who follow printed publications and visual broadcasts. Based on this result, it can be claimed that printed publications and visual broadcasts have a positive impact on teacher candidates' awareness of global climate change. When the social studies teacher candidates were asked learned about the issues from printed publications and visual broadcasts, they mentioned "fossil fuels, greenhouse gases, forest fires, global warming, chemical waste and population growth" as the factors that were claimed to cause global climate change in printed publications and visual broadcasts. It can be stated that these results support the conclusion obtained from the quantitative findings.

In line with the above-mentioned results, the following recommendations can be made:

- In order for social studies teacher candidates to have a "Very High" level of global climate change awareness, materials such as documentaries, short films and research articles on the subject can be included in the courses.
- "Today's World Problems" course, which was previously a compulsory course, can be taught as compulsory in the Social Studies Teaching program again.
- Considering the impact of printed publications and visual broadcasts on global climate change awareness, such publications can be included in course content.
- Social studies teacher candidates' awareness about preventing global climate change can be raised.

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Determinants of Students' STEM Attitudes in Primary School: Reading Experience, Preschool Education and Career Choice

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ABSTRACT

This study aims to examine primary school students' STEM attitudes in terms of some demographic characteristics and to reveal their determinants. 616 students who are in the fourth grade of primary school in a province in the Central Anatolia Region of Turkey participated in the study. The descriptive survey model was used in the study. The data of the study were collected through a personal information form and a STEM attitude scale. In the analysis of the data, Mann-Whitney U and Kruskal Wallis H tests were used together with the descriptive statistics results. In addition, the effect size value was calculated for all the obtained results. As a result of the study, it was determined that STEM attitudes differed significantly according to whether the students received preschool education, whether they followed science-themed children's magazines, the number of books they read per month, the type of book they liked to read and the profession they chose; however, the gender variable did not have a significant effect. According to the results, it was suggested that students should gain reading habits, follow science-themed magazines and be supported in reading science fiction books. In addition, the importance of educational policies aimed at expanding preschool education in order to increase interest in STEM fields was emphasized.

Keywords: Primary school, STEM attitude, reading experience, career choice.

Introduction

STEM education is considered as a way to raise a highly equipped and educated workforce that will provide competitiveness in the 21st-century when globally competitive economies come to the fore. Therefore, educators, researchers and politicians are constantly making intense efforts to improve STEM education (Herro et al., 2019; Huang et al., 2022). However, studies show that despite the current interest and focus, students do not show sufficient interest in STEM fields in many countries, and this creates labour shortages in STEM fields (Lin et al., 2020). The number of students receiving engineering education is gradually decreasing in the USA and many European countries (Yazıcı et al., 2023). A similar trend is also being experienced in Turkey. In Turkey, interest in basic science fields such as physics, chemistry, biology and mathematics has decreased and the number of students has decreased significantly (CHE, 2022). Studies emphasize that if students want to focus on STEM fields, early intervention should be made in the education system to create students' interest in STEM fields (Yazıcı et al., 2023) and increase their career awareness (Moore & Richards, 2012). According to Unfried et al. (2015), students' attitudes towards STEM play a key role in their participation in STEM-related careers. Therefore, creating positive attitudes towards STEM fields is crucial for students to participate in the workforce in these fields (Knezek et al., 2013). In this regard, investigating students' STEM attitudes at an early age and revealing their determinants may provide important clues for their inclusion in the STEM workforce. This study aimed to examine primary school students' STEM attitudes in terms of various variables and to reveal their determinants. The study tried to answer the following questions:

1. What is the level of primary school students' STEM attitudes?

2. Do STEM attitudes differ significantly according to gender, pre-school education, children's magazines followed regularly, frequency of reading, type of books they like to read and career choice?

Theoretical Framework

STEM Attitude

Professions in the STEM field are necessary for a nation's technological innovation, economic growth, global competition and improvement of living standards and are considered "professions of the future" (Langdon et al., 2011). Therefore, students need to choose STEM-focused careers and join the workforce in these fields. Students' attitudes towards STEM are important in their participation in STEM-related careers (Unfried et al., 2015).

Students' attitudes towards the fields of science, technology, engineering and mathematics form their STEM attitudes. If students are not provided with the opportunity to apply their science experiences due to the abstract nature and complexity of science and are directed towards theoretical understanding rather than practical studies, low interest and negative attitudes towards science may occur (Tseng et al., 2013). According to George (2006), when students can apply the science knowledge they learn at school and understand the benefits of science in their daily lives, their interest in science may increase. Developing positive attitudes towards science will increase students' interest in science education and science-related careers. Studies show that students generally have positive attitudes towards technology, they find it interesting and prefer to work with new technologies, and they see technology as beneficial for society, life and medical sciences (Rees & Noyes, 2007; Tseng et al., 2013). Mathematics is generally found to be less popular among students than science, and it is stated that students' negative attitudes towards mathematics may increase with age (Tseng et al., 2013). However, according to some studies, students see mathematics as advantageous and express the concept of mathematics as an emphasis on calculating numbers and as a system and a way of thinking for daily life (Hillel & Perrett, 2006). On the other hand, mathematics is a difficult subject to learn. When learning support is insufficient in a mathematics curriculum, students' interest in learning can decrease and negative attitudes may occur (Stone et al., 2008). Students' attitudes towards science and mathematics, which are the basis of engineering, also affect their engineering attitudes (Tseng et al., 2013). According to Hilpert et al. (2008), students have positive attitudes towards engineering and are willing to pursue a career in engineering due to its contribution to society. Students' interests can have a direct impact on their attitudes towards engineering. Student attitudes and perceptions may also influence their choice of an engineering education. However, it has been stated that there has been a significant decline in students' interest and attitudes towards engineering (Flower, 2014). Osborne et al. (2003) emphasize that students' attitudes towards a course is a strong determinant for future career choice. Therefore, students need to have positive attitudes towards STEM disciplines from the first stages of education. Because students' positive attitudes towards science, mathematics, and engineering will affect their future career choices and lead them to related career fields. Studies show that students' STEM attitudes are related to some variables such as family and environment (Idris et al., 2023; Wiles & Levesque-Bristol, 2023). It is also emphasized that students' STEM attitudes can be improved with some practices (Sarı et al., 2018).

Literature Review

Studies show that students' positive attitudes towards STEM fields from an early age are essential for their participation in the STEM workforce in the future (Knezek et al., 2013; Sarı et al., 2018). Therefore, students' STEM attitudes are the subject of many studies. Ricks (2006) investigated the effectiveness of STEM education in secondary school students' career choices and determined that STEM education developed positive attitudes towards science lessons and was effective in students' choice of career in the STEM field. Xu and Lastrapes (2022) revealed that students' STEM attitudes have both direct and indirect effects on their career interests. Aydın et al. (2017) recorded in their study that the STEM attitudes of four-eight-grade students did not differ according to demographic characteristics such as gender, education in a private or public school and parents' education level, but there was a significant difference according to the region they lived in and their career preferences. Özyurt et al. (2018) determined that primary school students' STEM attitudes differ significantly in favour of experimenting, using laboratories, using technological products such as tablets and smart boards in lessons, and carrying out project work. Kucuk and Sisman (2020) investigated the relationship between students' STEM attitudes and gender. Lane et al. (2022) reported gender differences in women's STEM attitudes and participation in STEM careers in many countries, often to the detriment of women. Sarı et al. (2018) determined that STEM applications significantly increased secondary school students' attitudes towards STEM disciplines, their STEM career perceptions and their professional interest in STEM fields. Arslan (2023) found that there was a moderate positive relationship between middle school students' book reading habits and their attitudes towards STEM. Idris et al. (2023) investigated the impact of socioeconomic class, family background, and gender on students' STEM interests and desires. It has been determined that socioeconomic factors affect students' STEM interests. It has also been determined that parents'

education and profession have a significant impact on children's perceptions of STEM professions and their self-confidence in these fields. Yetkin and Aküzüm (2022) examined the relationship between learning conceptions and STEM attitudes of fourth-grade primary school students and determined that learning conceptions were a significant predictor of attitudes towards STEM.

When the studies discussed above are evaluated, some gaps emerge. While studies on STEM attitudes are concentrated mostly at secondary school (Lin et al., 2020; Sarı et al., 2018; Sellami et al., 2023; Yazıcı et al., 2023) and university levels (Idris et al., 2023; Wiles & Levesque-Bristol, 2023), studies on primary school students are limited. While existing studies generally focus on the effect of STEM education on STEM attitudes (Sarı et al., 2018; Uğraş, 2024), some have investigated the relationship between STEM attitudes and some demographic characteristics (Canbazoğlu & Tümkaya, 2020; Öztürk, 2017; Özyurt et al., 2018). It seems that the relationships between primary school students' STEM attitudes and reading habits such as book reading frequency, the type of books they like to read, and scientific journal subscriptions have not been investigated. Investigating students' STEM attitudes at an early age and revealing some of their determinants will provide important clues for their inclusion in the STEM workforce.

Method

Research Model

This study was conducted based on the descriptive survey model, which is one of the quantitative research methods. The survey model enables the quantitative description of trends, attitudes or opinions in the universe through studies conducted on a sample selected from the universe (Creswell, 2013). The descriptive survey model is a research approach that aims to describe an existing situation as completely and carefully as possible, rather than focusing on the cause and effect relationship. In this approach, the researched subject, individual or object is defined within its own conditions and as it is; evaluation is made within the framework of standards and the connections between events are attempted to be revealed (Çepni, 2009; Johnson & Christensen, 2014).

Population and Sample

The population consists of students who continue their education in the fourth-grade of primary school in a province in the Central Anatolia Region of Turkey in the spring semester of 2021. According to the information obtained, the population of students is 2856. According to Johnson and Christensen (2014, p.323), a sample size of 341 people is sufficient for a study population of 3000 people at a confidence interval of .95. Simple random sampling technique, one of the random sampling methods, was used to determine the sample. Simple random sampling is a sampling technique in which every member of the population has an equal chance of being selected for the study (Johnson & Christensen, 2014, p.304). In this regard, a total of 616 fourth-grade primary school students (314 boys and 302 girls) from 17 public schools in the city center participated in the research voluntarily.

Data Collection Tools

The data were collected using a Personal Information Form and the STEM Attitude Scale.

Personal Information Form: The form prepared by the researchers includes questions about the students' gender, the number of books read in a month, the type of books they like to read, the children's magazine they follow regularly, and their profession choices.

STEM Attitude Scale: The STEM Attitude Scale, developed by Unfried et al. (2015) and adapted to Turkish by Öztürk (2017), was used to determine students' attitudes towards STEM. The scale consists of 37 items with four sub-dimensions: Mathematics (8 items), Science (9 items), Engineering and Technology (9 items) and 21st-Century Learning (11 items). The scoring of the scale is in Likert type, with ratings such as "I strongly agree", "I agree", "I am undecided", "I disagree" and "I strongly disagree". The lowest score that can be obtained from the scale is 37, and the highest score is 185. In the study of adapting the scale to Turkish, it was applied to 453 students in the fourth-grade of primary school and the Cronbach Alpha reliability coefficient was determined as .84 (Öztürk, 2017). The Cronbach Alpha reliability coefficient calculated within the scope of this study is .93.

The ethical process in the study was as follows:

- Ethics committee approval was obtained from Kırıkkale University Local Ethics Committee (Date: 18.02.2021, Number: E-2021-02.02)
- Informed consent has been obtained from the participants.

Data Collection and Analysis

Data were collected during the distance education process due to the COVID-19 outbreak. First, school administrators and primary school fourth-grade teachers were informed about the study. The scales were transferred to Google Forms, and the online link was delivered to the students through school administrators and teachers. Before participating, students were asked to confirm the study purpose, the approximate response time of the scales, and the page stating that they participated in the study voluntarily. Thus, students were enabled to participate in the study voluntarily.

The data were transferred to the SPSS program after the data collection process. During the data analysis process, firstly, skewness and kurtosis values, Kolmogorov-Smirnov test results and histogram graphs were examined to determine whether the scores received by the students from the sub-dimensions and the overall STEM Attitude Scale showed a normal distribution. Kolmogorov-Smirnov test results are in Table 1.

Table 1.
Normality Analysis Results for Study Data

Scale	Dimension	N	Z	*p*	Skewness	Kurtosis
STEM Attitude Scale	Maths	613	.096	.000*	-.670	-.055
	Science	613	.053	.000*	-.400	.311
	Engineering and Technology	613	.089	.000*	-.623	.582
	21st-Century Learnings	613	.103	.000*	-1.520	4.653
	Overall Scale	613	.047	.000*	-.760	1.933

It was determined that the Kolmogorov-Smirnov test results were significant, and the histogram graphics were far from normal distribution. It was accepted that the data did not show a normal distribution and non-parametric statistical tests were used in the analyses. Whether students' STEM attitudes differ according to gender and preschool education status was examined with the Mann-Whitney U test, and whether these attitudes differ according to the children's magazine followed regularly, the number of books read in a month, the type of books liked and their career choice was examined with the Kruskal Wallis H test. If there is a significant difference in the Kruskal Wallis H test, pairwise comparisons were made with the Mann-Whitney U test to determine the source of the difference, and Bonferroni correction was used in these comparisons. Bonferroni correction is determined by the significance level/number of groups (p/k) formula (VanderWeele & Mathur, 2019). In addition, the eta-squared (η2) value was calculated, which is called the effect size for all comparisons and shows how much of the total variance in the dependent variable, the independent variable or factor explains. This value varies between 0.00 and 1.00, and η2 values of .01, .06 and .14 are interpreted as "small", "medium" and "large" effect sizes, respectively (Cohen, 1988).

Results

The findings obtained from data in line with the objectives of the study are presented in order with the research questions. Students' STEM attitude scale scores show that STEM attitude is at a high level in the overall and sub-dimensions of the scale. In evaluating the scores that students received from the scales, the formula suggested by Tekin (2000) was used: Range Width = Array Width / Number of Groups to be Made.

Table 2.
Students' STEM Attitude Level

Dimension	N	Lowest	Highest	$\overline{X}$	s	Level
Maths	616	10	40	31.80	6.09	High
Science	616	17	45	34.48	5.92	High
Engineering and Technology	616	14	55	46.46	5.98	High
21st-Century Learnings	616	14	55	46.48	5.97	High
Overall Scale	616	84	185	147.39	18.25	High

The Mann-Whitney U test result of STEM attitude according to gender shows that female students' STEM attitude scores are higher than male students in all sub-dimensions except the science sub-dimension and in the overall scale (Table 3). However, this difference is not statistically significant. It can be said that gender is not an effective variable on STEM attitudes.

Table 3.
Mann-Whitney U Test Results of Students' STEM Attitudes According to Gender

Dimension	Gender	N	Rang Average	Total of Rows	U	*p*
Maths	Male	314	298.87	93845.5	44390.5	.170
	Female	302	318.51	96190.5		
Science	Male	314	315.87	99184.5	45098.5	.294
	Female	302	300.83	90851.5		
Engineering and Technology	Male	314	322.04	101119.5	43163.5	.054
	Female	302	394.43	88916.5		
21st-Century Learnings	Male	314	319.50	99365.0	42451.0	.054
	Female	302	392.00	87601.0		
Overall Scale	Male	314	301.17	94567.0	45112.0	.297
	Female	302	316.12	95469.0		

According to the Mann-Whitney U test results given in Table 4, students' STEM attitudes show a significant difference in favour of students receiving pre-school education in all sub-dimensions and overall scale.

According to the effect size values, it can be said that the effect is small and that pre-school education has a positive effect, albeit at a low level, on students' STEM attitudes.

Table 4.
Mann-Whitney U Test Results of STEM Attitude According to Pre-School Education

Dimension	Pre-School Education	N	Rank Average	Total of Rows	U	*p*	Effect Size (η^2)
Maths	Yes	494	327.20	161635.5	20897.5	.000*	.045
	No	122	232.79	28400.5			
Science	Yes	494	325.55	160823.5	21709.5	.000*	.037
	No	122	239.45	29212.5			
Engineering and Technology	Yes	494	323.48	159800.0	22733.0	.000*	.029
	No	122	247.84	30236.0			
21st-Century Learnings	Yes	494	320.78	157181.0	22404.0	.000*	.031
	No	122	246.16	29785.0			
Overall Scale	Yes	494	329.04	162546.5	19986.5	.000*	.054
	No	122	225.32	27489.5			

Whether STEM attitudes differ depending on the children's magazine followed regularly was analysed with the Kruskal Wallis H test. Analyses were carried out on data obtained from 147 students who regularly followed children's magazines (Table 5). Students' STEM attitude scores show significant differences depending on the children's magazine followed. Pairwise comparisons were made with the Mann-Whitney U test to determine the source of this difference. Bonferroni correction was used in these comparisons, and the significance level limit was accepted as .016. As a result of the analysis, it was observed that the significant difference in all sub-dimensions and the overall scale was between the students who follow "Bilim Çocuk" magazine and the students who follow other magazines, in favour of the students who follow "Bilim Çocuk" magazine. In addition, it was determined that there was a significant

difference in the science sub-dimension and the overall scale between those who follow "TRT Çocuk" magazine and those who follow other magazines, in favour of the students who follow "TRT Çocuk" magazine. Effect size values show that the effect in all sub-dimensions and the overall scale is at a small effect level. According to these findings, it can be said that children's magazines followed regularly are effective on STEM attitudes.

Table 5.
Kruskal Wallis-H Test Results of STEM Attitudes According to Children's Magazine Followed Regularly

Dimension	Children's Magazine	N	Rank Average	Sd	X^2	*p*	Difference	Effect Size (η^2)
Maths	1-Bilim Çocuk	63	87.21	2	15.467	.000*	1-3	.024
	2-TRT Çocuk	25	79.66					
	3-Other	59	57.49					
Science	1-Bilim Çocuk	63	88.73	2	19.364	.000*	1-3 2-3	.03
	2-TRT Çocuk	25	80.56					
	3-Other	59	55.49					
Engineering and Technology	1-Bilim Çocuk	63	86.13	2	12.320	.002*	1-3	.018
	2-TRT Çocuk	25	77.76					
	3-Other	59	59.45					
21st-Century Learnings	1-Bilim Çocuk	63	83.16	2	10.525	.005*	1-3	.016
	2-TRT Çocuk	25	75.06					
	3-Other	59	58.72					
Overall Scale	1-Bilim Çocuk	63	93.79	2	30.362	.000*	1-3 2-3	.048
	2-TRT Çocuk	25	77.38					
	3-Other	59	51.43					

Kruskal Wallis H test results for the relationship between STEM attitudes and students' the number of books read in a month are given in Table 6. It was determined that the scores in all sub-dimensions of the scale and the overall scale showed significant differences depending on the number of books the students read in a month. Rank average scores show that as the number of books read increases, students' STEM attitudes also increase. Pairwise comparisons were made with the Mann-Whitney U test, and the significance level was accepted as .005 in these comparisons. It was determined that the significant difference in the STEM attitude scale overall and in the sub-dimensions of the scale was in favour of students who read four or more books in a month and those who read more books among the groups that did not read books, read one book and read two books. It was observed that there was a significant difference between the students who read three books a month and the students who read one book in favour of those who read more books in all sub-dimensions and the overall scale except for the maths sub-dimension.

In addition, it was determined that there was a significant difference in the sub-dimensions of engineering and technology and 21st-century learning between students who read four or more books in a month and students who read three books in favour of those who read more books. Effect size values show that the effect in the mathematics sub-dimension is small, while the effect in other sub-dimensions and the scale in general is medium. According to these findings, it can be said that reading books contributes significantly to students' STEM attitudes.

Table 6.
Kruskal Wallis-H Test Results According to STEM Attitude and Book Reading Frequency

Dimension	Number of Books Read Monthly	N	Rank Average	Sd	X^2	*p*	Difference	Effect Size (η^2)
Maths	1- not read	29	238.64	4	30.22	.000*	1-5 2-5 3-5	.044
	2- one book	117	266.83					
	3- two books	103	268.22					
	4- three books	109	312.04					
	5- four books and more	258	349.83					
Science	1- not read	29	251.36	4	40.78	.000*	1-5 2-4 2-5 3-5	.062
	2- one book	117	240.62					
	3- two books	103	276.85					
	4- three books	109	318.18					
	5- four books and more	258	354.25					
Engineering and Technology	1- not read	29	206.43	4	50.14	.000*	1-5 2-4 2-5 3-5 4-5	.077
	2- one book	117	237.57					
	3- two books	103	298.23					
	4- three books	109	300.58					
	5- four books and more	258	359.58					
21st-Century Learnings	1- not read	29	204.36	4	52.38	.000*	1-5 2-4 2-5 3-5 4-5	.081
	2- one book	117	232.37					
	3- two books	103	296.45					
	4- three books	109	297.77					
	5- four books and more	258	357.66					
Overall Scale	1- not read	29	215.52	4	48.69	.000*	1-5 2-4 2-5 3-5	.075
	2- one book	117	241.16					
	3- two books	103	278.09					
	4- three books	109	314.41					
	5- four books and more	258	359.13					

According to the analysis results given in Table 7, the type of books that students like to read is a variable that creates a significant difference on STEM attitude. When the rank average scores are examined, it is noted that the highest score in the STEM attitude scale belongs to the students who prefer science fiction, and the lowest score belongs to the students who prefer the story. The groups showing differences in the pairwise comparisons between groups made with the Mann-Whitney U test (significance level was accepted as .005) are given in Table 7. The effect size in the overall scale is medium, and the effect size in the sub-dimensions is small. According to these findings, it can be said that the type of book preferred to read significantly affects STEM attitude and that reading science fiction books contributes the most to STEM attitude.

Table 7.
Kruskal Wallis-H Test Results of Students' STEM Attitudes According to the Type of Books They Like to Read

Dimension	Type of books	N	Rank Average	Sd	X^2	*p*	Difference	Effect Size (η^2)
Maths	1- Fairytale	36	306.74	4	38.91	.000*	2-3 2-4 2-5 3-4	.059
	2- Story	150	246.30					
	3- Science Fiction	46	399.76					
	4- Adventure	355	315.60					
	5- Other	29	400.74					
Science	1- Fairytale	36	296.42	4	37.97	.000*	1-3 2-3 2-4 3-4	.057
	2- Story	150	247.99					
	3- Science Fiction	46	418.96					
	4- Adventure	355	317.44					
	5- Other	29	351.88					
Engineering and Technology	1- Fairytale	36	282.88	4	29.17	.000*	1-5 2-3 2-4 2-5	.043
	2- Story	150	253.26					
	3- Science Fiction	46	368.01					
	4- Adventure	355	319.39					
	5- Other	29	398.33					
21st-Century Learnings	1- Fairytale	36	280.32	4	28.59	.000*	1-5 2-3 2-4 2-5	.042
	2- Story	150	250.94					
	3- Science Fiction	46	362.17					
	4- Adventure	355	317.25					
	5- Other	29	394.74					
Overall Scale	1- Fairytale	36	279.46	4	54.87	.000*	1-3 2-3 2-4 2-5 3-4	.085
	2- Story	150	234.95					
	3- Science Fiction	46	432.75					
	4- Adventure	355	320.94					
	5- Other	29	375.62					

According to the results of the Kruskal Wallis-H Test to determine the effect of students' career choice, it was determined that career choice caused a significant difference in the sub-dimensions of the STEM attitude scale and the overall scale (Table 8). Pairwise comparisons were made with the Mann-Whitney U test (the significance level was accepted as .0023) to determine the source of the significant difference, and Table 8 shows among which groups there was a difference. According to the rank average scores, it is seen that the highest score in the STEM attitude scale overall and its sub-dimensions belongs to the engineer/architect profession group, and the lowest score belongs to the group preferring police/military/security professions. There is a significant difference between students preferring the engineer/architect profession and other groups in favour of those preferring the engineer/architect profession. The effect size values are small in the engineering and technology and 21st-century learning sub-dimensions, and medium in the mathematics and science sub-dimensions and the overall scale. According to these findings, it can be stated that career choice is an effective variable on STEM attitude.

Table 8.
Kruskal Wallis-H Test Results of Students' STEM Attitudes According to Their Career Choice

Dimension	Professions	N	Rank Average	Sd	X^2	*p*	Difference	Effect Size (η^2)
Maths	1- The Field of Health	191	337.11	6	55.684	.000*	1-4 2-3 3-4 3-5 3-7 4-5 4-7	.083
	2- Teacher	69	265.14					
	3- Engineer/Architect	80	397.48					
	4- Police/Soldier	95	215.76					
	5- The Fields of Law	55	307.73					
	6- The Field of Sport	34	321.74					
	7- Other	92	295.58					
Science	1- The Field of Health	191	340.21	6	56.855	.000*	1-4 1-6 2-4 3-4 3-5 3-6 4-7	.085
	2- Teacher	69	314.26					
	3- Engineer/Architect	80	389.02					
	4- Police/Soldier	95	219.59					
	5- The Fields of Law	55	264.46					
	6- The Field of Sport	34	228.28					
	7- Other	92	316.10					
Engineering and Technology	1- The Field of Health	191	320.08	6	14.129	.028*	1-4 3-4	.015
	2- Teacher	69	298.12					
	3- Engineer/Architect	80	339.31					
	4- Police/Soldier	95	251.32					
	5- The Fields of Law	55	312.81					
	6- The Field of Sport	34	301.63					
	7- Other	92	324.46					
21st-Century Learnings	1- The Field of Health	191	317.01	6	14.002	.030*	1-4 3-4	.015
	2- Teacher	69	295.43					
	3- Engineer/Architect	80	336.23					
	4- Police/Soldier	95	248.97					
	5- The Fields of Law	55	309.91					
	6- The Field of Sport	34	307.61					
	7- Other	92	321.45					
Overall Scale	1- The Field of Health	191	325.76	6	62.394	.000*	1-3 1-4 2-3 3-4 3-5 3-6 3-7 4-7	.094
	2- Teacher	69	269.01					
	3- Engineer/Architect	80	419.27					
	4- Police/Soldier	95	219.33					
	5- The Fields of Law	55	278.29					
	6- The Field of Sport	34	293.32					
	7- Other	92	321.70					

Discussion

Primary school students' STEM attitudes were examined in terms of some demographic characteristics in this study. It was determined that the students participating in the study had a high level of STEM attitude. According to Unfried et al. (2015), students' attitudes towards STEM play a key role in their participation in STEM careers. In this regard, the finding is important in terms of students' future participation in the STEM workforce. In the study, it was determined that STEM attitudes did not differ significantly

by gender. Supporting this finding, it has been reported in the literature that students' gender is not related to STEM attitudes (Brown et al., 2016; Canbazoğlu & Tümkaya, 2020). On the other hand, Christensen and Knezek (2017) determined that male students' STEM attitudes were higher than female students. Unfried et al. (2014) found that the attitudes of male and female students towards engineering and technology were significantly different in favor of male students. Therefore, it can be said that the results and literature findings vary.

The study found that students who received pre-school education had a statistically significantly higher STEM attitude than those who did not. It can be said that the activities in the fields of science, mathematics and visual arts in the preschool education curriculum may have positively affected the STEM attitude. Preschool students have a very curious structure as a characteristic of the period. The science, mathematics and art activities carried out in this curious period may have developed their imagination and creativity while also increasing their interest and attitudes towards the relevant fields. Thus, the STEM attitude may have been acquired as a common reflection of the attitudes towards the fields of science, mathematics, technology and engineering. According to Duffy (1998), eighty per cent of human development is completed in the first six years of life, which is defined as the preschool period. For this reason, it is emphasized that pre-school education can be effective on the personal characteristics of the individual that will emerge in the future (Zigler & Muenchow, 1992). The American National Research Council [NRC] (2011) clearly emphasizes the importance of pre-school education for a successful STEM education. Considering the importance of skills such as imagination, curiosity, creativity and critical thinking in STEM fields, it is stated that such an understanding should start from the preschool period (Chesloff, 2013). Research indicates that pre-school education, which is stated to be very effective in the formation of an individual's characteristics, supports the development of reasoning, creativity and imagination, and plays an important role in gaining self-confidence. It is also emphasized that the education received in the pre-school period is important in terms of children gaining social skills and academic success in their future lives (Pagani et al., 2003; Zigler & Muenchow, 1992).

The relationship between students' reading experiences, such as book reading frequency, book type preferred and magazines followed regularly, and STEM attitudes were evaluated in the study. It was determined that the STEM attitudes of the students who regularly follow "Bilim Çocuk" magazine and "TRT Çocuk" magazine were at a higher level than those who followed other magazines, and there was a significant difference between them. It was determined that students' following magazines regularly, especially science magazines, was one of the factors that positively affected STEM attitudes. The aim of science-themed magazines, such as "Bilim Çocuk" magazine, is to instil a love of science at young ages, to arouse the desire to do research, ask questions, wonder and read, to develop scientific creativity and to encourage invention. In such magazines, current news from the world of science and technological developments, introduction of scientists, scientific activities and information about space are given with colours, lines, cartoons and various visuals that will attract the attention of students (https://bilimcocuk.tubitak.gov.tr). It can be thought that these science-themed contents affect children positively and create interest and positive attitudes towards science, mathematics, technology and engineering. Therefore, it can be said that following science-themed children's magazines contributes to the development of positive attitudes towards STEM fields in students. In his study, Ekici (2017) determined that students who follow science magazines have higher perceptions of inquiry, and stated that science-themed magazines arouse curiosity and direct students to think, and thus, the fact that they can learn information about the events they are curious about while having fun is the reason for the development in their perception of inquiry. Kerem (2019) found in his study that fourth-grade students' STEM attitude levels made a statistically significant difference depending on whether they subscribed to or followed a scientific journal, and that the attitudes of students who subscribed to a scientific journal were higher.

It was determined that another factor affecting students' STEM attitudes regarding their reading experiences was the book type preferred. While the STEM attitude of those who preferred to read science fiction books was found to be at the highest level, those who preferred the story were found to be at the lowest level. It has been determined that the type of book preferred to read significantly affects STEM attitudes and that science fiction makes the most contribution. This situation is parallel to another result of the study, which is the positive effect of following science-themed magazines on STEM attitudes. Science fiction writing is based on science and reveals the possibility of stories and extraordinary things about the near or distant future with the elements of science and technology. When technology, science, creative thinking, imagination and innovative thinking are considered as the basic concepts of science fiction, it can be thought that these may positively affect students' STEM attitudes. Because the concepts of

creative thinking, imagination and innovative thinking are directly related to the fields of science, engineering and technology (Şahin et al., 2024). The use of relevant skills can only be possible with the use of science, engineering and technology disciplines. Therefore, the fact that these disciplines form STEM is the reason for the positive contribution of science fiction books to STEM attitudes. Karadeniz and Değirmençay (2020) determined that science fiction stories were effective on students' creative thinking skills.

According to findings, the frequency of reading books significantly affects STEM attitudes. It was determined that as the number of books students read in a month increased, their STEM attitudes also increased. Reading is one of the most effective elements in an individual's intellectual, creative and self-confident growth (Ortaş, 2014). According to the literature, reading books contributes to the formation of new ideas in students, the development of thinking skills (Taylor, 2006; Zulela & Rachmadtullah, 2018), and the increase in the level of understanding (Moll and Bus, 2011). There are findings in some studies that reading improves critical thinking and problem-solving skills (Fuchs & Fuchs, 2002; Österholm, 2007). Supporting these effects on reading, it can be evaluated that students' reading levels also contribute significantly to their STEM attitudes.

Another demographic feature that was determined to be related to students' STEM attitudes was their career choice. It was determined that the STEM attitudes of students who preferred the engineering/architecture professions was at the highest level, while attitude of students preferring the police/military professions was at the lowest level. In general, engineering/architecture professions can be considered as innovation-oriented professions that require problem solving, critical thinking, creative thinking and using imagination compared to other professional groups. This group is among the profession groups that appeal to STEM fields. Therefore, it can be considered as an expected situation that students considering choosing these professions have an interest and positive attitude towards mathematics, science, technology and engineering fields. In addition, the high STEM attitude of these students may give them an advantage if they receive engineering education in the future. These results are similar to the findings in the literature (Aydın et al., 2017). On the other hand, Canbazoğlu and Tümkaya (2020) determined in their study that students' STEM attitudes did not differ according to their career choices.

Conclusion and Recommendations

This study shows that for fourth-grade primary school students, receiving pre-school education and following science-themed magazines, the number of books read in a month, type of books read, and preferred profession are determinants of STEM attitude, while gender doesn't affect STEM attitudes.

According to the results, educational policies should be designed to expand pre-school education in order to increase interest in STEM fields considering that pre-school education contributes to STEM attitudes.

Considering the positive reflections of book reading frequency, following science-themed magazines and reading science fiction books on STEM attitudes, students should be encouraged to acquire reading habits, to follow science-themed magazines, and to read science fiction books. In addition, these publications can be included in school libraries to ensure that students are introduced to such publications at the primary school level and can easily access such publications.

This study is limited to quantitative data. Similar studies can be conducted using mixed or experimental designs where quantitative data can be supported by qualitative data.

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PSCP Cognitive Engagement Scale: A Scale Development Study

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ABSTRACT

This study aimed to develop and validate an instrument to measure students' cognitive engagement in teaching-learning environments. An exploratory correlational method was employed to develop the scale. 446 university pre-degree students learning English as a foreign language participated in the study. A pilot study was conducted with 117 students to explore the item and factor structure of the scale, resulting in the removal of eight items from the scale. A subsequent study with 329 students was conducted to confirm the scale's item and factor structure. Results showed that the scale demonstrated content validity, with a content validity index of .94. The scale consisted of nine items and two factors, identified as *cognitive attention* and *cognitive effort*. Convergent validity was established, as evidenced by composite reliability values of .83 and .84 for each factor, with average variance extracted of .55 and .51, respectively. Corrected item-total correlation values ranged from .54 to .71, and inter-item correlation exceeded .30. Reliability analysis revealed high internal consistency, with each factor demonstrating reliability of .83 and .85, resulting in an overall scale reliability of .89. In conclusion, the findings indicate that the developed PSCP Cognitive Engagement Scale is a valid and reliable scale for measuring cognitive engagement in learning environments.

Keywords: Cognitive engagement, scale development, factor analysis, reliability, validity.

Introduction

In contemporary teaching and learning environments, the influence of digital tools and technologies is steadily increasing. This increase has the potential to raise students' cognitive load, thereby impacting their cognitive engagement during the learning process (Henrie et al., 2015). Cognitive engagement, defined as the deliberate task-specific thinking that a student undertakes while participating in a classroom activity (Helme & Clarke, 2001), includes their cognitive attention (Kong & Hoare, 2011) and cognitive effort (Earl et al., 2023). Within this context, cognitive engagement represents the cognitive processes and energy that students invest in understanding the learning content (Finn & Zimmer, 2012).

Cognitive engagement, which reflects the investment students make in their learning processes, can significantly influence the teaching and learning experience. A review of the literature reveals that cognitive engagement not only enhances motivation (Archambault et al., 2009; Husni et al., 2022; Shukor et al., 2014) but also positively impacts academic achievement and performance (Guthrie & Carlin, 2024; Huang et al., 2019; Liu et al., 2023). Students with deep cognitive engagement actively use prior knowledge and intentionally create complex knowledge structures by integrating new information with prior knowledge (Greene, 2015). In doing so, they elaborate on the material and achieve more effective learning. Within this context, it can be stated that students who engage in deeper cognitive processing tend to demonstrate higher levels of academic success (Greene & Miller, 1996).

Cognitive engagement has been defined in similar ways by various researchers. For instance, Fredricks et al. (2004) describe cognitive engagement as the cognitive investment students make in learning, while Blumenfeld et al. (2006) define it as the willingness to put effort into learning by using cognitive and metacognitive strategies. Similarly, Greene (2015) defines cognitive engagement as the metacognitive effort individuals expend to learn effectively.

In light of the literature, this study defines cognitive engagement as students' cognitive attention directed to instructional content and their cognitive effort exerted to process and understand new information. Cognitive attention relates to how well students focus on teaching and learning activities without being affected by internal or external distractions. Cognitive effort relates to the quality and level of effort students expend to understand

information even in moments when they struggle.

Researchers have identified distinct levels of cognitive engagement. For example, Blumenfeld et al. (2006) examined cognitive engagement by categorizing it into superficial and deep levels of engagement. Superficial cognitive engagement involves basic strategies, such as memorization. In contrast, deep cognitive engagement encompasses efforts to relate new information to existing knowledge and elaborate on the information for a more comprehensive understanding.

According to Chi and Wylie (2014), cognitive engagement can occur in four modes: interactive, constructive, active, and passive. In their framework, known as the ICAP theory, each type of cognitive engagement involves distinct cognitive processes and methods of acquiring knowledge. Students exhibiting passive cognitive engagement merely direct their attention to the instructional material presented to them. When they repeat or attempt to memorize the information, they demonstrate active cognitive engagement. Constructive cognitive engagement occurs when students generate new ideas that go beyond the given material, such as when they explain concepts in their own words. Finally, interactive cognitive engagement, the deepest level of engagement, occurs when students engage in substantive dialogue about the material, with each person contributing constructively to build understanding together.

The level of cognitive engagement can be observed through students' behaviors during the learning process. This level is evident in their performance during learning activities, the number of questions they ask in class, and the quality of the assignments they submit (Hew, 2016). Students with a high level of cognitive engagement strive to internalize the information and effectively employ learning strategies (Meece et al., 1988). They actively participate in the learning process and put effort into understanding the material. Such students use their cognitive systems efficiently when applying cognitive strategies or acquiring new knowledge (Guthrie & Carlin, 2024). They ask questions to deepen their understanding, persist through challenging tasks, read beyond the assigned material, and engage in research to self-regulate their learning.

As noted by Appleton et al. (2006), observing student behaviors provides only an inferential estimate of their cognitive processes. Therefore, self-report scales can be employed to measure cognitive engagement. In their study comparing data collection tools designed to assess student engagement, Fredricks and McColskey (2012) identified 11 self-report scales that measure various dimensions of engagement, such as emotional, behavioral, and social engagement. Cognitive engagement has been measured as a subdimension in six of these scales (Appleton et al., 2006; Fredricks et al., 2004; Greene & Miller, 1996; Liem & Martin, 2012; Voelkl, 1997; Yazzie-Mintz, 2007). Additionally, the construct has been addressed as a subdimension in other engagement scales found in the literature (Burch et al., 2015; Gunuc & Kuzu, 2015).

The literature highlights two measurement tools specifically developed to assess cognitive engagement (Agustini et al., 2022; Barlow et al., 2020). The first tool, developed by Agustini et al. (2022), was designed to examine the extent to which students' cognitive engagement influences their critical and creative thinking skills. This scale includes items that measure behaviors such as practicing, elaborating, and organizing information as indicators of cognitive engagement. The second tool, developed by Barlow et al. (2020), aims to measure the cognitive engagement of engineering students in class. It was designed to provide teachers with data on strategies to promote active student participation during learning sessions. The subdimensions of this scale include peer interaction, constructive notetaking, active notetaking, active processing, and passive processing.

Purpose of the Study

A review of the literature on cognitive engagement reveals its conceptualization through elements such as cognitive attention directed toward learning materials (Kong & Hoare, 2011) and cognitive effort applied through cognitive and metacognitive strategies (Greene, 2015). While existing scales measure cognitive and metacognitive strategy use, no instrument specifically measures students' cognitive attention and effort during learning. Addressing this gap, this study aimed to develop and validate an instrument to measure students' cognitive engagement by assessing their cognitive attention and effort.

To fulfill this objective, this study addressed the following research questions:

- How does the PSCP Cognitive Engagement Scale demonstrate content validity?
- How does the PSCP Cognitive Engagement Scale demonstrate construct validity?
- How does the PSCP Cognitive Engagement Scale demonstrate convergent validity?
- How does the PSCP Cognitive Engagement Scale demonstrate discriminant validity?
- How does the PSCP Cognitive Engagement Scale demonstrate item discrimination?
- How does the PSCP Cognitive Engagement Scale demonstrate internal consistency?

Method

Research Design

This study aimed to develop and validate an instrument to measure students' cognitive engagement in teaching and learning environments. For this purpose, an exploratory correlational research design was employed. This design allows researchers to examine relationships among two or more variables in their natural state without researcher manipulation (Creswell, 2015). Within this framework, the explanatory correlational design was used to investigate relationships between the observed variables (items) within the developed scale.

Participants

The target population for this study included 410,103 university students in Ankara. The sample size was determined as 385 based on a 5% margin of error and 95% confidence interval. Using proportional cluster sampling, public and private universities were treated as two distinct clusters; however, permissions were obtained from only two public universities and one private university. Consequently, the sample consisted of 450 volunteer students learning English at the Schools of Foreign Languages of these universities.

Regarding faculty distribution, the highest participation came from the Faculty of Engineering (n = 153), followed by the Faculty of Arts and Sciences (n = 80), and the Faculty of Economics and Administrative Sciences (n = 66). The gender distribution included 180 male and 265 female participants, with five choosing not to disclose their gender. Age distribution showed 334 students in the 18-19 age range, 92 in the 20-21 range, and 24 aged 22 or above. Regarding English learning duration, 128 students had studied English for one year, 147 for 2-3 years, and 80 for more than 10 years. While 344 participants reported enjoying learning English, 71 indicated they did not. 35 participants did not disclose their attitude toward English.

Following examination of participant characteristics, outlier analysis was conducted. After removing data from four participants, the final sample consisted of 446 students. Of these, 117 participated in the initial scale development study, and 329 in the confirmatory factor analysis of the draft scale.

Scale Development Process

The PSCP Cognitive Engagement Scale was developed to examine the relationships among students' psychological safety perception, social presence, cognitive engagement, and perceived learning in learning environments. The acronym PSCP, derived from the initial letters of these variables, was used to name the scale. While this study does not address these relationships directly, it presents the development process, validity, and reliability of the PSCP Cognitive Engagement Scale. The scale development process followed the stages proposed by DeVellis (2003).

Determining the Construct to Be Measured

Before developing the PSCP Cognitive Engagement Scale, the definitions of cognitive engagement in the literature were reviewed. Drawing from this literature, this study defines *cognitive engagement as students' cognitive attention directed to instructional content and their cognitive effort exerted to process and understand new information*. Based on this conceptualization, items were developed to measure students' cognitive engagement by measuring both their cognitive attention and cognitive effort in teaching-learning environments.

Generating the Item Pool

The item pool was developed through two complementary approaches: (1) adaptation of items from existing cognitive engagement measurement instruments in the literature, and (2) generation of new items based on documented characteristics of students demonstrating high cognitive engagement. This process yielded an initial pool of 96 items.

Determining the Format for Measurement

Following a review of measurement formats in the literature and considering respondent accessibility, a graded response model with five categories was adopted. Accordingly, the scale items were anchored on a continuum from Strongly Disagree (1) to Strongly Agree (5).

Reviewing the Initial Item Pool

Before the item pool was reviewed by experts, the researchers conducted a preliminary analysis to identify and remove items that: (1) were duplicated or similar to the other items in the pool, (2) aimed to measure cognitive engagement in online environments, (3) were developed for participants outside the scope of this study (such as primary school students), or (4) were likely to measure constructs unrelated to cognitive engagement. This preliminary analysis reduced the item pool to 46 items. Discussions with administrators revealed that the intensive teaching schedule of the Foreign Languages Department, where the preliminary study would be conducted, allowed limited time for the research. Consequently, an expert review methodology was chosen over pilot testing for item evaluation. The researchers and a language education specialist employed a read-aloud technique to assess item clarity and alignment with the study's objectives. This process identified 22 items that demonstrated both linguistic clarity and conceptual alignment with the research aims.

The resulting 22-item draft PSCP Cognitive Engagement Scale was then submitted for review to eight education experts: five specialists in curriculum and instruction and three in educational measurement and evaluation.

Establishing Content Validity

Content validity was evaluated through expert review using Lawshe's method (1975). Eight education experts evaluated each item using a tripartite rating scale (Essential, useful but not essential, or not necessary). Content Validity Ratios (CVR) were calculated for each item, and items failing to meet Lawshe's critical threshold of .75 were eliminated. This process resulted in the removal of three items, yielding a 19-item revised draft scale.

Administering Items to the Development Sample

The pilot study aimed to evaluate the item and factor structures of the PSCP Cognitive Engagement Scale to establish its final form. Prior to conducting the pilot study, all required ethical protocols were completed.

The ethical process in the study was as follows:

- Ethics committee approval was obtained from Hacettepe University Social Sciences and Humanities Research Ethics Committee (Date: 16.11.2023, Number: E-66777842-300-00003202071)
- Informed consent has been obtained from the participants.

Following ethical approval, data were collected online through Google Forms from 117 students learning English at a university's School of Foreign Languages.

Evaluating the Items

After developing the draft form, conducting expert review, and administering it to 117 students, analyses were conducted to examine the scale's items and structure

Examining Initial Item Performance: Initial psychometric evaluation followed DeVellis's (2003) criterion that scale reliability is contingent upon strong inter-item correlations. Analysis of the inter-item correlation matrix revealed positive correlations across all items. However, four items (Items 5, 17, 18, and 19) exhibited insufficient correlation coefficients with other scale items and were consequently noted for removal.

Assessing Item-Total Correlations: Item discrimination was assessed through corrected item-total correlations, using Büyüköztürk's (2018) criterion of .30 as the threshold for acceptable item discrimination. Corrected item-total correlations ranged from .43 (Item 17) to .79 (Item 13). Although Items 5, 17, 18, and 19 demonstrated relatively lower item-total correlations compared to other scale items, all items exceeded the recommended threshold of .30, indicating adequate discriminative properties. Based on these results, all items were retained for subsequent exploratory factor analysis.

Analyzing Item Means: Discriminative properties of the scale items were evaluated through extreme groups analysis, comparing the upper and lower 27% of scores (n = 32 per group). Independent samples t-tests revealed significant differences ($p < .001$) between groups across all items, with mean differences ranging from 1.188 to 2.031. These results provide evidence for the items' capacity to discriminate effectively between high and low levels of the measured construct.

Conducting Exploratory Factor Analysis

The suitability of data set for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity in SPSS 24.0. The analysis yielded a KMO coefficient of .91, and Bartlett's Test was significant (χ^2 (55) = 752.75, $p < .001$). These results indicated the suitability of the data set for factor analysis.

Exploratory factor analysis (EFA) was conducted to examine the scale's structure and establish construct validity. Maximum Likelihood extraction method was employed. Initial analysis revealed a four-factor structure; however, Item 18 was eliminated as it loaded solely on the fourth factor.

Subsequent analysis indicated a three-factor structure. Item 5 was removed due to cross-loading, with insufficient differentiation between its loadings on the second (.46) and third factors (.49) (difference < .10). The remaining two items in the third factor were subsequently eliminated. The final EFA revealed a two-factor structure explaining 66.2% of the total variance.

Additionally, Velicer's Minimum Average Partial (MAP) test was conducted to examine the factor structure. Results suggested a three-factor solution with the smallest squared partial correlation of .024 for three factors, which aligned with the initial EFA findings. The details of the scale items and their factor loadings are presented in Table 1.

Table 1.

Item Characteristics of the Draft PSCP Cognitive Engagement Scale

Item	Mean	Corrected Item-Total Correlation	Factor Loading
1	3.71	.63	.61
2*	3.31	.56	-
3	3.98	.58	.55
4	3.51	.63	.77
5*	2.70	.43	.56
6*	3.55	.76	.48
7	3.74	.68	.71
8*	3.63	.65	.54
9	3.93	.72	.63
10	3.85	.79	.67
11	4.09	.73	.71
12	3.92	.74	.65
13*	3.52	.79	.49
14	3.68	.68	.69
15	3.60	.60	.72
16	3.50	.71	.54
17*	3.23	.43	.58
18*	3.04	.44	.64
19*	3.10	.61	.69

Following completion of item and factor analyses, eight items were removed from the scale based on the following criteria: (1) Item 2 failed to load significantly on any factor, (2) Items 5, 6, 8, and 13 showed insufficient differentiation between cross-loadings (difference < .10), (3) Items 17 and 19 remained as the only items in the third factor, and (4) Item 18 was the only item that loaded on the fourth factor.

Subsequent analyses confirmed factor loadings exceeding .50 for all remaining items. The final PSCP Cognitive Engagement Scale comprised 11 items across two factors: Factor 1 with four items and Factor 2 with seven items.

Assessing Internal Consistency Reliability

To establish reliability evidence, both Cronbach's alpha and McDonald's omega coefficients were calculated. Cronbach's alpha coefficients were .82, .91, and .92 for Factor 1, Factor 2, and the overall scale, respectively. McDonald's omega coefficients demonstrated similar reliability: .82 for *cognitive attention*, .89 for *cognitive effort*, and .91 for the overall scale. These findings from the preliminary study (N = 117) provide evidence for the internal consistency reliability of the PSCP Cognitive Engagement Scale.

Results

Data from 329 participants were collected through online survey administration to evaluate the psychometric properties of the 11-item PSCP Cognitive Engagement Scale. This section presents evidence for the scale's reliability and validity through multiple analytical approaches.

Findings on the Content Validity of the PSCP Cognitive Engagement Scale

The content validity of the PSCP Cognitive Engagement Scale was evaluated using Lawshe's method (1975). Initial psychometric analyses from the pilot study resulted in the removal of eight items that did not meet the established validity and reliability criteria as discussed in the previous section. For the remaining 11 items, three primary indices were calculated: Content Validity Ratio (CVR), Item Content Validity Index (I-CVI), and Scale Content Validity Index (S-CVI). These indices were calculated using the following formulae, where N represents the total number of subject matter experts and N_E indicates the number of experts who rated the item as *essential*: CVR = (N_E – N / 2) / (N / 2), I-CVI = N_E / N, and S-CVI = $\sum$ (N_E) / N. Table 2 presents the item-level content validity indices (CVR and I-CVI) and the aggregate scale-level content validity index (S-CVI).

Table 2.

Content Validity Ratios and Indices Based on Expert Evaluation

Item	N_E	CVR	I-CVI
1	8	1	1
2	8	1	1
3	7	.75	.88
4	8	1	1
5	8	1	1
6	8	1	1
7	7	.75	.88
8	8	1	1
9	8	1	1
10	8	1	1
11	8	1	1
N	8		
S-CVI	.95		

The content validity ratio (CVR) analysis revealed that all scale items exceeded Lawshe's (1975) critical threshold of .75 (Table 2). Furthermore, The Scale Content Validity Index (S-CVI) of .95 supported the instrument's content validity. These results provide strong empirical support for the scale's content representativeness and relevance to the intended construct.

Findings on the Construct Validity of the PSCP Cognitive Engagement Scale

A confirmatory factor analysis was conducted using Mplus

8.1 to verify the two-factor structure of the 11-item PSCP Cognitive Engagement Scale identified through exploratory factor analysis. Results are displayed in Figure 1.

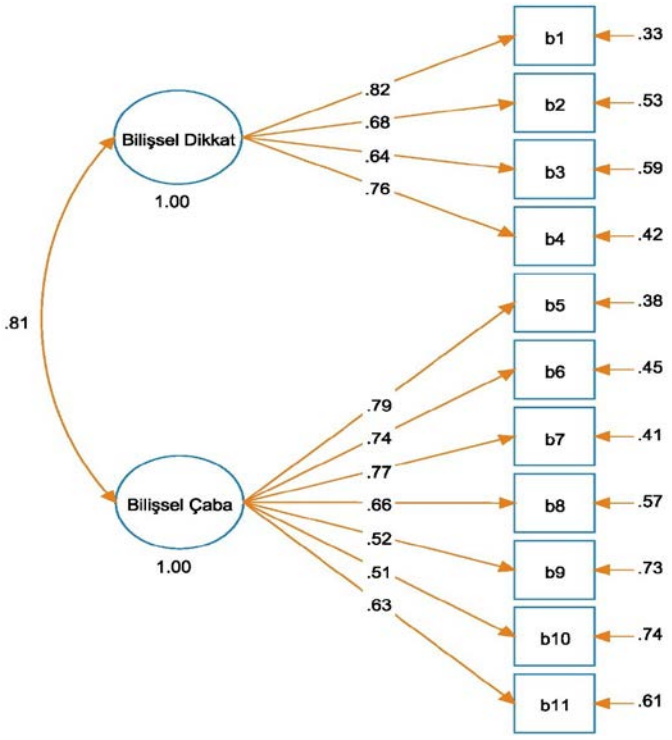

Figure 1.
Confirmatory Factor Analysis Model of the 11-Item PSCP Cognitive Engagement Scale

The confirmatory factor analysis revealed a two-factor structure (Figure 1), with Factor 1 including four items and Factor 2 including seven items. The measurement model demonstrated acceptable fit indices: X^2 / sd ≤ 4; X^2 (40) = 82.94; CFI = .97; TLI = .96; RMSEA = .06; SRMR = .04. All fit indices met the established thresholds (Kline, 2023), with CFI and TLI values exceeding .90, and both RMSEA and SRMR values falling below .08.

Following confirmation of the factor structure, Factor 1 (4 items) was identified as *cognitive attention*, while Factor 2 (7 items) was termed *cognitive effort*.

Findings on the Convergent Validity of the PSCP Cognitive Engagement Scale

To establish the convergent validity of the PSCP Cognitive Engagement Scale, we examined the item convergence within each factor and internal consistency (composite reliability). Average Variance Extracted (AVE) and Composite Reliability (CR) were calculated for both *cognitive attention* and *cognitive effort*. Initial analyses yielded AVE values of .53 and .44 for the first and second factors, respectively. Considering Hair et al.'s (2013) threshold criterion (.50), while the first factor demonstrated adequate convergence (.53 > .50), the second factor did not meet this threshold (.44 < .50). Consequently, Items 9 (λ = .51) and 10 (λ = .51), which exhibited the lowest factor loadings, were removed, and analyses were repeated. The results are presented in Table 3.

Table 3.
Convergent and Discriminant Validity Results of PSCP Cognitive Engagement Scale

	CR	AVE	√AVE
Cognitive Attention	.83	.52	.73
Cognitive Effort	.84	.53	.72

As shown in Table 3, the AVE values were calculated at .55 for the first factor and .51 for the second factor. Additionally, CR values were .83 for *cognitive attention* and .84 for *cognitive effort*. With both factors exceeding the recommended thresholds of .50 for AVE and .70 for CR (Hair et al., 2013), these results support the convergent validity of the nine-item PSCP Cognitive Engagement Scale.

Following the convergent validity analyses, the two-factor structure of the nine-item PSCP Cognitive Engagement Scale was re-examined. The confirmatory factor analysis, conducted using Mplus 8.1, yielded the model presented in Figure 2.

Figure 2.
Confirmatory Factor Analysis Model of The Nine-Item PSCP Cognitive Engagement Scale

Figure 2 illustrates the two-factor structure, with *cognitive attention* comprising four items and *cognitive effort* consisting of five items. The measurement model demonstrated acceptable fit indices: (X^2 / sd ≤ 4; X^2 (25) = 48.26; CFI = .98; TLI = .97; RMSEA = .05; SRMR = .03. All fit indices met the established thresholds (Kline, 2023), with

CFI and TLI values exceeding .90, and both RMSEA and SRMR values falling below .08.

Findings on the Discriminant Validity of the PSCP Cognitive Engagement Scale

To assess the discriminant validity of the PSCP Cognitive Engagement Scale, we examined the correlation between the *cognitive attention* and *cognitive effort* factors. As shown in Figure 2, the correlation between these factors was calculated at .81. According to the Fornell-Larcker Criterion, the correlation between two factors should be lower than the square root of their respective AVE values (Hair et al., 2013). However, as indicated in Table 3, the √AVE for the *cognitive attention* factor was lower than the interfactor correlation (.73 < .81). Similarly, the √AVE for the *cognitive effort* factor was also lower than the interfactor correlation (.72 < .81). These findings suggest that while the factors are related, they are not entirely independent constructs.

Hair et al. (2013) propose that examining cross-loadings provides an additional method for assessing discriminant validity. Accordingly, we analyzed both the primary factor loadings and cross-loadings for all nine items of the PSCP Cognitive Engagement Scale. The results are presented in Table 4.

Table 4.

Factor and Cross-Factor Loadings of PSCP Cognitive Engagement Scale

Item	Factor	
	Cognitive Attention	Cognitive Effort
1	.82	.42
2	.68	.28
3	.65	.17
4	.76	.41
5	.30	.79
6	.45	.74
7	.35	.77
8	.16	.66
9	.34	.62

For the *cognitive attention* factor, the cross-loadings ranged from .17 (Item 3) to .42 (Item 1). Similarly, for the *cognitive effort* factor, cross-loadings ranged from .16 (Item 8) to .45 (Item 6). Given that the difference between primary factor loadings and cross-loadings exceeded .10 for all items, these results provide evidence for the discriminant validity of the *cognitive attention* factor.

Findings on the Item Discrimination Analysis of the PSCP Cognitive Engagement Scale

To assess the item discrimination properties of the PSCP Cognitive Engagement Scale, data from 329 students were analyzed, with results presented in Table 5.

Table 5.

Item Characteristics of the PSCP Cognitive Engagement Scale

Factor	Item	Mean	Corrected Item-Total Correlation
Cognitive Attention	1. I always pay attention to what we learn in class.	3.63	.71
	2. I try to listen even when I cannot understand what the teacher is saying.	3.96	.62
	3. I pay attention to the teacher even when I find the topic boring.	3.34	.57
	4. I carefully follow instructions during class.	3.75	.67
Cognitive Effort	5. I try to understand my mistakes during class activities	4.10	.68
	6. I try to do in-class activities even when I find them difficult.	3.92	.68
	7. I make an effort to achieve my learning goals.	4.13	.68
	8. I try to connect new information with what I already know.	4.06	.54
	9. I try to discover new information about what we learn in class.	3.64	.57

Note: The items presented in Table 5 are English translations for publication purposes. All psychometric analyses and reported findings are based on the Turkish version of the scale.

As shown in Table 5, the corrected item-total correlation coefficients ranged from .54 to .71. Considering Büyüköztürk's (2018) recommended threshold of .30 for acceptable item-total correlations, these results indicate that the scale items effectively discriminate between individuals who possess and do not possess the measured construct.

Additionally, to determine the scale's discriminative properties, data from the upper 27% (n = 89) and lower 27% (n = 89) of the sample were compared using an independent samples t-test. The analysis revealed mean differences ranging from 1.45 to 1.73 across items, with all differences reaching statistical significance ($p < .001$). These findings provide evidence for the discriminative properties of the scale items.

Findings on the Internal Consistency Reliability of the PSCP Cognitive Engagement Scale

The internal consistency reliability analyses yielded Cronbach's alpha coefficients of .83 for *cognitive attention*,

.85 for *cognitive effort*, and .89 for the overall scale. Additionally, McDonald's omega coefficients were calculated at .83 for *cognitive attention*, .83 for *cognitive effort*, and .88 for the overall scale. Given that these values exceed the recommended threshold of .70 (Büyüköztürk, 2018), the results indicate high internal consistency reliability for the scale.

Discussion

This study aimed to develop and validate an instrument to measure students' cognitive engagement in teaching and learning environments. The findings regarding the validity and reliability of the PSCP Cognitive Engagement Scale are discussed in light of the relevant literature.

Content Validity of the PSCP Cognitive Engagement Scale

To establish content validity, eight educational science experts evaluated the relevance of each item in the PSCP Cognitive Engagement Scale to its content domain. The data were analyzed and interpreted using Lawshe's method (1975). The content validity index of the nine-item scale exceeded the established content validity criterion. Similar studies in the literature employing Lawshe's method (1975) with eight experts have retained items with content validity indices of .75 or higher while eliminating items falling below this threshold (e.g., Silviana et al., 2024). Therefore, the content validity of the PSCP Cognitive Engagement Scale has been demonstrated through both Lawshe's method (1975) and alignment with existing literature.

Construct Validity of the PSCP Cognitive Engagement Scale

To examine the construct validity of the PSCP Cognitive Engagement Scale, exploratory and confirmatory factor analyses were conducted sequentially. Initially, data from 117 participants were analyzed using exploratory factor analysis to determine the scale's factor structure and number. The analysis revealed an 11-item, two-factor structure explaining 66.2% of the total variance. The first factor, consisting of four items, was named *cognitive attention,* while the second factor, consisting of seven items, was termed *cognitive effort*. During the convergent validity analyses, two additional items from the *cognitive effort* factor were eliminated. Subsequently, confirmatory factor analysis was conducted using data from 329 participants to examine the structure of the nine-item PSCP Cognitive Engagement Scale. The model fit indices demonstrated good fit, confirming a two-factor structure with nine items total: four items in the first factor (*cognitive attention*) and five items in the second factor (*cognitive effort*).

The validated factor structure of *cognitive attention* and *cognitive effort* aligns with existing cognitive engagement research in the literature. Barlow et al.'s scale (2020), which includes factors such as peer interaction, constructive notetaking, active processing, active note-taking, and passive processing, shows consistency with the *cognitive attention* and *cognitive effort* factors identified in the PSCP Cognitive Engagement Scale. Furthermore, examination of Burch et al.'s (2015) scale of in-class and out-of-class cognitive engagement reveals explicit references to attention, focus, and concentration in ten out of twelve items. Therefore, the factors and items in existing scales or subscales measuring cognitive engagement in the literature provide support for the factor structure of the PSCP Cognitive Engagement Scale.

Convergent Validity of the PSCP Cognitive Engagement Scale

To examine the convergent validity of the PSCP Cognitive Engagement Scale, CR and AVE were calculated. The CR values were .83 for *cognitive attention* (Factor 1) and .84 for *cognitive effort* (Factor 2), both exceeding the threshold criterion of .70 recommended by Hair et al. (2013). Additionally, the AVE values were calculated at .55 for *cognitive attention* and .51 for *cognitive effort*. In reviewing the literature, Appleton et al. (2006) assessed convergent validity by examining interfactor correlations in their scale development study. Although they did not report specific values, they indicated that the correlations were within acceptable ranges and supported convergent validity. Similarly, for the PSCP Cognitive Engagement Scale, both the CR values and AVE values calculated from factor loadings exceeded Hair et al.'s (2013) recommended threshold of .50. These findings provide evidence for the scale's convergent validity.

Discriminant Validity of the PSCP Cognitive Engagement Scale

Analyses examining the discriminant validity of the PSCP Cognitive Engagement Scale confirmed that all items' primary factor loadings exceeded their cross-loadings. Appleton et al. (2006) reported establishing discriminant validity for their scale, noting positive correlations between factors. Similarly, examination of cross-loading values for items in the PSCP Cognitive Engagement Scale provides evidence supporting its discriminant validity.

Item Discrimination Analysis of the PSCP Cognitive Engagement Scale

Item analyses were conducted to examine the discriminative properties of the PSCP Cognitive Engagement Scale items. Results revealed corrected item-total correlation coefficients ranging from .54 to .71. In reviewing cognitive engagement scale development studies, Appleton et al. (2006) reported removing items with inter-item correlations below .10. Similarly, in the present study, inter-item correlations were examined.

Following the pilot administration, although four items showed low inter-item correlations, they were retained for exploratory factor analysis due to their high corrected item-total correlations (.56 - .64). These items were subsequently eliminated following the exploratory factor analysis. Given that the corrected item-total correlations and inter-item correlations for the final nine-item scale exceeded the recommended threshold of .30 (Büyüköztürk, 2018), these findings provide evidence for the discriminative properties of the PSCP Cognitive Engagement Scale items.

Internal Consistency Reliability of the PSCP Cognitive Engagement Scale

To establish reliability evidence for the PSCP Cognitive Engagement Scale, Cronbach's alpha coefficients were calculated. The analyses yielded coefficients of .83 for the *cognitive attention*, .85 for the *cognitive effort*, and .89 for the overall scale. These values exceed Büyüköztürk's (2018) recommended threshold of .70 for acceptable reliability, thus supporting the scale's reliability. Additionally, McDonald's omega coefficients were examined, yielding values of .83 for *cognitive attention*, .83 for *cognitive effort*, and .88 for the overall scale. The consistency between Cronbach's alpha and McDonald's omega coefficients suggests robust internal consistency, with both methods confirming the scale's internal consistency reliability. These values indicate that both the overall scale and its factors (*cognitive attention* and *cognitive effort*) demonstrate strong reliability.

Conclusion and Recommendations

This study aimed to develop and validate and instrument to measure students' cognitive engagement in teaching-learning environments. Data were collected from university students learning English as a foreign language to establish the scale's content validity, construct validity, and internal consistency reliability. Content validity evidence was established through expert evaluation following Lawshe's (1975) method. Exploratory and confirmatory factor analyses were conducted to examine construct validity. Item analysis based on corrected item-total correlations was performed to determine internal consistency reliability, and Cronbach's alpha coefficients were calculated to assess scale reliability. The research resulted in the development of a nine-item scale with two factors (*cognitive attention* and *cognitive effort*). Based on the data collected and analyses conducted, the PSCP Cognitive Engagement Scale has demonstrated to be a valid and reliable instrument to measure students' cognitive engagement levels.

While this study makes a significant contribution to the literature by introducing the validated PSCP Cognitive Engagement Scale, certain limitations should be noted. First, despite comprehensive development and analysis procedures, the scale was tested with 446 university preparatory class students learning English as a foreign language. Consequently, the scale's applicability may vary across different student groups, age ranges, and subject areas. Additionally, the scale relies on self-reported data from students. Their self-assessments of cognitive engagement may not accurately reflect actual engagement levels due to factors such as limited self-awareness. Therefore, qualitative methods such as observations and interviews could be employed alongside the scale to determine students' cognitive engagement levels more comprehensively.

Based on the findings and limitations of this study validating the PSCP Cognitive Engagement Scale, several recommendations can be proposed for future research. Given that the current study's participants were university preparatory students learning English as a foreign language, future research should validate the scale's reliability and validity with undergraduate and graduate students across different academic programs. Additionally, since the scale was administered in face-to-face teaching-learning environments, its application could be extended to measure cognitive engagement in online learning contexts. Teachers and instructional designers could use the PSCP Cognitive Engagement Scale to measure students' cognitive engagement levels and subsequently design effective teaching-learning activities based on their findings. While this research successfully developed a valid and reliable instrument for measuring students' cognitive engagement, it did not propose specific teaching-learning strategies based on the scale's findings; therefore, the scale could serve as a tool for developing strategies that enhance students' cognitive engagement. Furthermore, the scale could be complemented with qualitative methods such as observations and interviews to identify factors influencing cognitive engagement.

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A Case Study on Effective Interaction in the ELT Classroom with the SETT Framework

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ABSTRACT

The ultimate goal of English Language teaching is to help learners attain effective interaction skills. It is necessary to observe and explore classroom interaction systematically and closely in order to reach this ultimate goal. Hence, this qualitative case study focuses on the differences between pre-service teachers (PSTs) and in-service teachers (INTs), particularly regarding how they managed and shaped interaction in the classroom via the Self Evaluation of Teacher Talk (SETT) framework (Walsh, 2006). The data for the study was collected from the transcriptions of the video recordings of English as a Foreign Language (EFL) 9th graders in a private high school setting in Türkiye. A total of 200 minutes of lesson time was transcribed for the INTs and 240 minutes of lesson time was transcribed for the PSTs. The Transana 2.10 version was utilized for the transcriptions (Woods, 2006). A micro-analytic perspective was adopted for the transcriptions of recordings and two coders coded the transcripts using the SETT framework. Frequencies and percentages of the categories in the framework were compared and it was observed that while INTs used all classroom modes with varying frequencies, PSTs tended to use specific modes more frequently than others. The differences were observed to affect the resulting interactional patterns in the classroom. The study elaborates on these differences and their impact on the training of pre-service teachers.

Keywords: SETT framework, English language teaching, pedagogical goals, classroom interactional competence, Pre-service teachers, in-service teachers.

Introduction

There has been a surge of research interest into interaction and interactional competence over the last two decades as there has been a shift of focus from teacher-centered to student-centered classrooms. In the 21st century's exponentially diverse educational landscape, the importance of interaction and interactional competence have been accentuated in today's language teaching classrooms. As noted by Kramsch (1986), effective communication relies on certain parameters such as shared background knowledge, and a clear understanding of the internal and external dynamics of the communicative settings, which are considered the building blocks of interactional competence. A deep understanding of interactional competence can be regarded as the key to successful classroom interaction as well. The effective management of classroom interaction goes beyond teachers' display of their high level of linguistic competence since it requires close scrutiny of the classroom dynamics. Language teachers play a pivotal role in shaping student contributions in the language classroom. They are engaged in providing knowledge related to language structures for the students and in providing them with an opportunity to use that knowledge in communication situations by acting as models and participants in interaction. In this respect, language teachers are the key figures in L2 contexts who can shape and manage interaction to foster students' learning processes. Learning can be described as an interactive process that involves the engagement of teachers and learners in knowledge co-construction (Breen, 1998; Bruner, 1990; Vygotsky, 1998). Despite the pivotal role teachers play in managing and shaping learner interaction, particularly novice teachers are likely to have certain challenges in this regard. In fact, The SETT framework (Walsh, 2006) has been developed as a tool that is likely to foster relatively inexperienced teachers' reflections on their L2 classroom interaction (Sert, 2010).

The SETT framework attempts to categorize features of teacher talk under four main modes labeled by Walsh (2006) as managerial, materials, skills and systems and classroom context modes. These modes involve certain pedagogical goals and interactional features which function as interactional tools that could be used to achieve those goals. For instance, the managerial mode contains the interactional feature "to transmit information", which

could be performed by "a single, extended teacher turn …" (Walsh, 2006, p. 66). Table 1 below presents an overall view of the SETT framework with all pedagogical goals and related interactional features (Walsh, 2006, p.66).

Some examples of specific interactional features of the SETT framework could be listed as corrective repair, minimal repair, the utilization of transitional markers and content feedback (Ekinci, 2020; Yauwangsa & Wijaya, 2016). What is referred to as repair has been defined by Schegloff (1987) as handling problems in speaking, hearing, or understanding what has been said within the organization of talk-in-interaction. The repair can be in the form of corrective repair which offers an overall correction of the ambiguous portion of the talk or minimal repair in which only partial correction is provided by the teacher. The way repair is handled by the teacher is also crucial in language classrooms since using corrective repair extensively can hinder students' language development and has not been proven to improve students' ability to use language correctly while speaking (Truscott, 1999).

Table 1.
The SETT Framework (Walsh, 2006, p. 66)

Mode	Pedagogic Goals	Interactional Features
Managerial	Information transmission, organization of the physical learning environment, directing learners to use learning materials, introducing and concluding activities, alternating between learning modes	Extended teacher turns, transitional markers, confirmation checks
Materials	Provision of language practice through materials, eliciting responses from learners in relation to materials, checking and displaying answers, evaluating learner contributions	The IRF pattern, display questions, form focused feedback, corrective repair, scaffolding
Skills and Systems	Enhancing learners' accuracy, enhancing learners' manipulation of the target language, provision of corrective feedback, provision of subskill practice for learners, displaying accurate responses	Direct repair, scaffolding, extended teacher turns, display questions, teacher echo, clarification requests, from focused feedback
Classroom Context	Enhancing clarity in learners' self-expressions, context creation, oral fluency development	Extended learner turns, short teacher turns, minimal repair, content feedback, referential questions, scaffolding, clarification requests

One of the important points highlighted by Walsh (2002) is the significant role the teacher plays in coordinating classroom communication which could either positively or negatively affect student participation. Recent studies focusing on SETT framework (Ghafarpour, 2017; Li & Walsh, 2023) highlight benefits such as enhancing language teachers' cognition as well as their pedagogical and practical knowledge in addition to raising interactional awareness. The comprehensive nature of the SETT framework in the sense that it covers all aspects of teacher talk and the opportunities it creates for reflective practices makes it a valuable tool for teacher training programs, which is a fact pointed out in the literature as well (Seedhouse, 2004; Walsh, 2006, 2011, 2013; Huan & Wang, 2011; İnceçay, 2010; Sert, 2010, 2019). The SETT framework has been widely researched in reference to experienced in-service teachers; however, there are relatively fewer studies on pre-service teachers on the subject in the extant literature (Aşık & Kuru- Gönen, 2016; Korkut & Ertaş, 2017; Sert, 2010). It has been suggested that the SETT framework would increase pre-service teachers' awareness of their own classroom practices and foster their decision making and pedagogical reasoning processes and, as a result, assist them in enhancing learners' language development and oracy (Aşık & Kuru-Gönen, 2016; Korkut & Ertaş, 2017; Saeedian & Ghaderi, 2023; Sert, 2010; Ünal et al., 2019; Wa'siah, 2016; Walper et al., 2024).

The importance of Classroom Interactional Competence (CIC) as a field of research for providing opportunities to shape classroom interaction has been acknowledged recently. To date, the number of comparative studies related to the employment of classroom interactional features by in-service teachers and pre-service teachers is relatively scarce. In addition, the SETT Framework has recently emerged as an area of growing research interest in the Turkish context. To illustrate, in a study into the pre-service and in-service teachers' employment of the materials mode, Korkut and Ertaş (2017) highlighted the impact of the local context and culture on the classroom community and classroom practices and recommended that the local context should be taken into consideration in the frameworks that attempt to analyze classroom

interaction, such as the SETT Framework (Walsh, 2006). Similar suggestions have been made elsewhere in the literature regarding L1 use in other ESL/EFL contexts such as India (Pande, 2019). Another recent study analyzing the use of language and goals of pedagogy in respect to classroom modes put forward in Walsh's framework was conducted by Şimşek and Kuru-Gönen (2020). Their study explored the question types asked by teachers and found that types of questions were aligned with the pedagogical goals, i.e., referential questions were associated with the classroom context mode, and display questions were associated with the materials mode and skills and systems mode. Yang's (2010) study examined the functions of different question types such as elliptical questions, WH questions and polar questions in information exchanges in EFL classroom discourse. One conclusion from her study is that EFL teachers tended to use more WH questions compared to polar questions. Erlinda and Dewi (2014) categorized questions into types according to their purposes: procedural, convergent and divergent questions. Among the three question types, divergent questions are the ones that require higher-order thinking on part of the learners and, therefore, elicit longer and more complex responses according to previous research (Anderson, 2012; Öztürk, 2016). The use of questioning was found to hinder learning opportunities in some studies such as Chafi and Elkhouzai (2014). In this study, the researchers observed that teachers used questions mostly as a tool to control the class and to support their teaching, rather than invite opinions and hypotheses from the learners (see also Pande, 2019).

Using the SETT framework can also shed light on the way classroom interaction is shaped by the use of certain features such as teacher talk. Wasi'ah (2016) examined how the teacher incorporated different interactional teacher talk features in the language classroom. The examination revealed that out of 14 interactional features 11 were performed and that the teacher talk varied in line with the activity types employed in the classroom. For example, certain interactional features such as turn completion and form-focused feedback did not emerge in the classroom talk and among the features of the teacher talk employed, only teacher interruption did not fulfill any pedagogic goal. Similarly, in a study by Yauwangsa and Wijaya (2016), the classroom activity and interaction were shown to be interrelated, and the mode employed was found to encapsulate how language is used and how it is related to the purpose of teaching. In a more recent study by Pande (2019) a revised version of the SETT framework was used with the purpose of raising awareness of in-service teachers about their classroom discourse and find out the main interactional patterns they preferred. The study revealed how teachers could create interactional space in the classroom by benefiting from the framework's reflective approach.

Purpose of the Study

In order to extend the studies on CIC by including a comparative perspective regarding the interactional features and pedagogical goals of INTs and PSTs that the SETT Framework comprises, the current study attempts to further examine teacher talk specifically employed by INTs. Hence, the following research questions were addressed:

1. Are there any differences between INTs and PSTs in terms of the use of pedagogic goals and interactional features of L2 classroom modes as classified in the SETT framework?
2. Are there any differences between INTs and PSTs in terms of expressions employed to realize various classroom modes?

Method

Research Design

The qualitative case study design was adopted in the current study. Yin (1994) defined a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident…[and] relies on multiple sources of evidence" (p. 13). Case studies are relevant in situations where the purpose is to carry out in-depth analyses of certain phenomena. In fact, the current study focused on the thorough analysis of pre-service and in-service EFL teachers' teacher talk regarding how they managed interactional opportunities in L2 classrooms. Qualitative researchers emphasized the socially constructed nature of reality and the close relationship between the researcher and the subject of study (Denzin & Lincoln, 2005). The aim of the present study was to conduct an in-depth investigation of the interactional features of both types of EFL teachers from both an emic perspective (i.e., to gain an understanding of how teachers shaped and managed interactional opportunities in their local contexts) and from an etic perspective (i.e., to analyze how teachers navigated the classroom interaction in context from the teacher educators' perspective).

Data Collection

The data were collected via transcriptions of video recordings of English courses from the ninth grade. The researchers used a high-resolution camera with a tripod to record the lessons. The positioning of the camera in the classroom was arranged in such a way so as not to distract the students' attention and was left in the same position

throughout the lesson. For INTs, the transcription corpus was composed of lesson recordings that are 200-minutes in length, while the transcription corpus for PSTs contained 240- minute lesson recordings. The total length of transcriptions in the study corpus was approximately 7.3 hours.

The ethical process in the study was as follows:

- Ethics committee approval was obtained from Kırıkkale University, Social Sciences Ethics Committee (Date: 09.06.2020, Number: 2020-03/08)
- Informed Consent: Written informed consent was obtained from pre-service teachers who participated in this study.

Data Analysis

The transcriptions in the study corpus were coded in accordance with the modes and interactional features in the SETT framework (Walsh, 2011). The Transana 2.10 version (Woods, 2006) were employed in the coding process and edited by two experienced coders who are both EFL teacher educators. A relatively high level of interrater reliability (90%) was attained in the coding process. The raters were engaged in a negotiation process related to the codes when there was a lack of agreement in order to reach a consensus. The coded transcriptions were examined for the frequency of teacher talk elements via AntConc 3.4.4 concordancing software (Anthony, 2014).

Results

The findings revealed certain differences between PSTs and INTs in terms of the use of pedagogic goals and interactional features of L2 classroom modes in the SETT framework as well as the expressions they used to realize these modes. These differences were displayed from a comparative perspective in this section. Both parties' pedagogical goals and the interactional features aligned with these goals pertinent to each mode in their classroom practices were displayed separately in sub-sections. Table 2 displays the frequencies and percentages regarding the employment of classroom modes for both types of teachers.

Table 2.

Comparison of the use of classroom modes by in-service and PSTs

Mode	INTs		PSTs	
	Frequency	%	Frequency	%
Managerial	137	22.5	164	47.8
Materials	326	53.4	152	44.3
Skills and Systems	37	6.1	1	0.3
Classroom Context	110	18	26	7.6
	610	100	343	100

The results of the analysis of teacher talk by in-service and pre-service teachers highlighted different degrees of variation in terms of their management of interactional opportunities in class as shown in Table 2 above. The differences in terms of the frequency of their mode use pointed out differences in terms of the way both teacher types orchestrated the classroom interaction in their classes. To elaborate, PSTs were found to employ the managerial mode (47.8 %) more dominantly compared to INTs (22.5%). The two most frequently used modes by PSTs were managerial (47.8%) and materials (44.3%), whereas they never used the skills or systems mode and only occasionally (7.6%) used the classroom context mode. The order of frequency in using the modes differed between the INTs and PSTs as such: while the INTs tended to employ the materials mode most frequently (53.4%) followed by the managerial mode (22.5%), the classroom context mode (18%) and the skills and systems mode (6.1%) respectively; the PSTs tended to use the managerial mode most frequently (47.8%) followed by materials mode (44.3%), the classroom context mode (7.6%) and lastly the skills and systems mode (0.3%) respectively.

The Employment of the Managerial Mode by INTs and PSTs

Figure 1 below illustrates the comparison of the use of managerial mode by INTs and PSTs in terms of frequency. In the figure, pedagogical goals of the managerial mode have been represented as subcategories of the mode with the codes: M01-M02-M03-M04 and M05. M01 represents transmitting information; M02 represents organizing the physical learning environment; M03 represents referring learners to materials; M04 represents introducing and concluding an activity; M05 represents changing from one mode of learning to another (Walsh, 2006).

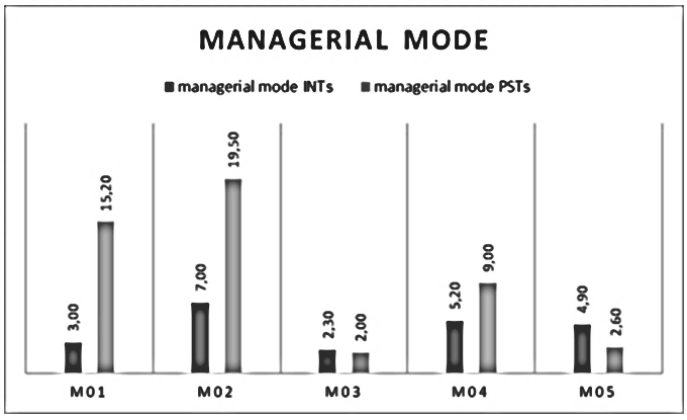

Figure 1.
Comparison of Managerial Mode Use by in-Service and PSTs

As illustrated in Figure 1, except for a small difference in the sub-category M3, all categories of the managerial mode were found to be more frequently employed by PSTs. Overall PSTs used the managerial mode more frequently than INTs (PST 47.8, in-service 22.5%). Most frequently used sub-categories in this mode are M02 (PST 19.5%, in-service 7%), M01 (PST 15.2%, in- service 3%) and M04 (PST 9%, INT 5.2%) respectively.

The following transcription from the corpus extract has been coded for the managerial mode subcategories according to the SETT framework. The code M01 represents the pedagogical goal 'transmitting information with explanations or instructions' (lines 4-11, lines 13-19). The code M02 represents the pedagogical goal 'organizing the physical learning environment'.

In lines 01-03 in Extract 001 below, the PST is preparing the students for a classroom activity and is organizing the physical learning environment by giving instructions about how to get into groups. She continues using the managerial mode throughout lines 4-11 in an extended teacher turn without learner contributions. Throughout lines 4-11, she gives detailed instructions about how the students are going to carry out the activity. The comparison of the frequency of the managerial mode use shows that PSTs used this mode more than INTs.

```
01 |M02|Are you all settled?
02 |M02| All number ones are here, right?
03 |M02| Number twos, number threes, perfect.
04 |M01| So I'm going to distribute these worksheets to you but first
05 |M01|listen to me while I give you the instructions. OK?
06 |M01| You are representing a political party remember and
07 |M01|there is going to be an election soon so
08 |M01|you must decide things,
09 |M01|you must be promising.
10 |M01|You must change the system.
11 |M01|Do something interesting to get the votes. The activity is...
```

Figure 2.
Extract 001. Managerial Mode (PST)

This high frequency may be attributed to several factors. Firstly, compared to INTs, the PSTs have not spent enough time with the learner group to establish familiarity with their group dynamics. Secondly, they may feel unfavorably affected by the teaching anxiety imposed by the supervision requirement of the practicum course. They also seem to feel obliged to adhere to the lesson plan they prepared before the implementation in the classroom and leave little space for improvisation.

```
001    (3.8)
002    T:    oka:y do it as do it as soon as possible
003    let's not lo:se time (1.3) tamam    quick quick
004    (4.1) ((Ss try to sit on their chairs)
005    what are you waiting for?
006    14.4) ((Ss sit on their chairs))
007    oka:y are we missing someone?
008    Sx:    s2
009    Sx:    s3
010    T:    s1 were you missing there in the previous cla:ss
011          (1.6)
012    S4:    geçen ders yoktun diyo
013    Ss:    (inaudible voices)
014    T:    what was it the:n (2.2) it's oka:y (1.8) ↑all right
015    so: ↑are you finished with your (inaudible voices)
016    design hu:h?
017    S1:    no:
018    T:    almost finished
```

Figure 3.
Extract 002. Managerial Mode, in-service Teacher 2

In Extract 002 chosen from in-service Teacher 2, the teacher opened the lesson by using the managerial mode. However, as compared to the PST, the in-service teacher seemed to try to limit the use of this mode, which is indicated by the use of words such as 'tamam (OK), quick quick'. In the first lines 001 through 013, she focused on managing the physical environment and getting the students settled after which she changes the students' focus on the activity by asking "Are you finished with your design?". This expression created a link with the group activity started in the previous lesson by the PST (see Extract 002). The difference between the use of managerial mode by the in-service teacher and the PST is that while the in-service teacher tried to keep it as short as possible, the PSTs included many more details in the instructions.

The Employment of the Materials mode by in-service and PSTs

Figure 2 illustrates the comparison of the use of the materials mode by in service and PSTs in terms of frequency. In the figure, pedagogical goals of the materials mode have been represented as subcategories with codes MT01-MT02-MT03-MT04 and MT05. MT01 represents providing practice opportunities related to materials; MT02 represents eliciting responses regarding the material; MT03 represents checking and displaying answers; MT04 represents clarifying when necessary; MT05 represents evaluating contributions (Walsh, 2006).

As presented in Table 1 earlier in the paper, overall INTs in the study employed the materials mode more frequently than PST (in-service 53.4%, PST 44.3%) although the difference is not very remarkable. As illustrated in Figure 4, in terms of the sub-categories of this mode, the most

preferred sub-categories are MT02 and MT05 respectively. Both in-service (29.5%) and PST (29.2%) teachers employed MT02 while eliciting responses in relation to the material most frequently in this mode. Evaluating contributions (MT5) is the second most frequently employed sub-category in the materials mode by both in-service and PSTs, however, more frequently used by INTs (16.4%) than PSTs (7.6%).

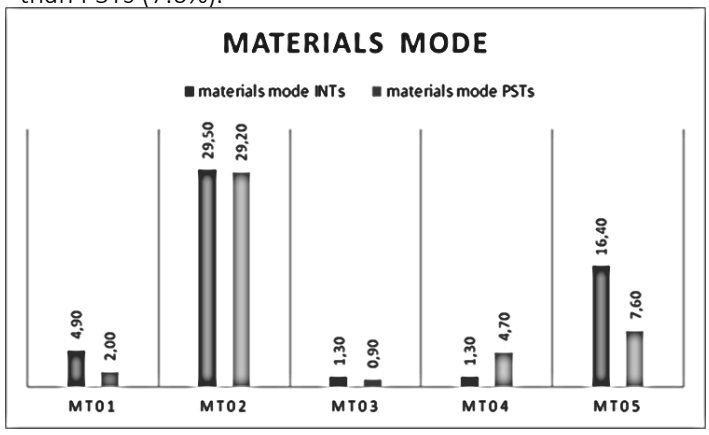

Figure 4.

Comparison of materials mode use by INTs and PSTs

Extract 003 below highlights a sample extended teacher turn in which the teacher provides clarification on a particular vocabulary item unfamiliar to students. The teacher introduced the vocabulary item (line 154) and illustrated how to use the word in context (lines 159, 161).

```
154   T:      chagrin yea:h
155   S10:    huh
156           (3.1) ((T approaches to s10))
157   T:      to my chagrin
158           (1.5) ((T writes it on the board))
159           for instance to my chagrin
160           (1.9) ((T walks))
161           a:ll our students go:t lower marks than i expected
162           (1.1) ((T looks at ss))
163           oka:y? yeah to my chagrin not too formal
164           you can use it in daily language. oka:y
165           (0.8) ((T looks at her course book))
166           fr↑iends:
                                    +claps her hands
```

Figure 5.

Extract 003. Materials mode (in-service teacher #1)

This extract also represents a feature of INTs: the creation of an incidental learning opportunity for students in the classroom context. Although the vocabulary item 'chagrin' was not a target word to be learned in the lesson, the teacher diverted from the lesson to explain the word in detail. This kind of divergence was not observed in the extracts of PSTs.

```
154   T:      chagrin yea:h
155   S10:    huh
156           (3.1) ((T approaches to s10))
157   T:      to my chagrin
158           (1.5) ((T writes it on the board))
159           for instance to my chagrin
160           (1.9) ((T walks))
161           a:ll our students go:t lower marks than i expected
162           (1.1) ((T looks at ss))
163           oka:y? yeah to my chagrin not too formal
164           you can use it in daily language. oka:y
165           (0.8) ((T looks at her course book))
166           fr↑iends:
                                    +claps her hands
```

Figure 6.

Extract 004. Materials Mode (in-service teacher #2)

In Extract 004, the teacher provided extensive explanations to clarify the meaning of 'aerospace engineer', a vocabulary item in the passage. This extract displays an example of the use of materials mode in the SETT framework. This kind of clarification did not seem to provide much interactional space as the interaction taking place was structured around the material specifically in the study.

In Extract 005 below, the teacher tried to elicit responses related to the material- the reading passage- by providing clues to activate the students' content schemata about the subject (e.g., Murphy's law). Although the teacher failed to elicit a response from the students on the first trial, she keeps on using scaffolding by rephrasing her clue.

```
078   S5:     °inaudible voices°
079   T:      so: let me: ask you: a question. and it will be a clue: for you
080           (0.5) hmm:? if you drop a piece of nice: (.) slice of brea:d
081           and you: (.) you just put on a lo:t of nutella on i:t a:nd
082           if you dro:p it on the floor. which site on the floor
083           does it face?
084   Sx:     er:
085   T:      i mean which side on the floor does it face?
086   S1:     er:
087           (2.5)
088   T:      which si:de [does it ↑fall on? (.) usually
```

Figure 7.

Extract 005. Materials Mode (in-service teacher #2)

The Employment of the Skills and Systems mode by in-service and PSTs

Providing language practice related to a specific kind of language skill or system is one of the mode's pedagogic goals (Walsh, 2006). This mode is, therefore, more accuracy oriented rather than fluency oriented. Figure 8 below illustrates the comparison of the use of the skills and systems mode by in-service and PSTs in terms of frequency. In the figure, the pedagogical goals of the materials mode have been represented as subcategories with codes SS01-SS02-SS03-SS04 and SS05.

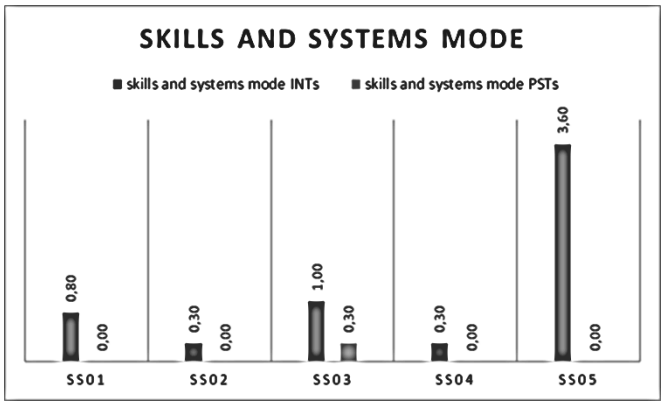

Figure 8.

Comparison of Skills And Systems Mode Use by in-Service and PSTs

Respectively, the codes represent the following pedagogical goals: to give students practice in sub-skills, to show them the right answers, to let them manipulate the target language, to let them produce the right forms, and to give them constructive criticism (Walsh, 2006).

As displayed in Figure 8, the skills and systems mode was the least observed category in the classes of PSTs. The use of this mode was rather infrequent by PSTs. Only one instance of SS03, providing corrective feedback, was observed. On the other hand, although with low frequency, the INTs were observed to use the skills and systems mode more than the PSTs, the most frequent being SS05, displaying correct answers.

```
291  S16: ye[s::]
292  S11:    [yes]
293  T:   huh hu:h a:nd er: what's you:r reaction to: >i mean<
294       what is your policy about the: °(s16)°
295  S16: ye:s. i will do the (.)  we can make we can take mo:ney
296  T:   u::h you would charge money
297  S16: huh hu:h
298  T:   to the university students. oka::y and wh:y?
299  s16: because er: (1.2) we did we wrote (0.8)
```

Figure 9.

Extract 006:Skills and Systems Mode (in-service Teacher #2)

The Employment of the Classroom Context Mode by INTs and PSTs

Figure 10 below illustrates the comparison of the use of the classroom context mode by in-service and PSTs in terms of frequency. In the figure, pedagogical goals of the classroom context mode are represented as subcategories with codes CC01-CC02 and CC03. Respectively, the codes represent the following pedagogical goals: CC01, to enable learners to express themselves clearly; CC02, to establish a context; CC03, to promote oral fluency (Walsh, 2006).

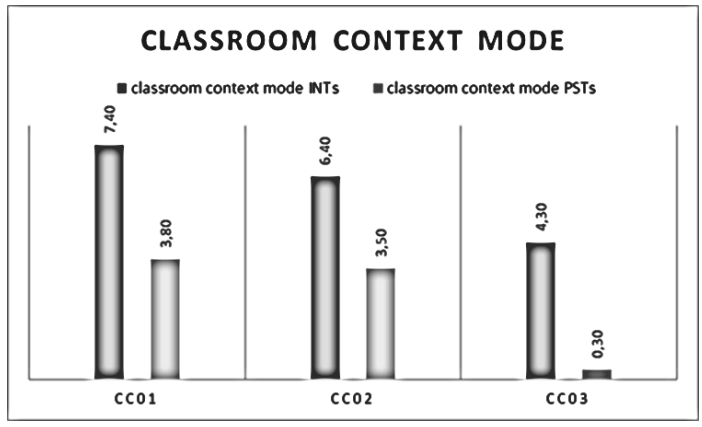

Figure 10.

Comparison of Classroom Context Mode Use by in-Service and PSTs

As shown in Figure 10, PSTs did not seem to be able to employ the classroom context mode as much as INTs. This difference can be attributed to the particularity principle put forward by Kumaravadivelu (2001). Since the INTs were highly familiar with the group of learners, their characteristics, and classroom culture, they were likely to shift to the classroom context mode more confidently than PSTs.

In Extract 007 below, the teacher used the student response on Line 10 to create a context, encourage conversation, and discussion. The activity was a warm-up activity that was conducted at the beginning of the lesson. The teacher elicited random vocabulary items from the students that they used in their daily life and checked whether they knew the meaning of these items. In addition to acting as a warm-up for the lesson, in respect to the classroom context mode, this activity provided learners with practice in a sub-skill, vocabulary. This extract is an example of the display of Teacher Language Awareness (TLA), which promotes the educator's role as mediator (Sert, 2019). By creating this interactional opportunity in the warm-up session, the teacher, in fact demonstrated her awareness of the contribution of classroom interaction to learning (Andrews & Lin, 2018).

```
001   T:     s1?
002   S1:    (tipeks) er:: (inaudible voices)
003   T:     ↑ye::s to find another wo:rd
004          (1.2) ((T looks at ss))
005          for the next ti:me
006          (1.0) ((T looks at her course book))
007          s2 ye:s?
      S2:    +looks at s2 er:: padlock
008
009   T:     >↑what is it<
010   S2:    asma kilit
             padlock
011   T:     ↑ye:s do you eve- (.) do you u:se
             padlock?
012   S2:    yes:
013   T:     whe::re?
014   S2:    in my archery:
015   T:     huh your archery but n↑o:t in your e:r
             house?¤
              +shakes her right hand
016   S2:    no: [do you mean
017   T:     [you don't lock you:r
018   S2:    i u:se (inaudible voices)
019    T:     oka:y
020           (1.8) ((T writes))
021           padlock do you use it for your locker?
```

Figure 11.
Extract 007; Classroom Context Mode (in-service Teacher #1)

Discussion

The study revealed that INTs and PSTs chose to generate interaction opportunities for EFL learners and shaped their interactions in different ways and to varying degrees. Although the PSTs were inclined to focus on the managerial and materials modes at the expense of the classroom context and skills and systems modes, the INTs were observed to utilize all interactional modes with a range of frequencies. PSTs seemed to be frequently preoccupied with failing to have full control the classroom and students' behavior, and they were concentrated on this problem by taking more managerial actions. Since they were also observed by their mentors, they may have felt the pressure to fulfill the expectations of their mentors by using more extended teacher turns with detailed instructions and explanations.

PSTs' dispreference regarding the skills and systems mode could signal their challenge with providing an elaboration on the student responses as novice teachers. Although they used scaffolding, they did not seem to attach importance to providing learners with opportunities to practice sub-skills. They did not seem to provide additional learning and practice opportunities for students within an activity by occasionally diverting from the lesson plan. The PSTs did not prefer to get students engaged in the negotiation of meaning, which is likely to increase their involvement in the lesson via turn-taking moves, scaffolding and information exchanges. They did not appear to shape student responses by providing effective corrective feedback, which is classified under the skills and systems mode in the framework. Instead, they were inclined to give the correct answers themselves. They did not often tend to encourage the students to find the correct answers. As the PSTs were under time pressure to implement a lesson plan thoroughly, they may have focused more on the completion of their plan rather than on the learners. In addition, PSTs tended to use fewer referential questions, which may have led to short learner turns and a lack of extended dialogue and discussions between the learners. To promote PSTs awareness of interactional features embedded in the instructional processes, teacher educators need to be equipped with enhanced pedagogical knowledge regarding teacher talk. In fact, the study highlighted the need for a shift in the teacher trainer's role toward a "mediator of teacher development" in their self-inquiry (Zolghadri et al., 2019, p. 25) to promote the language teachers' professional development (See also Johnson & Golombek, 2018). However, this shift of roles can only be accomplished with a certain amount of exposure to the classroom culture of a specific group of learners in a specific context. This is strongly linked to the 'ecological theory of knowing' which puts forward the importance of situated learning providing evidence for CIC awareness (Given, 2008, p.239). The in-service teachers in their mediator role tend to grow into catalysts for what Kumaravadivelu (2003) calls "post-method teachers" (p.548), who are accustomed to transforming the classroom into a community of practice, creating an interaction-rich atmosphere. Different degrees of language awareness each EFL teacher possessed in the study as a user (the one who is in charge of choosing "the procedural use of interactures"), an analyst (the one who is equipped with the metalinguistic awareness regarding the classroom context and the contextualization of classroom discourse) and as a teacher (the one who has awareness of declarative knowledge of classroom context as well as the procedural awareness of the classroom interaction) might have an impact on the choice of interactures, their interpretation and acquisition in classroom interaction, as suggested by Zolghadri et al. (2019, p.8).

In relation to the implications of the current study, the provision of training for PSTS on reflective practices before their engagement in field experience can be considered to have a beneficial impact on their professional development and help them get over their fear of making judgments, evaluating themselves and reflecting critically, which was also stated in Aşık and Kuru-Gönen (2016). In addition, the integration of a self-reflection tool or framework into practicum classes has been proven useful by recent studies for increasing PSTs' awareness of classroom discourse and how it affects interaction and learning in the second language classroom (See also Yatağanbaba, 2020).

This study has certain limitations as well. First of all, since classrooms were observed with video cameras, the students and the PSTs may have felt camera anxiety. In order to minimize the camera effect, the camera was situated on a tripod and immobilized in class during the lesson. Due to time limitations and school regulations, the researchers were able to observe only the classes of two in-service teachers. Observing more in-service teachers would have yielded richer data. The study could be replicated with the participation of more teachers and more institutions both private and public. It might also be worthwhile to conduct a cross-cultural study exploring the similarities and differences in the teacher talk patterns and the impact of these on the learning processes of diverse learner profiles.

Conclusion and Recommendations

This study has provided valuable insights into how interaction opportunities are created and managed in EFL classrooms by INTs and PSTs, highlighting their differing approaches and challenges. While INTs demonstrated a more balanced use of interactional modes, PSTs focused predominantly on managerial and materials-based modes, often at the expense of fostering deeper learner engagement through skills and systems modes. The findings suggest that PSTs' limited use of strategies such as corrective feedback, negotiation of meaning, and extended learner dialogue may stem from their concerns about maintaining control, meeting mentor expectations, and adhering strictly to lesson plans. These factors appear to restrict their ability to create interaction-rich environments that support learners' development of sub-skills and communicative competence.

To address these challenges, the study underscores the importance of equipping PSTs with training that fosters reflective practices and enhances their awareness of classroom interactional features. The integration of self-reflection tools into teacher education programs could empower PSTs to critically evaluate and refine their interactional strategies, ultimately benefiting their professional growth and their students' learning outcomes. Additionally, teacher trainers must adopt the role of mediators, guiding PSTs toward becoming adaptive, post-method teachers who can create dynamic, community-driven classroom environments.

The current study emphasized the pivotal role the SETT framework played in promoting EFL pre- and in-service teachers' classroom interactional competence. It contributed to the extant literature in the field by shedding light into the impact of the framework on pre-service teachers' professional development, which received relatively scant attention so far. It underlined the relatively untapped pedagogical potential the SETT framework is likely to offer pre-service teachers as a self-evaluation tool and a critical reflection instrument (Aşık & Kuru-Gönen, 2016). In addition to promoting the pedagogical competence of pre-service teachers by enhancing their language awareness, reflexivity, decision-making and professional reasoning processes the SETT Framework provided them with guidelines for how to assist language and oracy development (Aşık & Kuru-Gönen, 2016; Korkut & Ertaş, 2016; Saeedian & Ghaderi, 2023; Ünal et al., 2019; Walper et al., 2024). The study also brought to the fore how the framework acted as a reflective lense for in-service teachers regarding how to generate and shape interactional space in the classroom (Pande, 2019). The integration of a training program into practicum classes on how to utilize SETT framework as a self-reflective tool in the pre-service-teacher education programs is likely to be quite beneficial in terms of raising pre-service teachers' awareness towards classroom discourse (see Yatağanbaba, 2020).

The emphasis that the SETT framework placed on the importance of adopting an ecological perspective and the situated and evidence-based classroom practices in the development of classroom interactional competence (Given, 2008) advocated a role shift for language teacher educators towards becoming mediators in teachers' professional development and fostering their self-inquiry

(Johnson & Golombek, 2018; Zolghadri et al, 2019). It provided ample insights for language teachers and teacher educators in terms of how to create an interaction-rich classroom context by operationalizing context-sensitive pedagogies, paving the way to becoming post-method teachers, as suggested by Kumaravadivelu (2003).

While this study has laid the groundwork for understanding the complexities of teacher talk in EFL contexts, its limitations call for further research. Future studies involving a larger and more diverse sample of teachers, as well as cross-cultural comparisons, could provide deeper insights into the interplay between teacher talk, classroom interaction, and learner outcomes. These efforts will contribute to a more nuanced understanding of how teacher education can effectively support the development of interactional competence among both novice and experienced teachers.

Ethics Committee Approval: Ethics committee approval was obtained from the Kırıkkale University, Social Sciences Ethics Committee (Date: 09.06.2020, Number: 2020-03/08).

Informed Consent: Written informed consent was obtained from pre-service teachers who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept-IGK,ETD; Design- IGK,ETD; Supervision- IGK,ETD; Resources- IGK,ETD; Data Collection and/or Processing- IGK,ETD; Analysis and/or Interpretation- IGK,ETD; Literature Search- IGK,ETD; Writing Manuscript- IGK,ETD; Critical Review- IGK,ETD.

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Information Literacy of University Teachers: Bibliometric Analysis with Scopus 1998 - 2023

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ABSTRACT

In the context of rapid developments in information technology, the need to enhance information literacy for students and lecturers in higher education institutions has become increasingly urgent. To effectively utilize various resources and online learning tools, and engage in scientific research activities, it is essential to equip individuals with adequate professional knowledge and information skills. The primary objective of this study is to explore the evolution of scientific publications regarding the quantity, development models, and research trends related to information literacy for university lecturers. We employed bibliometric analysis using VOSviewer software and RStudio integrated with Biblioshiny to evaluate 279 articles (comprising 231 journal articles, 25 conference papers, 17 book chapters, and six books) indexed in Scopus published from 1998 to 2023. The key findings reveal that the years 2021 and 2022 saw a notable surge in research (accounting for 23.7%). The study identifies the most prominent journals publishing case studies on digital technology in education, all of which are of high quality and rank highly within Scopus categories. Furthermore, the research highlights the distribution and trends of keywords, identifying the most influential countries and organizations in the field. Furthermore, the research highlights the distribution and trends of keywords, identifying the most influential countries and organizations in the field.

Keywords: Information literacy, information capacity, higher education.

Introduction

Information literacy has emerged as a critical competency for university faculty in the contemporary academic landscape. Research has demonstrated that e-information literacy positively influences teachers' information-seeking behaviors, thereby enhancing their ability to update their knowledge base and produce scholarly work (Bilawar & Pujar, 2016). Furthermore, information literacy significantly improves teachers' capacity to integrate technology effectively into their instructional practices, leading to enhanced teaching efficacy (Xu & Chen, 2016). A case study conducted at Amin University revealed that faculty members exhibited high levels of information literacy, particularly in the areas of identifying information needs and utilizing information effectively (Habibzadeh & Abdolrahmani, 2020). In the context of foreign language education in Chinese universities, the increasing significance of information literacy for faculty has been acknowledged, with calls for further research to address existing gaps in understanding and improving these skills (Cai, 2024). Collectively, these studies emphasize the indispensable role of information literacy in bolstering university faculty's professional competence and teaching outcomes.

Information Literacy in University

Information literacy has become a hot topic in higher education today. This concept revolves around equipping students with the necessary skills to search, evaluate, and effectively use information sources, thereby meeting the requirements of the learning and research process. Initially, discussions mainly focused on developing information skills training programs in university environments, especially the role of libraries. However, there is a growing view that the formation of information capacity needs to start early, right from the high school level and even in the working environment. UNESCO has affirmed that information literacy is a lifelong learning process (UNESCO, 2005). The ultimate goal is to help people confidently search, evaluate, and use information from various sources to serve life and work (Dangani, 2009).

Equipping university students with information capabilities is not only a requirement but also an investment for the future. Students with good information skills will easily succeed in study, research, and later in work, contributing to improving the quality of human resources for society.

Related Research

Many studies have been conducted to evaluate the impact of information competency on educational quality, student learning effectiveness, and changes in lecturers' teaching behavior. These studies show that information literacy has great potential for lifelong learning for students and faculty. However, there is a wealth of existing studies on information literacy covering concepts, historical perspectives, and overviews (Behrens, 1994), the role of information literacy (Nzomo & Fehrmann, 2020), global contextual analysis of information literacy in education (Julien, 2005), analysis and comparison of information literacy policies in European countries (Basili, 2011), as well as studies on information literacy in Southeast Asian countries (Saadia & Naveed, 2022).

Research Gap

In tandem with the advancements in technology and information within higher education, educational researchers have exhibited increasing interest in the topic of information literacy. Notably, several scholars have employed bibliometric methods to provide a systematic overview of the field (Bhardwaj, 2017; Kolle, 2017; Pinto et al., 2013).

Despite these contributions, several limitations persist within the existing literature. Kolle (2017), for instance, focused on a bibliometric analysis spanning 2005-2014, neglecting a specific focus on university lecturers. Similarly, Bhardwaj (2017) conducted a general bibliometric analysis of information literacy in the social sciences and humanities between 2001 and 2012. Pinto et al. (2013) also adopted a broad approach, analyzing bibliometric trends in the social sciences and health sciences from 1974 to 2011. Consequently, a comprehensive review of the current state of knowledge on information literacy for university teachers remains absent. This study aims to fill this void by conducting a comprehensive bibliometric analysis.

Research Questions

This study aims to answer the following research questions (RQ):

- RQ1. What is the status of publications and open access publications on information capacity by year?
- RQ2. Which countries and organizations are most influential in information literacy research?
- RQ3. Which journals were the most influential in this study?
- RQ4. Who are the most influential researchers?
- RQ5. Most cited articles?
- RQ6. What is the distribution and trend of keywords?

Method

Pritchard (1969) was the first to introduce the analysis of bibliometric indicators, and it has since become a popular tool for evaluating scientific advancement in numerous fields, both locally and globally. In this specific study, the method for data collection and analysis (Ha et al., 2020) was employed to conduct bibliometric analysis. Bibliometric analysis involves several descriptive statistics regarding the network of authors, journals, universities, countries, and research keywords through citation data and frequency analysis techniques. This research employs co-word analysis and co-occurrence analysis of research keywords. Co-word statistics allow us to explore the volume and common patterns of published studies on the topic of digital literacy for students.

Data collection

Scopus, Web of Science, and Google Scholar are the most widely used sources within the academic community. Google Scholar, recognized as a web-based database, excels at retrieving information on literature. In contrast, Scopus and Web of Science offer advantages in citation performance evaluation (Falagas et al., 2008). Furthermore, Scopus provides broader journal coverage compared to Web of Science (Hallinger & Nguyen, 2020; Pham et al., 2021; Singh et al., 2021). Consequently, Scopus was chosen as the primary source for data collection.

The keywords used by the author as search strings in this study are: “information skill, information competence, information literacy, information capacity”. In this research, the author focuses on literature related to the topic for university educators. The initial query was entered into the advanced search template of Scopus at 19:50 on August 14, 2024, which is presented below:

TITLE-ABS-KEY ("information skill*" OR "information competenc*" OR "information literacy" OR "information capacit*") AND (TITLE-ABS-KEY ("university teacher*" OR "university lecturer*") OR TITLE-ABS-KEY ((teacher* OR lecturer*) AND (universit* OR college OR "higher education*")))

The initial search resulted in 630 documents. The PRISMA guidelines for systematic reviews (Moher et al., 2009) were employed to refine these search results. Figure 1 illustrates the steps outlined in the PRISMA diagram. During the

screening phase, Scopus filters were utilized to eliminate irrelevant documents, based on the following criteria:

- Document types: article, conference paper, book, book chapter.
- Subject area: Social sciences, Arts and Humanities, Business Management and Accounting, Psychology, Decision Sciences, Economics Econometrics and Finance.
- Language: English
- Published year: exclude 2024

The dataset was initially narrowed down to 388 publications. A thorough review of titles, abstracts, and full texts was conducted to identify documents that were not relevant to the information literacy of university teachers. This process resulted in the elimination of 109 ineligible documents, leaving a final dataset of 279 records for analysis.

The ethical process in the study was as follows:

- Ethics Committee Approval: The author stated that ethical permission was not required for the study because humans and animals were not used. However, ethical guidelines were followed throughout the study.
- Informed Consent: No living beings requiring informed consent were involved in this study.

Data Analysis

The retrieved dataset was downloaded as a Microsoft Excel file. The file has 279 qualified records where author name is mentioned, author(s) affiliation(s), document name, genre source, document summary, author keywords, number citation date of the document, year of publication of the document, and references. This information is used for bibliometric analysis, which answers the RQ above. Each RQ is supported by two analytical methods: statistical description and scientific mapping. First, descriptive statistics list authors, authors with national relevance, author links, sources, and documents in information competency research for university lecturers based on index statistics. , for example, the number of publications, number of citations, and Hirsch index (h-index). In this phase, the application RStudio with the biblioshiny package, Microsoft Excel was applied to analyze and display the analyzed data. Second, the scientific map shows the relationships between related objects that involve authors, countries, sources, links, and documents in this study analyzed on the VOSviewer application. VOSviewer version 1.6.18 (https://www.vosviewer.com/) was used to visualize all scientific maps in this scholar.

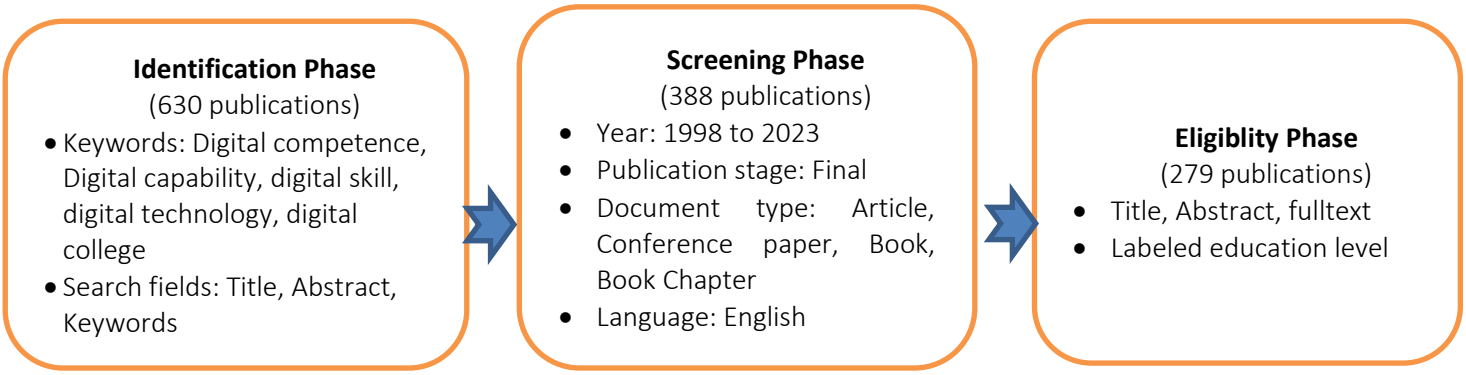

Figure 1.

Data Gathering Process Followed by PRISMA Guideline (Data Collected from Scopus [https://scopus.com/] on 4 August 2024

Result

General Information About Publication

Collection Analysis of 279 publications on information competencies for students on the Scopus database from 1998 to 2023 shows significant growth, especially in the recent period. Following 231 articles (83% of the publications), there are 25 conference articles (9%). In addition, book chapters have 17 articles (6%), and the number of books is not much, with six posts (2%). The first article on this topic was published in 1998 by Ercegovac, Z., as "Information Literacy: Teaching Now for the Year 2000." However, the number of studies increased dramatically only recently, with the years 2021 and 2022 recording the highest number of articles (n = 30, n = 36), accounting for 2.4% of the total number of publications. This shows the academic community's growing interest in information competency, especially in the context of strongly developing digital technology.

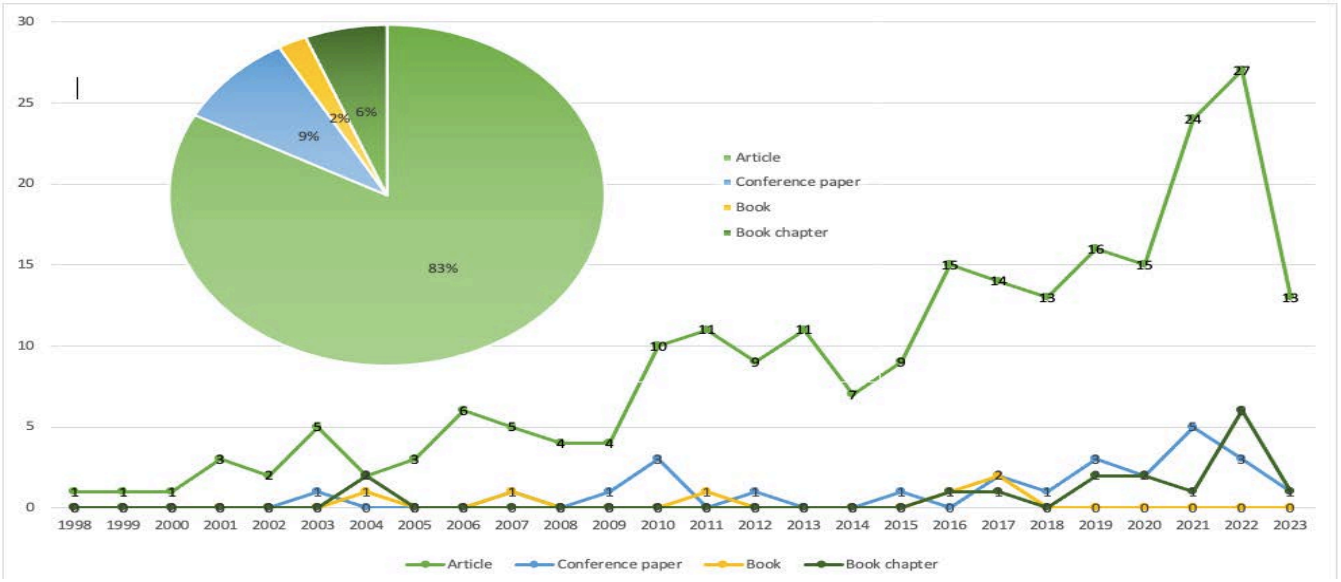

Figure 2.

Information Capacity Growth Trajectory from 2004 to 2023

Open Access Publications

Open-access publishing has become an important trend in current scientific research. According to data from Scopus, out of 279 publications, one-third (103 or 36.9%) are open-access publications and the first publication in this field appeared in 2003 according to Figure 3. Although There was steady growth over the years, in 2020, 2022, and 2023, the number of open-access publications surpassed non-open-access publications. This shows the growing trend of publishing research openly, helping to increase the accessibility and sharing of scientific information.

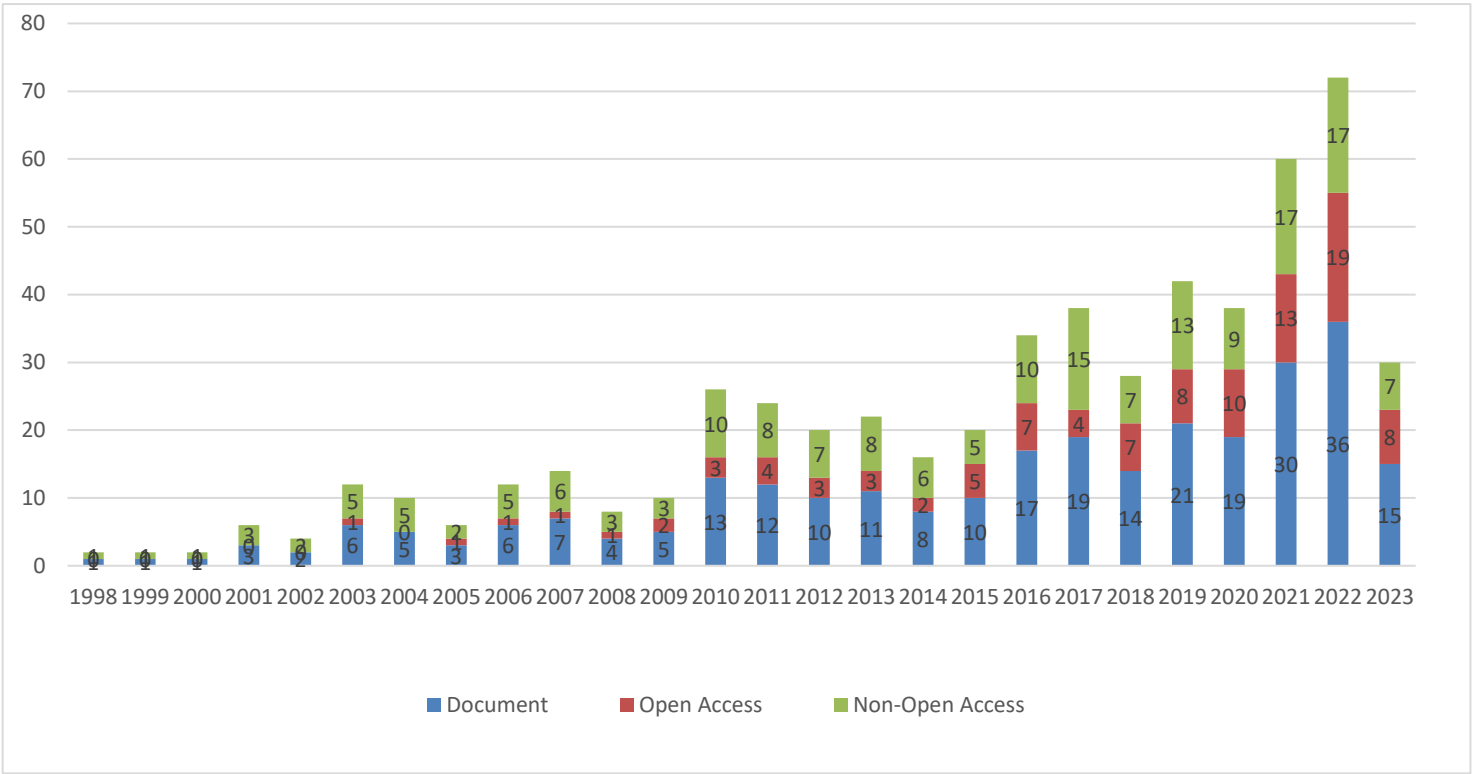

Figure 3.

Documents, Open Access and Non-Open Acces

Table1.

Top 10 Countries with the Most Articles

CR	Country	NP	%	TC	%
1	The US	72	25.8	699	23.5
2	Spain	21	7.5	415	14.0
3	China	20	7.2	101	3.4
4	Australia	17	6.1	193	6.5
5	Russian Federation	16	5.7	136	4.6
6	Nigeria	15	5.4	79	2.6
7	The UK	11	3.9	200	6.7
8	South Africa	9	3.2	50	1.7
9	Turkey	9	3.2	187	6.3
10	Malaysia	8	2.9	11	.4

Abbreviations: NP: Number of publications & TC: Total of citations

Table 1 presents the ten most productive countries based on a cumulative number of publications and citations. The United States outnumbered all other countries (n=72, accounting for 25.8% of all publications). Not only that, this country also excels in total citations with 699 citations (23.5% of total citations), equivalent to an average number of citations per document of 9.7. The second country in terms of number of publications is Spain (n=21, 7.5% of total). With an impressive average of 19.8 citations per document and 415 citations, the country has the highest average number of citations among the countries surveyed in this study. Next are China and Australia, with 20 (7.2%) and 17 (6.1%) publications, respectively, and 101 and 193 citations, respectively. The respective published lists are the Russian Federation (n=16), Nigeria (n=15), United Kingdom (n=11), South Africa (n=9), Turkey (n=9) and Malaysia (n=8). Among the remaining countries on the list, only the Russian Federation, the United Kingdom, and Turkey have several citations above 100 (n=136, n=200, n=187) while the rest have fewer than 100 citations and 100 quotes.

According to data from Scopus, 63 countries have publications related to information literacy for students. Figure 4 shows the transnational cooperation network consisting of 39 partner countries. Each node in Figure 4 represents a country, while the colors of the nodes represent clusters of links between countries. The node size corresponds to the number of publications, and the thickness of the lines connecting the nodes reflects the strength of transnational collaboration. Countries in this network have at least two publications related to the research topic published. The network built in Figure 4 shows the clusters: Yellow, blue, red, purple, and green. The countries listed in Table 1 also appear in this network. In the above analysis, the United States has a much higher number of publications than the rest, but cross-national research collaboration is more extensive in this country. Cooperation between the remaining countries is also very prosperous and diverse.

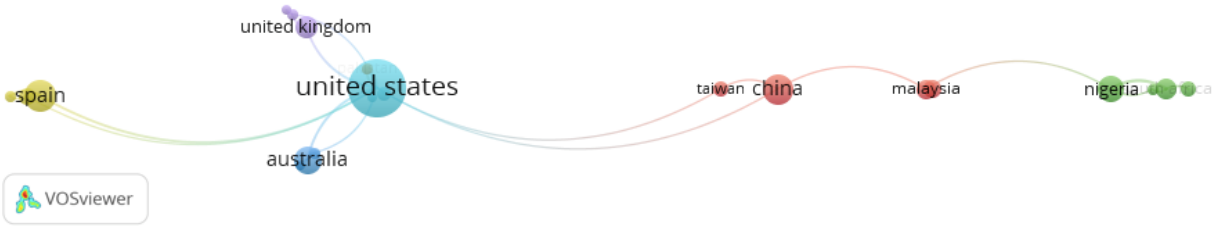

Figure 4.

Transnational Cooperation Network of 39 Partner Countries with 2 Publications (Source: Author's Own Compilation, Using VOSviewe

Figure 5 illustrates the change in research collaboration on faculty information competencies over time. Countries are classified according to the stage studied: gray for early, yellow for recent, and blue for middle. The United States, the United Kingdom, and Australia have cooperated closely from an early stage, while China has emerged as a research power in this field in recent years. However, the connection between China and other countries is still limited.

Figure 5.

Transnational Cooperation Network of 39 Partner Countries with 2 Publications Pouring In Over Time (Source: Author's Own Compilation, Using VOSviewer)

Most published source

Table 2.

Top 10 Journals with the Highest Number of Articles on Information Competency for Students

Rank	Sources	Country	NP	TC	Scopus*	H-index	PY_start
1	Library Philosophy and Practice	United States	16	45	Q3	27	2014
2	Journal of information literacy	United Kingdom	11	28	Q3	16	2014
3	Reference services review	United Kingdom	10	174	Q1	43	1998
4	Behavioral and social sciences librarian	United States	6	65	Q4	18	2004
5	International journal of emerging technologies in learning	Austria	5	49	Q2	46	2016
6	New library world	United Kingdom	5	42	-	-	2010
7	Australian academic and research libraries	United Kingdom	4	42	Q2	32	2005
8	Eurasia journal of mathematics, science and technology education	Turkey	4	63	Q2	56	2016
9	Sustainability	Switzerland	4	56	Q2	169	2021
10	International information and library review	United Kingdom	4	29	Q2	32	2011

Abbreviations: NP: Number of publications; TC: Total citations from https://scopus.com on 14 August 2024; &
* Data collected from https://mjl.clarivate.com on 14 August 2024

Collection of published publications from 279 different sources, including journals, scientific conferences, and book chapters. The ten journals that published the most articles related to information competency research for students are presented in Table 2. These top journals published 69 studies (24.7% of the total) and were cited 593 times (equivalent to 23.0% of 2.582) total citations. Library Philosophy and Practice is the journal with the largest number of publications in this field (16 articles), followed by the Journal of Information Literacy (11 articles), and Reference Services Review is third (10 articles). The remaining sources published 4 to 6 publications. Among the ten journals, there are six journals in Q1 and Q2, showing the importance of information competency research for students.

Table 3.

10 Journals with the Highest Number of Citations on Students' Information Competency

Rank	Sources	Country	NP	TC	Scopus*	H-index
1	Reference services review	United Kingdom	10	174	Q1	43
2	Journal of documentation	United Kingdom	3	154	Q1	72
3	Journal of information science	United Kingdom	1	120	Q1	77
4	Library and information science research	United Kingdom	2	88	Q1	68
5	Computers and composition	United Kingdom	1	88	Q1	43
6	Computers in human behavior	United Kingdom	1	84	Q1	251
7	British journal of educational technology	United Kingdom	1	68	Q1	119
8	Behavioral and social sciences librarian	United States	6	65	Q4	18
9	Eurasia journal of mathematics, science and technology education	Turkey	4	63	Q2	56
10	Comunicar	Spain	2	59	Q1	56

Abbreviations: NP: Number of publications; TC: Total citations

Table 3 presents the ten journals with the highest number of citations in information competency research for students. These journals published 31 publications (equivalent to 11.1% of the total) and were cited 963 times (equivalent to 37.3% of the total). Table 3 shows that eight of the ten journals are in Q1 and have very high H-indexes, showing the importance of the research.

Most Influential Research

The first study was recorded in the Scopus database in 1998 for an information literacy study for teaching in 2000 (Ercegovac, 1998). However, it should be noted that this study is not significant as it only garnered nine citations at the time of investigation. In contrast, Table 6 provides information on the ten most frequently cited works from the 279 studies in the dataset. Table 6 includes additional details about the authors and publishers of the selected works. Of this list, ten were journal articles with 995 citations at the time of this study. Collectively, these ten works account for 38.5% of the total citations of the collection.

The most cited article (n=137) in this dataset is an open-access study published in 2007, focusing on the information literacy of English teachers in the UK. This study conducted an extensive survey over three years to determine faculty perceptions of information competency and compare them with international standards. This article is considered a case study in this field. The article with the second highest number of citations is 120, mainly focusing on related topics such as improving information competency in teaching and information competency in higher education. The content of the article published in 2010 focuses on research on information competency in university teaching and is published in the information science journal. The article, which has the third highest number of citations, with 88 citations, was published in 2000 by an American scholar and focuses on understanding the use of the internet and libraries to improve the capacity of students and lecturers in education. The article with the fourth highest number of citations with 84 citations, published in 2017, focuses on the study of digital competence and academic proficiency at a university in Spain. The articles that follow all have less than 70 citations.

Table 4.

Top 10 Most Cited Articles

CR	*Document*	*First author's institution/ country*	*Source title*	*DT*	*TC*	*HIC**	*BC**	*MC**	*RC**	*OA*
1	A phenomenographic study of English faculty's conceptions of information literacy	University of Strathclyde, Glasgow/ United Kingdom	Journal of Documentation	AR	137	14	61	13	5	OA
2	Design of the IL-HUMASS survey on information literacy in higher education: A self-assessment approach	Universidad de Granada/Spain	Journal of Information Science	AR	120	12	53	24	3	Non
3	Investigating the practices of student researchers: patterns of use and criteria for use of internet and library sources	Oregon State University, Corvallis, OR/United States	Computers and Composition	AR	88	6	48	2	5	Non
4	Undergraduate students' perspectives on digital competence and academic literacy in a Spanish University	University of Seville, Faculty of Educational Sciences/Spain	Computers in Human Behavior	AR	84	9	34	4	3	OA
5	From strategic planning to meaningful learning: diverse perspectives on the development of web-based teaching and learning in higher education	University of Helsinki/Finland	British Journal of Educational Technology	AR	68	9	71	5	4	Non
6	Can ICT usage make a difference on student teachers' information literacy self-efficacy	Hacettepe University, Beytepe, Ankara/Turkey	Library and Information Science Research	AR	65	7	42	5	13	Non
7	Perspectives on the information and digital competence of Social Sciences students and faculty before and during lockdown due to Covid-19	Universitat Jaume I/ Spain	Profesional de la Informacion	AR	53	1	19	-	1	OA
8	Academic plagiarism among secondary and High School students: Differences in gender and procrastination	University of the Balearic Islands / Spain	Comunicar	AR	49	1	6	-	1	OA
9	Information literacy and Writing across the Curriculum: sharing the vision	School of Library and Information Science / United States	Reference Services Review	AR	43	10	40	1	-	Non
10	Digital game-based learning of information literacy: Effects of gameplay modes on university students' learning performance, motivation, self-efficacy and flow experiences	The Education University of Hong Kong, New Territories, Hong Kong SAR / Hong Kong / China	Australasian Journal of Educational Technology	AR	42	-	17	-	-	OA

Abbreviations: CR: Rank; DT: Document types; AR: Article; CP: Conference paper; TC: Total citations; HIC*: Highly influential citations; BC*: background citations; MC*: Methods citations; RC*: Results citations; OA: Open access; Non: Not-Open access; & * Information collected from Semantic Scholar (https://www.semanticscholar.org) on 14 August 2024

Table 4 presents citation counts for scientific publications based on their position in the article (Cohan et al., 2019) classifying citation intent into three distinct categories: background, methods used, and compared results. Citation data was obtained from Semantic Scholar (https://www.semanticscholar.org). However, it should be noted that the total number of citations for each category may differ from the number of citations listed in the TC column. Citations are limited to articles for which Semantic Scholar can access the full text (Pham Van et al., 2022). Thus, the above ten articles are statistically analyzed for the indicators TC: citations, HIC: Highly influential citations, BC: foundation citations, MC: method citations, and RC: results in citations.

The most influential articles in research citations address broad issues rather than a specific topic. These studies were researched during the period 2007-2021 with different research topics. The most influential studies are mainly published in scientific journals. This is consistent with the view that, in the social sciences, scientific journal articles are often more interesting than conference papers (Fairclough & Thelwall, 2015). This is a suggestion for researchers when searching for documents in the field of information competency for university lecturers. The above studies whose first authors are all from developed countries (United States, Spain, United Kingdom, Finland, Turkey, China) show the importance of the research. This is consistent with the analysis of the most published countries, where almost half of the publications came from these countries.

Most Effective Author

Table 5.
Top 10 Researchers with Many Publications

CR	Author	Country	NP	TC
1	Pinto, M.	Spain	4	148
2	Karim, A. A.	Malaysia	3	6
3	Kazinets, V. A.	Russian Federation	3	19
4	Ledovskikh, I. A.	Russian Federation	3	19
5	Lupton, M.	Australia	3	77
6	Manabat, A. R.	Kazakhstan	3	13
7	Maybee, C.	The US	3	58
8	Oberg, D.	Canada	3	3
9	Sanches, T.	Portugal	3	1
10	Bilawar, P. B.	India	2	5

Abbreviations: CR: Rank; NP: Number of publications; TC: Total citations

The total number of authors participating in research on information capacity for lecturers recorded in the Scopus database is 598. Table 6 presents the ranking of the ten scholars with the most works, determined by the number of articles published. It is worth noting that a given scholar may leverage affiliations with multiple institutions, however, the data presented in Table 6 relate only to their most recent publications. Among these, two authors Kazinets, Victor A. and Ledovskikh, Irina A. from the Russian Federation collaborated to publish three publications from 2016 to 2018. The table above shows that authors Pinto, Maria from Spain have four publications and 148 citations with an average of 37 citations per article. In addition, there are eight authors with three publications: Karim, Aidah Abdul; Kazinets, Victor A.; Ledovskikh, Irina A.; Lupton, Mandy; Manabat, April R.; Maybee, Clarence; Oberg, D.; Sanchez, Tatiana. Among the authors in State 6, we can see two authors Kazinets, Victor A. and Ledovskikh, Irina A. of the Russian Federation have collaborated to publish three publications from 2016 to 2018 (according to Figure 6). Table 7 shows the 10 authors with the most citations, including three pairs of authors writing the same publication. Here, we see three authors: Boon, S.; Johnston, B. and Webber, S. from the UK, with an article published in 2007 but with 137 showable citations. This is a very influential study. And here are the three authors whose publications with the most citations are presented above. Two authors. Burton, V. T. and Chadwick S. A. from the United States with a publication published in 2000 but with 88 citations. Below are three Spanish authors with an article published in 2017 with 84 citations. Finally, author Lupton, M. from Australia with three articles with 77 citations.

Table 6.
Top 10 Researchers with Many Citations

CR	Author	Country	NP	TC
1	Pinto, M.	Spain	4	148
2	Karim, A. A.	Malaysia	3	6
3	Kazinets, V. A.	Russian Federation	3	19
4	Ledovskikh, I. A.	Russian Federation	3	19
5	Lupton, M.	Australia	3	77
6	Manabat, A. R.	Kazakhstan	3	13
7	Maybee, C.	The US	3	58
8	Oberg, D.	Canada	3	3
9	Sanches, T.	Portugal	3	1
10	Bilawar, P. B.	India	2	5

Abbreviations: CR: Rank; NP: Number of publications; TC: Total citations

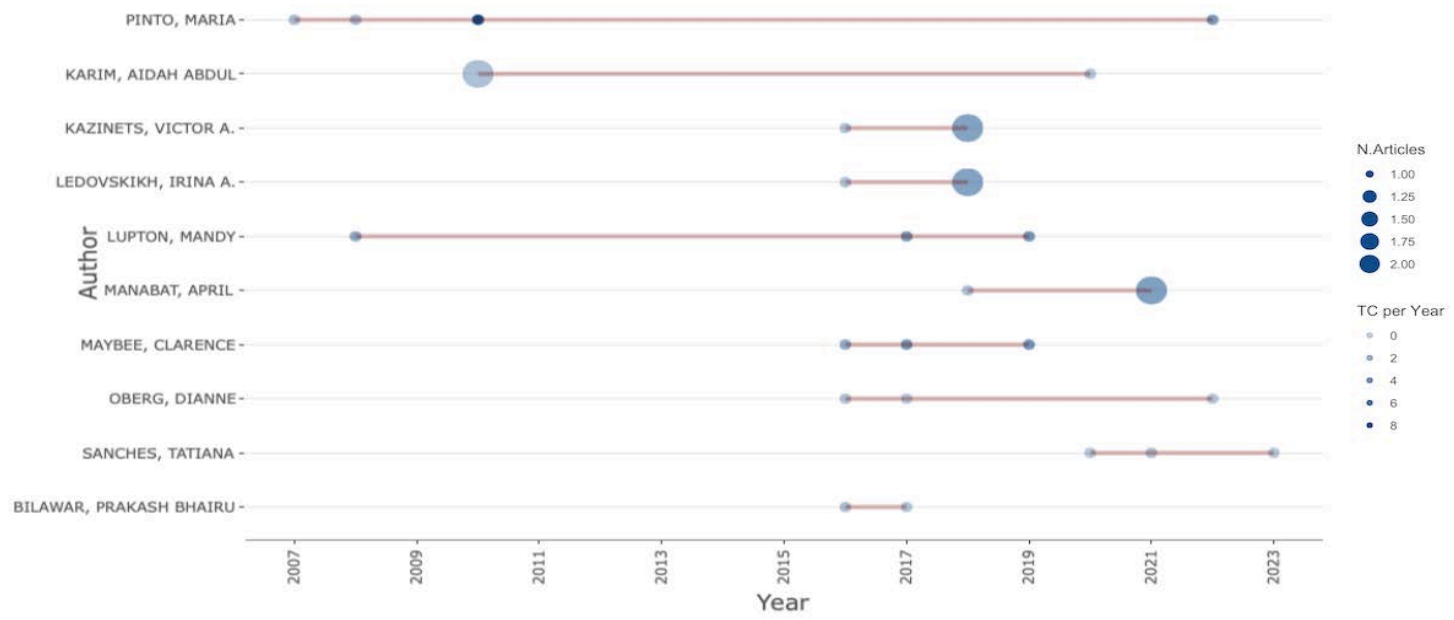

Figure 6.
Top 10 Leading Researchers by Year

Figure 6 shows the change in research activities of the top 10 scientists in terms of information capacity for lecturers. Notably, several researchers made significant contributions during the period 2007-2010, but there was a lull after that. However, from 2019 to 2022, they returned to this topic, showing sustained interest in this area of research. This confirms the importance of information capacity for lecturers in the modern educational context. Besides, the image also shows the appearance of several new researchers, focusing on the period 2016-2019, contributing to enriching the research picture on this topic.

Main Research Topic

With the keywords chosen by the author in the article, the author analyzes the main research contents of typical cases of information competency research for lecturers. The total number of keywords set by the authors is 773. The author combined synonyms, singular and plural keywords, and eliminated keywords that did not show research trends before analysis.

Figure 7 shows the co-occurrence network of 63 keywords, each appearing in at least three articles. The nodes in Figure 7 represent individual keywords, with the size of each node proportional to the frequency of the corresponding keyword. The keywords are classified into several distinct clusters, with the largest cluster (indicated in blue) focusing on information literacy research at the university level. In addition, there are also studies related to academic libraries, information technology capacity, information capacity... The blue cluster has the highest keyword concentration, consistent with previous research. has confirmed that information literacy and competencies are at the university level. Red cluster: research on academic issues, competencies, and information knowledge for teaching and learning in universities. Green cluster: research on information capacity, digital capacity, and communication capacity issues. Yellow cluster: research on lifelong learning issues, information skills, and information technology.

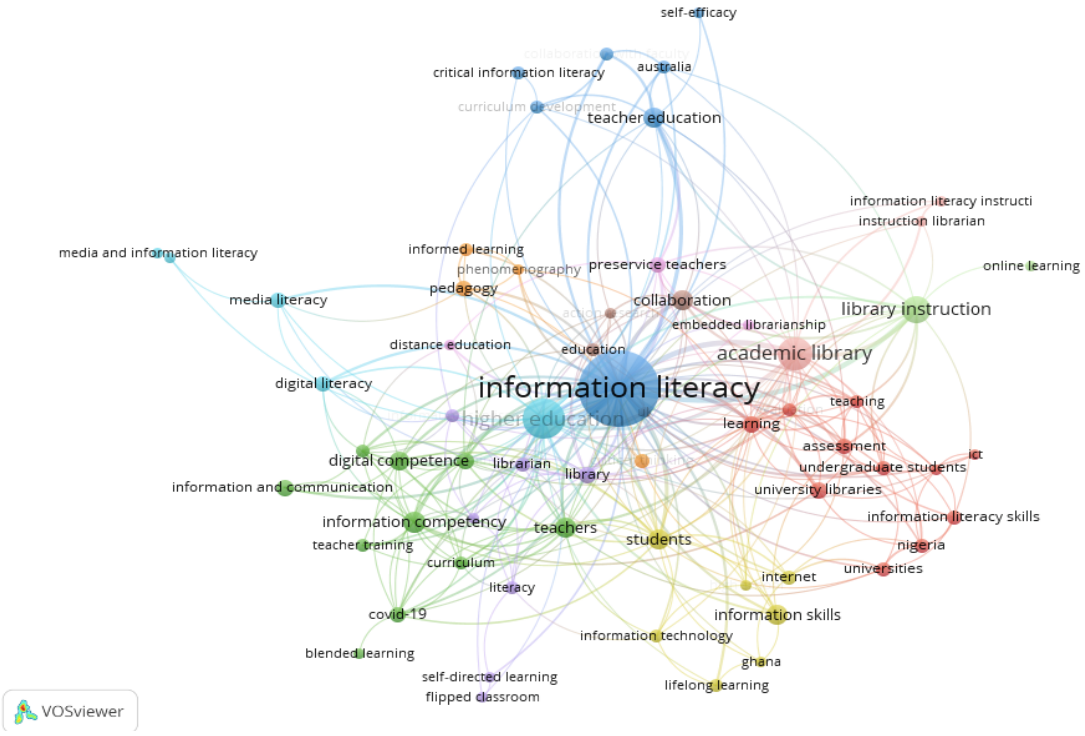

Figure 7.

Co-occurrence network of 63 Author Keywords Appearing Together in at Least Three Articles (Source: Author's Own Compilation, Using VOSviewer)

Figure 8 illustrates the network of keywords appearing in at least three research articles within a given period. The color of the keywords represents the time of publication: gray for traditional topics and yellow for new topics. The keyword "Information Literacy" stands out with its large size and blue color, showing that this is an important research topic in the period 2016-2018. Recently, keywords such as "digital literacy", "digital competence", "media literacy", "media and information literacy", and "information literacy skills" have received increasing attention, demonstrating the expansion of research. on information and communication.

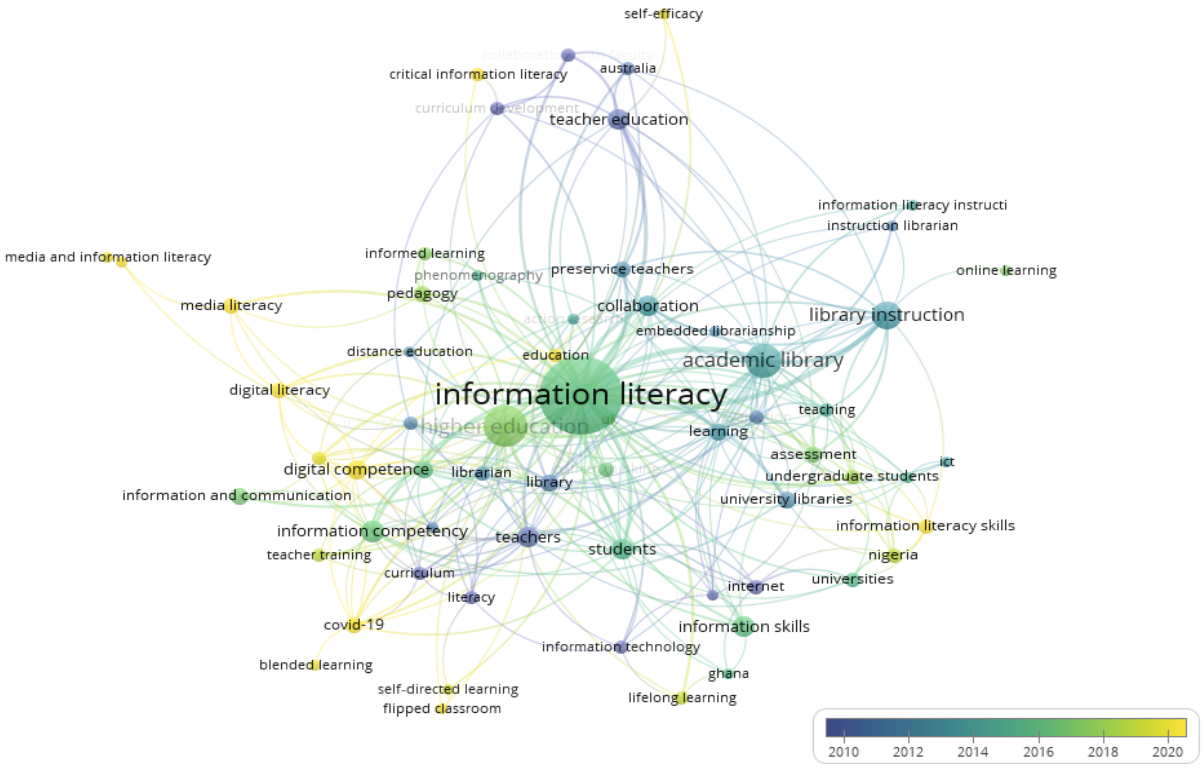

Figure 8.

Co-Occurrence Network of 63 Author Keywords Appearing Together in At Least Three Articles Over Time (Source: Author's Own Compilation, Using VOSviewer)

Figure 9 depicts the annual research trends in this field by identifying relevant keywords. A line represents the timeline of each keyword, and a bubble shows the keyword's highest frequency in a given year. The circle size is proportional to the number of publications containing the corresponding keyword (Pham Van et al., 2022). It can be seen that in 2017 the main keyword was information capacity and in 2021 the main keyword was understanding information capacity. In 2022, the main keywords are media knowledge, information, and communication technology, showing the research trends of scholars.

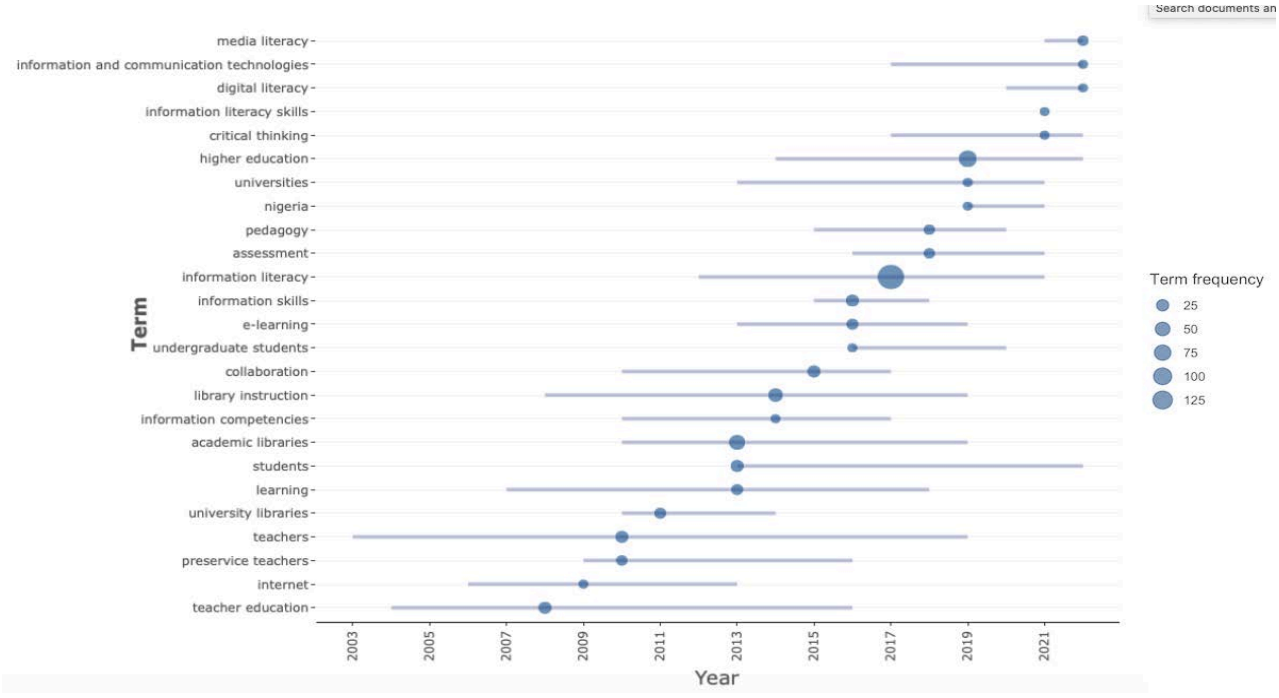

Figure 9.

Publication Collection Trend Topics by Author's Keywords (Source: Author's Own Compilation, Using Biblioshiny)

Figure 10 visualizes the central role of "information capacity" in this research field. This keyword appears with greater frequency than other keywords, confirming the importance of this topic in the research community. Related terms, shown in different colors and connected to "information capacity", show the close connection between these concepts. This demonstrates that researchers often combine "information competency" with other concepts to delve into more complex issues in the field. This result is completely consistent with the network analysis and topic trends presented in the previous figures (Figure 7 and Figure 9), reinforcing the importance of "information capacity" in research. rescue.

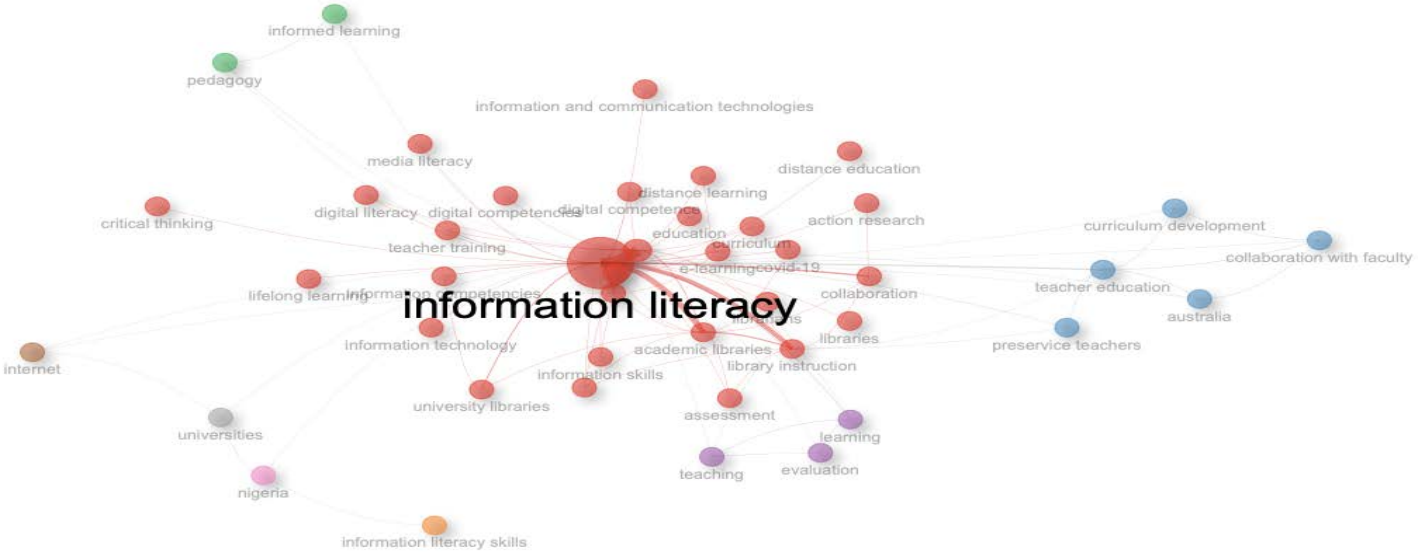

Figure 10.
Author's Keyword Appearance Network (Source: Author's Own Compilation, Using Biblioshiny)

Discussion

From a practical standpoint, information literacy has proven to be a crucial factor in enhancing teaching and learning effectiveness for both faculty and students. Since the seminal works published in 1998, the body of literature about information literacy for university lecturers has steadily expanded, culminating in a peak of 72 publications in 2022. This sustained growth underscores the increasing adoption of information literacy practices among university faculty in recent years. By employing information literacy strategies, faculty members can significantly improve the quality of their instruction (Hammons, 2020).

In terms of scholarly output, the United States emerges as the leading country with 72 publications, followed by Spain with 21 and China with 20. The significant surge in publications between 2019 and 2022 can be attributed, in part, to the COVID-19 pandemic, which necessitated a global shift from traditional face-to-face instruction to remote or hybrid learning modalities. Within this context, information literacy has assumed an even more critical role in higher education (Bury, 2024).

A geographical analysis reveals a significant concentration of authors from developed nations, particularly Spain. Notably, Malaysia has emerged as a promising country with a growing number of recent studies. The United States, a pioneer in information literacy research, maintains its position as the leading country in this field. In recent years, China has witnessed a substantial increase in the number of studies focused on information literacy for university lecturers.

The majority of publications on information literacy originate from sources based in developed countries, with the United States and the United Kingdom being particularly prominent. These sources exhibit high H-indices, signifying the significant impact of the research conducted in these countries.

The thematic analysis reveals two predominant research foci within the field of information literacy: "information literacy in higher education" and "academic libraries." This finding aligns seamlessly with the previous analysis of publication sources and citations, further solidifying the notion that research activities in information literacy

primarily concentrate on its application and development within the higher education context. A keyword analysis underscores the multifaceted nature of information literacy research, encompassing a broad spectrum of topics, from system construction to practical implementation. This diversity highlights the pivotal role of information literacy in higher education.

Conclusions and Recommendations

Conclusions

The study described global research trends in information competencies for university lecturers between 1998 and 2023. By analyzing detailed data from the Scopus database and applying techniques Research bibliometrics has shown the distribution and trends of keywords, identified influential researchers along with collaboration between researchers, and identified countries and journals with high influence. The results show that open data is becoming more and more popular over time and developed countries are still the ones with the highest number of articles and citations, typically: the United States, Spain, and China. China, Australia, Russia... Authors from the same country and agency cooperate to share knowledge. Regarding journals, it can be seen that there are many leading journals with many articles showing the interest of scholars in researching information competency for lecturers. Keywords: It can be seen that the keywords about information competency, digital competency, information skills, digital skills, and information technology skills are researched by the authors. Research results show a significant growth in the quantity and quality of research works in the period 2021-2022.

Research has shown that the level of information competency of university lecturers is still limited, especially in the application of information technology in teaching. Factors such as age, major, and facilities have a significant influence on this capacity. To improve the information capacity of lecturers, there needs to be a strong investment in training, equipping modern facilities, and building a working environment that encourages innovation. The research results provide a worldwide overview of information competency research for lecturers.

Limitations

This study has some limitations. First, using only bibliometric data from the Scopus database may result in a limited representation of publications in information literacy research for faculty. Second, although the author manually filtered irrelevant articles in different Scopus categories, the filtering process may need further improvement, which may lead to omissions. Third, certain key information, such as author names and institutional affiliations, should be standardized in the Scopus database. Since manual editing is not feasible, this limitation may affect our results in terms of the accuracy of our analysis depending on the quality of the input information imported from the database Scopus data. Fourth, some types of analysis, such as statistics based on the gender of scholars, were not possible in this study due to the technical limitations of the Biblioshiny and VOSviewer tools.

Ethics Committee Approval: The author stated that ethical permission was not required for the study because humans and animals were not used. However, ethical guidelines were followed throughout the study.
Informed Consent: No living beings requiring informed consent were involved in this study.
Peer-review: Externally peer-reviewed.
Conflict of Interest: The author has sufficiently contributed to the study and agreed with the results and conclusions.
Financial Disclosure: The author declared that this study has no financial support.

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Approaches to Inclusive Collaborative Learning in Art Education in Chile

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ABSTRACT

The paper aims to analyze the relationship between inclusive education and cooperative learning through art teaching, reflecting on the need to promote an inclusive pedagogical approach that values educational diversity and encourages collaboration, favoring a more democratic and respectful environment in the classroom. The methodology used was qualitative-experimental, combining collaborative analysis and teaching practices in artistic education. It focused on the active interaction between teachers and inclusive students, implementing educational resources and socio-educational processes (diagnosis, planning, implementation and evaluation) to promote cooperative learning adapted to the diversity of the classroom. The results show that inclusive arts education and its methodology are complex to integrate into the educational system. Two groups were presented: the first, a structural model that describes progressive layers of teacher-student interaction in the inclusive classroom; the second, inclusive methodologies such as cooperative, collaborative and project-based learning, which promote socio-educational inclusion and art teaching. The inclusive approach in art education faces challenges due to a lack of resources and awareness. Post-contemporary didactics favor collaboration and social inclusion, improving cognitive and emotional skills. It is essential to implement these methodological changes in the Chilean educational system, promoting diversity and creative participation in the classroom. In conclusion, it is essential to update and design new artistic teaching instruments and cooperative-creative learning methodologies for students with special needs, promoting an innovative approach that respects educational and cultural diversity; this transformation, guided by the principles of pluralism and creativity, aims at inclusive and quality education in the long term.

Keywords: Inclusive education, arts education, social education, educational diversity, didactic methodology.

Introduction

This paper addresses a fundamental topic in inclusive education and its relationship with cooperative learning through art teaching. Nowadays, society is becoming increasingly complex to have the ability to work the system in school, which makes it necessary to reflect on the "role" of inclusive education alongside art teaching within the framework of the new school environment. There is student segregation through cooperative learning in the educational system, depending on the "educational diversity" (Baglieri, 2022; Corsino & Fuller, 2021; Dungs et al., 2020; Felder, 2021) in the classroom to foster a socio-educational model that promotes inclusion and teaching quality. In this educational context, the role of the pedagogical approach that promotes collaboration and teamwork, as well as artistic-cultural value, is analyzed, of course, the new tool for inclusion and expression of diversity. However, for Logan (2020) exists a thought of the art teaching of the new practices and the limitations of the basic standards to examine the multiple forms of the methodological setting of the inclusive school based on creative reflection and critical analysis in the current art. That is, by revealing the vitality of art and art education in collaborative/cooperative teaching and new terms, demonstrating the accessibility of a more inclusive and democratic education through the arts.

The nature of the phenomenon under study requires approaching educational inclusion from a social standpoint, where we recognize the individual student as a strategic-competent learner influenced by the socialization process. This perspective also extends to the role of field experience in art education, where fostering inclusion through creative expression is equally crucial. In addition, it is inevitable that a variety of different reactions and complex contexts will emerge within the framework of cooperative learning, emphasizing the interconnectedness of inclusive education and arts education. For this reason, the Chilean school has not promoted the recognition of

student diversity. Thus, the school system seeks to establish new guidelines to implement the different measures and concrete actions that make it possible to provide the necessary support for the classroom. Therefore, cooperative learning is an emerging method for teaching new cultures and instruments. Allowing sharing is learning knowledge and didactic resources to acquire to incorporate the concepts learned by inclusive students. This method also facilitates creative capacity and collaborative skills to foster artistic appreciation, sharing the new principles of inclusive education and art teaching. It is a very important to contribute to the innovative creation of an inclusive and more respectful educational environment, supporting the empowerment of student learning (Barrio de la Puente, 2009; Bernaschina, 2019, 2022; Castro & Rodríguez, 2017; Petrenas et al. 2013; Säljö, 2010; San Martín et al., 2017).

By deepening the subject from the teaching experience in Chile, which focuses on the new instruments within the school classroom, i.e., talking about educational innovation that improves the continuous school and the responsibility of teachers, which favors the theory-practice dialogue. The teacher's task is not easy to give a satisfactory answer through educational dialogue; therefore, it is essential, as well as "being able to openly share these concerns with fellow educators about what and how our students learn can assist us in introducing new strategies [in the subjects], those that have been useful with this student or with that group" (Blanchard & Muzás, 2005, p.8). Next, regarding the concept of diversity through different perceptions. According to the Spanish scholar, the educational diversity concept in Spain that pointed out:

> Over time, diversity support programs and interventions have been implemented to address the needs of certain groups of students. The integration program serves students with special educational needs, and the compensatory education program serves students who are in a situation of social disadvantage, whether due to their ethnic or cultural background or their socio-economic situation. (…) Accepting these assumptions leads us to recognize that diversity in the classroom should not only be considered in terms of the different cultural groups present in it, or the children with special educational needs, but by addressing the areas of diversity that shape the identities of everyone who is there, coexists and works (Barrio de la Puente, 2009, p. 15).

This author argues that considering diversity goes beyond just cultural spaces or special educational needs (SEN or students with disability), and the quote emphasizes the importance of recognizing and valuing diversity in all its forms and how it shapes each individual's identity. The Chilean educational system faces several irregularities and complexities through political tensions and social transformations of the inclusive State. For example, some resist these tensions in favor of individual liberties and the economic interests of the market (Castillo-Armijo, 2021). All the actions presented are oriented towards the construction of inclusive changes in the social field, warning the need of which should be considered all and each one of the functional elements in the educational system (Rodríguez-Macayo et al., 2020, p. 68). Faced with the massiveness of school failure in the school, with traces of deficit and inadequacy to the standard curriculum and didactics, where individual and institutional school responsibility, which influence both the level of national policies and the daily practices towards inequality and social exclusion (Manghi et al., 2020). It is difficult to speak the Chilean culture about inclusive education, depending on the personal practice (teaching role of primary and secondary education) of regular education (public-private) and special education (Espinoza et al., 2021). The impact of this situation is not only felt by students with disability who require SEN support to achieve academic success but also by students from different cultural groups or those belonging to minority groups (such as migrants, indigenous people, gender minorities, and of course, those with disability), who experience varying levels of social inequality and school segregation within the system.

Comparison between integration and inclusion

The crux of the study on the educational system corresponds to different models of integration (obsolete) and inclusion (renew proposal). Although both models share some common aspects, one should not simply replace one term with another, as the educational inclusion proposal seeks to avoid the mistakes made in the approach of school integration. Important to understand that while integration aims to integrate students with SEN into regular schools, inclusion goes further and focuses on creating educational environments that are welcoming and adapting for all students, regardless of their differences and needs. Educational inclusion involves recognizing and valuing individual differences and working together to create an educational environment that meets the needs of all students, which in turn will foster a more inclusive and fair society in general (Barrio de la Puente, 2009; Bossaert et al., 2013; García-Ruiz & Fernández-Moreno, 2010; Winzer, 2009).

The comparison between integration and inclusion doesn't always mutually relate to the issues related to students with disability but rather to the reasons behind the human differences in minorities and other cultures. For this reason, the new strategy for educational diversity in Chilean schools (public-private and formal-informal)

focuses on promoting open dialogue and socio-educational integration, facilitating interaction between students and teachers within the teaching-learning process in the classroom. Since the birth of the concept of school integration, dating back to the 1950s and 1960s, there has been a recognition of the need to include students with disability in regular schools. Significant progress has been made in educational integration since then because the proposal of inclusion seeks to go further, recognizing and valuing the individual differences of all students, creating more inclusive educational environments, and adapting to their needs. The scope of school integration is observed most commonly in developed countries that have accessible resources and basic support structures in educational centers. Very important to analyze that educational integration is not a closed model; instead, inclusive education represents the newer inclusive practices adopted by regular schools through their teaching-learning processes. However, in some cases, schools may have multidisciplinary teams working to ensure that students with SEN because they are received the appropriate support and resources. In other cases, schools may adopt a more student-centered approach, fostering active participation and inclusion in the regular classroom. In general, it is to create educational environments that are accessible, adapted, and welcoming for all students, regardless of their differences or needs, and that allow for holistic development and active participation in the educational process (Ainscow, 1997, 2005, 2015, 2020; Ainscow & Miles, 2008; Corbett, 2001; Florian, 2008; Norwich, 2008; Puigdellívol, 2003, 2015; Redecker et al., 2011; Thomas, 1997; Wedell, 2008).

Incorporation of inclusive education with curricular adaptation?

The most crucial point of research is expressed in art education. However, inclusive education focuses on students with SEN and aims to focus on the individual and their possibilities for curricular adaptation and Universal Design for Learning (ULD). In addition, inclusive education is not only focused on students with SEN but seeks to create welcoming and adapted educational environments for all students (with and without disability) and teachers, regardless of their differences and needs (Allen, 2019; Loor-Aldás & Aucapiña-Sandoval, 2020; Mishra et al., 2019; Rihter & Potočnik, 2022). School inclusion involves recognizing and valuing the individual differences of all students and working together to create an art and cultural educational environment that meets the needs for teaching materials, which in turn fosters a more inclusive and just society in general. In addition, inclusive education that promotes the active participation of all students, fostering the collaboration of artistic-cultural spaces and mutual respect to develop different creative, social and emotional skills.

- Curricular adaptation involves modifying the curriculum, instructional methods, and materials to meet the diverse needs of students, as well as art education through curricular adaptations for disability to engage in various strategies about the learning experience being more inclusive. Next, in some points to curricular adaptation in art education:
- Variation's the method for didactic teaching: Teachers can use a series of a variety of teaching techniques, such as visual, and culture approaches, to accommodate different learning styles and skills (Basbug, 2020; Kholmuratovich et al., 2020; Leavy, 2020).
- Evaluating the flexible methods: Assessments in art education can be adapted to consider a student's strengths and needs. For example, the evaluation of flexible methods like project-based assessments, verbal presentations, or multimedia submissions can be used instead of traditional written tests (Phillips, 1997; Winner & Hetland, 2000).
- Cooperative learning: Art projects in education can encourage the participation of students with SEN together with peers who work together, learn and take advantage of their personal or group motivations within the inclusive classroom (Kolyvas, 2020; Le et al., 2018; Niemi & Vehkakoski, 2023).
- Accessible materials using: It is crucial to provide art materials that are accessible to all students, including those with different types and degrees of disability (physical, sensory, or other), challenging the use of adaptive tools (or technologies) (Carpio de los Pinos & Galán-González, 2021).
- Universal Design for Learning (UDL): Can be applied to arts education through the UDL and activities that offer multiple means of representation, engagement, and expression. The UDL provides help to address the diverse learning needs of students with SEN (Caeiro et al., 2021; Glass et al., 2013; Roski et al., 2021; Silverstein, 2020; Tobón-Gaviria, 2020).
- Plan's personalized learning for students with SEN: It is possible to develop educational development about the personalized learning plan for students with SEN to incorporate and adapt the arts education curriculum, depending on their creative skills and interests (Shemshack & Spector, 2020; Zhang, L. et al., 2020).

For this, it is essential to point out the implementation of the didactic support material in art education curricular adaptations for students with disability (or SEN) within the inclusive school. Also, there is a collaboration between educators and ongoing assessment to ensure that the needs of all students are effectively satisfied, as well as sensory sensitivities to create a specific learning environment, such as lighting, noise levels, and classroom design. The culture of support in the classroom fosters a culture of respect, empathy, and understanding in the inclusive classroom, for creating an environment, depending on the students with SEN who feel valued and included in the participation of educational activity. Finally, the participation of parents and the educational community can contribute to a holistic approach to incorporate the subject of art education, and it is also possible to support inclusive students in the public-private school.

School inclusion and its relationship with the role of the State

The integration of schools and their relationship with the role of the State is part of the responsibility to guarantee the right to universal and quality education for all students, regardless of their socioeconomic origin. School inclusion is possible to ensure that students with disability belonging to vulnerable in different groups are at risk of exclusion from the formal educational system, as well as it has access to art education and a satisfactory experience in creative learning. Nonetheless, it is vital to underscore that the extent of school inclusion should not be confined solely to the State's responsibility. In Chilean society and students with SEN challenge the inclusive education system, creating various educational environments arthritic for working together so that is, they adapt and welcome all students regardless of socioeconomic conditions and no matter their differences in creative skills. School inclusion is a shared responsibility that requires dedication and collaboration from all participants in the educational process through the art education subject, including educators, parents, and students with SEN to transform educational diversity.

The study of Ainscow (1997, 2005, 2015, 2020) has observed a change in educational thinking. The concept of integration has given way to inclusion, signaling a more profound transformation of schools. It is a deeper process of transforming schools to adapt and respond to the (educational) diversity of the students rather than simply helping them to participate in the established educational system without changes. This approach seeks to improve a personalized and tailored educational experience, catering to the distinct needs of each student, as well as the implementation of the individual/complementary curriculum for art education. Well, it is crucial to transform more equity in art and the new instruments of didactic resources for the inclusive educational system with the participation of students with SEN and teachers within the art education subject. Currently, the challenge of the artistic world to improve the inclusive school in Chile does not exist in the participation of students with SEN to minimize the implementation of inclusive education (Kauffman et al., 2022; San-Martín et al., 2021).

It is possible to transform the educational system, based on questions that can be varied: How can arts education respond to this educational diversity, and in what ways does collaborative/cooperative teaching through the arts respond to inclusive education? The inclusivity of the arts and how collaboration through the arts accommodates educational diversity can explain through it. Various authors analyze educational diversity to deepen creative abilities and the rhythm of artistic-visual learning-and, in other art disciplines, such as styles, interests, and motivations-for each individual (inclusive students with and without disability), transforming from a space for dialogue and tolerance within the school; in this context, the significance of embracing inclusive educational practices emphasized as a means of acknowledging and embracing diversity in response of creative development (Ángeles, 2019; Barrio de la Puente, 2009; Cardona, 2013; Levy & Young, 2020; Li et al., 2023; Puigdellívol, 2003). Those more significant implications about the artistic practice and the creative autonomy for inclusive students with/without SEN, including the incorporation of cooperative and heterogeneous group work, whom it is pursuing high educational goals and quality education for all, and also redefining the roles of teachers and specialists to minimize systematic individual support, both the attention in the classroom and the inclusive students in the inclusive school.

Not all the educational systems face the new challenges to respond to diversity in all social manifestations and the skills of autonomous learning for inclusive students in public-private schools in Chile but also contextualized within pedagogical approaches that they prioritize creativity and self-directed learning, which implies having the necessary knowledge and skills to learn effectively in any situation. This affirmation towards inclusive education is not only the responsibility of the schools or the educational system, but the entire educational community and society as a whole are involved in this process; although schools can implement the (new) effective educational practices; it is insufficient to create with a society's that does not support the values; therefore, this approach to inclusive education must extend beyond the classroom, and encompass all educational aspects of life

and social interaction (Escarbajal-Frutos et al., 2012; Valdez Fuentes & Machorro-Cabello, 2014). However, it is possible to identify the three educational thoughts for the future of the inclusive school (Table 1)

Table 1

Characteristics of Educational Thoughts

No. Educational thoughts	Characteristics
Rethinking Educational Inclusion: A critical approach to diversity to transform the educational experience of excluded students.	It is possible to propose the educational need for deeper and more complex critical thinking; this affects the educational experience of school students who have been excluded from regular school for various reasons, such as cognitive pathologies, behavior problems, disabilities, or belonging to marginalized groups, such as the poor, indigenous and migrants. In many cases, these students are directed towards special education programs, which often rely on a euphemistic view that labels their issues as “poverty pathologies” or “cultural pathologies”. This is deeply concerning, as this approach can lead to even greater stigmatization and exclusion of these students from mainstream education. It is essential that we rethink how we approach the education of these students and provide an inclusive and respectful educational environment for all. We must consider the diversity of needs and experiences of the students and work to provide an environment that adapts to their needs and allows them to reach their full potential. This involves addressing the social, economic, and cultural barriers that often prevent access to education and working to build a more just and equitable society.
Building Inclusive Schools: Challenging stigma to achieve true equity in education.	The task of establishing a relationship between educational institutions and the various actors who participate in them, such as directors, teachers, and others, as well as the diversity represented by boys and girls who are stigmatized and segregated, they are not easy to respect their own beliefs. For this very reason, schools have always been considered a symbol of integration and social equality. Despite this preconceived idea, it is relevant to recognize that, in many cases, schools do not fully fulfill this integrative and equitable function. Prejudice, discrimination, and other forms of exclusion, these manifestations can arise in different ways in the school context. Therefore, it is essential that educational institutions and the actors who participate in them recognize this reality and actively work to combat stigmatization and segregation. The suggests may be involved in implementing policies and practices that promote inclusion and diversity, as well as promoting a safe and respectful school environment for all students.
Towards an Inclusive Paradigm Shift: Transforming education through policies and practices that promote equity.	The main idea raised in this fragment of text is the possibility that the paradigm shift towards inclusion can be configured as a new ethical and political perspective to address the situation of children and young people who have different skills or belong to the most disadvantaged sectors of society and can be affected by being excluded from the educational system. However, this affirmation is possible for changing the paradigm, i.e., it does not necessarily imply a change in the practices and processes that exclude or are observed daily in educational institutions and general society. It is possible to point out that the paradigm shift toward inclusion may imply a deeper-change to conceive of education and address diversity in the classroom. This change facilitates a new orientation of teaching-learning, eliminating barriers such as school exclusion and discrimination. In addition, it is necessary to consider that the paradigm change is insufficient to achieve educational inclusion. This system should translate into concrete practices and educational policies that promote inclusion and equity. In other words, the paradigm change has to be backed up by concrete measures that make it possible to overcome the barriers and obstacles that prevent access to quality education for all. Therefore, we can conclude that the paradigm change towards inclusion is a necessary but not sufficient condition to achieve a truly inclusive and equitable education. It is relevant that this educational system and the incorporation of new concrete policies and practices promote inclusion and equal opportunities for all.

Source: Adaptation of Sinisi (2010).

What should change? Our theories, our practices, our way of interacting with students to jointly seek what happens, or our ways of working in a team with other professionals? (Blanchard & Muzás, 2005, p. 9). It is in this context and on these specific emergencies that the interest of inquiry focuses, problematizing the contributions that emerge from educational practices in the consolidation and construction of socialization scenarios; it seems that the schools that make progress in this direction do so by developing conditions in which every member of the school community is encouraged to become a learner; thus, the response to those who face obstacles to learning is a means of achieving the improvement of the entire school (Ainscow, 1997, 2005, 2015, 2020; Ainscow & Miles, 2008; Castro & Rodríguez, 2017). Inclusive education as an approach seeks to address the learning needs of all children, youth and adults with a specific focus on those who are vulnerable to marginalisation and exclusion (UNESCO, 2003, p. 4).

The previous definition deviates from the traditional understanding of inclusive education as one that targets specific groups of students, shifting towards a more complex understanding based on the conviction that the responsibility of the regular educational system is to provide quality learning opportunities for all (San-Martín et al., 2017, p. 22). This has brought about a radical change in traditional education. It is important to create a new approach to the inclusive education system, ensuring that all students are included in the learning environment. Next, the opposition to educational diversity is deepened to analyze current problems. This is about:

> Diversity presupposes questioning conformity, social asymmetries, and also injustices. In this sense, the message of diversity is not neutral. Assuming diversity as a relationship means, first of all, accepting inter and multiculturalism as a new paradigm of social organization in which concepts such as social responsibility, active citizenship, empowerment, citizen participation, deliberative democracy are redefined and invigorated. Diversity occurs in the most diverse fields: social, cultural, philosophical, religious, moral, and political (Magendzo, 2011, pp. 110-111).

This approach transforms the fundamental concepts to value both interculturality and multiculturalism, reflecting the educational injustice that affects different groups or minorities of students. Not all diversity becomes democracy, but rather it favors dialogue and the exchange of ideas between educational, social, artistic and cultural perspectives, of course, economic. In addition, diversity challenges conventional norms and power structures regarding social inequality, therefore, it implies a rejection of marginalization of all individuals. Each of these resignations in various social, cultural, philosophical, religious and political areas that support the differences that must be valued and respected, not only promotes an inclusive environment, but also strengthens social cohesion to recognize and build a more just society.

Method

Research Model

The methodology used the documentary review through the qualitative-experimental, solving the problems and the various situations raised in the educational-artistic context. Likewise, a series of studies on the active interaction between the teacher and inclusive students have analyzed motivation in the classroom. According to UNESCO (2003), in many cases, the curriculum was expanded with the demand, leaving little room for adaptations to local circumstances or experimentation with new methodologies. In addition, the content of the curriculum may be far from the reality of the students and be inaccessible and demotivated (or school failure). And of course, Valenciano (2009) argued that the achievement of inclusive schools provides an adequate educational response that responded to the needs of the students, such as the adjustment of (new) didactic proposals to educational heterogeneity, considering the interaction between the education community, the degree of coordination and the use of educational resources and practices.

Qualitative Study

In this study, the methodology was used in a didactic combination of collaborative analysis and good teaching-learning practices to respond to the needs of students through various technical procedures in art education and in the different artistic branches. Many authors were focused on the approach consisting of the idea that education assumed a collaborative process in which both the teacher and the student existed an active role in constructing-knowledge (Daniels, 2002; Vygotsky, 2009, 2012, 2013; Wertsch, 1985). Thus, the methodology was incorporated the monitoring tools using the institutional resources available in the artistic field, such as didactic resources and teaching-learning processes based on socio-educational intervention (diagnosis-planning-implementation-evaluation).

Experimental Study

The methodology also made was possible the didactics of learning towards the socio-educational intervention in the public-private school. Not all educational systems were to facilitate didactic resources and teaching-learning processes for promoting social and inclusive interaction

between the lead-teacher (responsible), the artist-teacher (collaborator), and students with different skills to achieve effective cooperative learning (Bernaschina, 2019, 2022). Quite complex to include collaborative work, both a leader-teacher and an artist-teacher, with the participation of students in cooperative learning in the educational system of the public-private school. Not all didactic tools through open dialogue, such as inclusive interaction, depending on the relationship of students with SEN, or creative motivation between individuals with different values, beliefs, skills, and cultures through the acceptance of different perspectives and challenges in school education to create a more just, peaceful, egalitarian, democratic, flexible and supportive environment.

Results

The educational system is very questionable for art education and art teaching to transform the inclusive education structure and the inclusive methodology. Both models are complex to deepen and incorporate the new goals of educational diversity. Impossible to have a concrete answer through research for inclusive education. This results section divides into two groups.

The first group corresponds to the model of inclusive education structure for art education, depending on the school interaction (leader-teacher- artist-teacher- students with and without disability) and the classroom space (motivation- participation in school learning). This group is divided into five layers to deepen the art education system within the inclusive classroom. This structure corresponds to a diagram through a series of nested rectangles with different layers (Figure 1). Below is a breakdown of each layer from the outermost to the innermost:

1. Outer layer (light blue): School/*Workshop* representing the overarching environment in which inclusive education takes place.
2. Second layer (green): *Teacher/Workshop Leader* denoting those responsible for leading educational activities.
3. Third layer (teal): *Teacher Leader/Teacher Duo* suggesting a collaborative teaching approach, likely for inclusive engagement.
4. Fourth layer (blue-green): *Contents/Materials* which covers the instructional content and resources used.
5. Innermost layer (dark blue): *Inclusive students/ Participants* highlighting the focus on inclusion within the educational environment for all students and participants.

Each layer of the diagram progressively focuses on different components necessary for an inclusive education system, from institutional settings down to individual participants. Likewise, the color gradient from light to dark corresponds to the meaning of the progression from broader structural elements to more specific components.

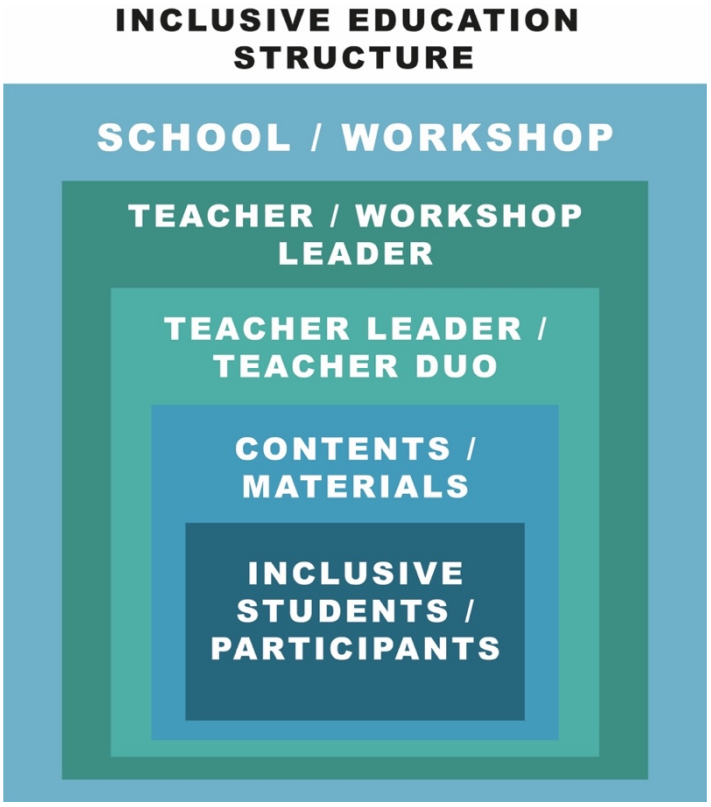

Figure 1.
The Model of İnclusive Education Structure.

According to this figure was taken from the author's original work to synthesize the different layers. The first layer refers to the school and the workshop. An inclusive school is a formal educational model that seeks to attend to and ensure the learning needs and leveling of education for all students without arbitrary discrimination. On the other hand, the educational workshop is an informal educational model that provides an open and practical-creative space for all participants, regardless of their prior knowledge or skills in creative work. The second layer refers to the teacher and the workshop leader (or facilitator). The teacher imparts the educational methodology within the formal school, while the workshop leader (or facilitator) imparts the recreational activities and creative practices outside the formal school. The third layer refers to the lead-teacher and the teacher duo. The lead-teacher is responsible for the subject inside and outside the classroom, while the teacher duo joins an accompaniment for the individual/complementary curriculum for art education and works collaboratively. The fourth layer consists of contents and materials, which are didactic tools

and learning activities designed to promote the autonomy of students and participants. The last layer are the inclusive students and participants, who represent a variety of socio-educational motivations-and of course, sociocultural and emotional-that contribute to the transmission through values and new experiences related to the environment and the learning. It is essential to incorporate this first group towards socio-educational inclusion for the most significant art education. This socio-educational model offers a holistic and in-depth approach to inclusive education, especially to students (with and without SEN) of cooperative learning.

The second group corresponds to the model of inclusive methodology for art teaching, depending on the teaching role in the classroom. The inclusive method exists in various types of systems, both for the subject of art education and for school teaching, promoting socio-educational inclusion. Some of the most common (or relatively) inclusive methodologies are:

1. Structured cooperative learning: In this approach, students work in small groups and collaborate on tasks that are structured and specifically designed to foster positive interdependence, individual and group responsibility, equal opportunity, and valuing differences.
2. Collaborative project-based learning: In this inclusive methodology, students work together to solve a problem or complete a general project. The methodological approach would raise the belief that students learn best when they work together to solve real-world problems.
3. Service learning: This methodology combines education with service to the community. Students learn more creative and independent skills, depending on participation time in educational art projects that benefit their level of learning.
4. Peer tutoring (teacher duo of leader-teacher and artist-teacher): In this educational approach, each student has a school learning different levels to interact and work together. Tutors share their artistic skills and educative knowledge, promoting the incorporation of didactic material and art teaching at various stages of schooling.

Each of these methodologies can effectively the socio-educational inclusion for promoting and adapting in different environments and educational levels. It is crucial to choose the inclusive method that best suits the needs of the students, depending on the educational context within the public-private school.

Below are some figures to describe the results of the qualitative-experimental study, depending on the methodology to adapt socio-educational inclusion in different environments and educational levels. However, it is essential to choose the new inclusive method to improve curricular adaptation, adapting the needs of students, depending on the educational context within public-private schools.

The comparison of inclusive methodology for inclusive cooperative learning in artistic education is classified into three types: i) traditional didactic, ii) modern (or contemporary) didactic, and iii) inclusive (or post-contemporary) didactic. This classification was created by the author himself to implement qualitative-experimental study within the inclusive educational system and the didactic field through the artistic tool.

The first sample of the structures on inclusive cooperative learning. Traditional didactic is the opposition of creative methodology, socio-educational interaction (leader-teacher/artist-teacher-content/materials-students / participants), and subject autonomy. Therefore, traditional didactic represents the duo of teacher-leader and workshop leader, incorporating the exchange of demanding content and materials to teach all students and participants in a personalized way, such as individualistic learning. This diagram illustrating a traditional didactic educational structure (Figure 2). Within the inclusive model, a more hierarchical and content-oriented approach is shown:

- Breakdown of two elements: 1) Left side (purple box): a purple rectangle labeled *Traditional Didactic* representing a traditional teaching methodology. 2) Right side structure with different levels: *Teacher Leader / Workshop Leader* (top level) indicates that the teacher or leader holds a central, directive role in this model; *Demanding Contents / Materials* (middle level) is located directly below the teacher role, emphasizing rigorous or challenging content as a focus of instruction; *Personalized Students / Participants (Individualistic Learning)* (bottom level) represents students or participants engaging in individualistic learning, suggesting that the structure doesn't emphasize group collaboration or inclusion.
- Flow and direction: The arrows indicate a top-down flow of information or instruction from the teacher to the materials, and ultimately to the students. The double arrow between the teacher and materials suggests a dynamic relationship, while the single downward arrow to the students implies one-way delivery of content.

This diagram emphasizes a traditional teacher-centered

approach to delivering different educational content, challenging individual learners in an inclusive and collaborative environment.

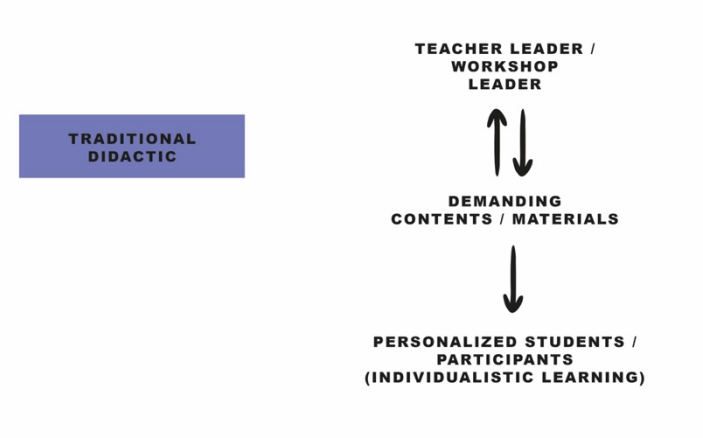

Figure 2.
Sample Structure on Traditional Didactic.

In the following sample of the structure on the most modern analysis. Modern didactic is part of the combination of art teaching and subject learning, with the support of cooperative learning, to reinforce the social experience and artistic skills subject. Therefore, this diagram related to modern (or contemporary didactic teaching) toward an art education context (Figure 3). The demonstration of the previous figure is expanded in different elements:

- Title (left side): There's a purple rectangular box on the left that says *Modern / Contemporary Didactic* in bold, black text.
- Hierarchy of roles and flow (right side): At the top, it says *Teacher Leader / Workshop Leader* representing the educator or facilitator in a teaching scenario. Below this, arrows point up and down, indicating a bidirectional interaction or influence between the teacher and the next section, labeled as *Contents / Materials*. Under *Contents / Materials* there's a note in red that says *Art Teaching* to specify the context of the material as related to art.
- Content and participants (lower section): Another downward arrow connects *Contents / Materials* to the participants, labeled as *Students / Participants*. This section includes red text that says *Cooperative* suggesting a collaborative or cooperative learning environment. Certain words or phrases have been crossed out in red (e.g., *Demand above Contents / Materials* and *Personalized* and *Individual Learning* near the *Students / Participants* area), which could indicate a shift away from these concepts in this teaching model.

Overall, the diagram illustrates a teaching structure where the focus is on cooperation and material-driven learning rather than traditional demands or strictly individualized approaches.

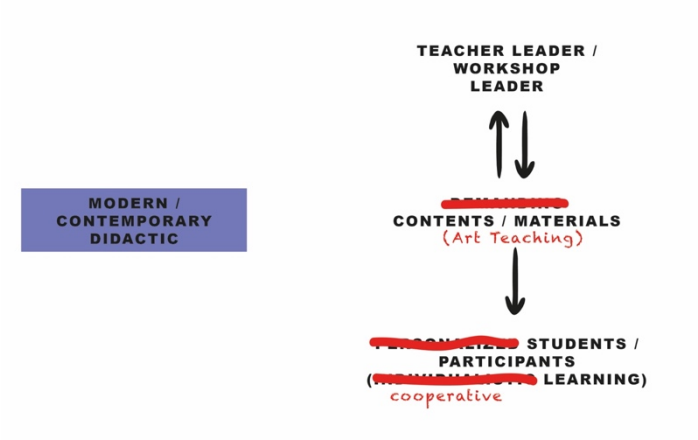

Figure 3.
Sample Structure on Modern (or Contemporary) Didactic.

The last example of the structure presents its most innovative renovation. Inclusive didactic are similar to modern didactics, but specifically with the accompaniment of a mediator or facilitator within the socio-educational model. This diagram of a didactic teaching model is specifically designed for art education (Figure 4). Below is an analysis of the components and their connections:

- Title (left side): Similar to the previous image, there's a purple rectangular box on the left with the text *Inclusive / Post-Contemporary Didactic* in bold, black letters.
- Hierarchy and roles (right side): At the top, the role of *Teacher Leader / Workshop Leader* is enclosed in a blue, brushstroke-style outline with additional labels and notes. The phrase *Inclusive Roles* appears in green above the teacher/workshop leader, emphasizing inclusivity in this teaching model. A blue arrow pointing to the leader role includes the phrase *In Duo* suggesting that the role may involve co-leading or collaboration between multiple facilitators. To the right, a green dashed arrow connects the teacher role to the contents/materials section with the label of *Accompaniment of mediation and facilitator*, indicating that the leader's role involves mediation and support rather than just directing.
- This section is labeled *Contents / Materials* with *Art Teaching* in red, followed by "*+ inclusive*" in green, suggesting that the materials used are inclusive in nature. A purple brushstroke box frames this section, with a note above it in purple that reads, *Methodology in the different art branches*, possibly highlighting that

the materials cater to various forms or disciplines within art.

- Participants (bottom section): Connected by a downward arrow from the *Contents / Materials* box, this section is framed in brown and labeled *Students / Participants*. Additional notes, such as inclusive in green, along with *cooperative and creative* in green at the bottom, underscore a collaborative and imaginative environment. Words like *Personalized* and *Individual Learning* are crossed out in red, indicating a move away from individualized approaches to a more communal or group-focused model.
- Additional notes: In brown text below the title, a note reads, *Reinforcement of the subject's social experience and art abilities*, emphasizing that this teaching model seeks to enhance both social and artistic skills in an integrated way.

Overall, this diagram presents a model that emphasizes inclusivity, cooperation, and a supportive role for teachers. It moves away from individualistic learning, focusing instead on community-oriented, facilitated, and creative learning experiences in art.

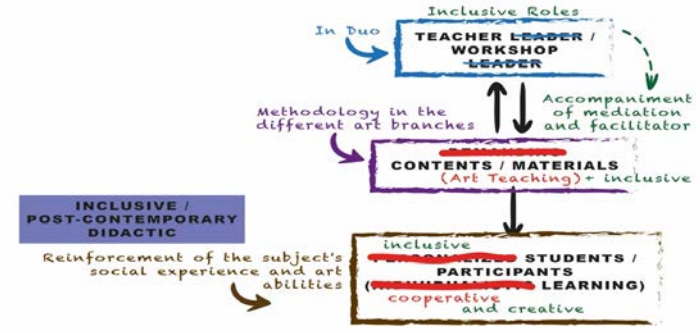

Figure 4.
Sample Structure on İnclusive (or Post-Contemporary) Didactic.

In comparing Figures 2, 3, and 4, each figure presents a unique educational structure with distinct approaches to teacher roles, content, and student engagement, gradually shifting from a traditional didactic model to an inclusive, post-contemporary didactic.

- Figure 2 illustrates a *Traditional Didactic* model, highlighting a top-down, teacher-centered approach where content is challenging and primarily focused on individualistic learning.
- Figure 3 represents a *Modern (or Contemporary) Didactic* model, showing a shift towards cooperative learning, with less emphasis on demanding content and more on bidirectional interaction between teachers and students.
- Figure 4 depicts an *Inclusive (or Post-contemporary) Didactic* approach, emphasizing inclusivity, collaboration, and social experience in learning, with teachers acting as facilitators rather than strict authority figures.

The evolution from Figure 2 to Figure 4 shows a progressive move from rigid, hierarchical structures towards more inclusive, flexible, and socially supportive educational environments, particularly in the context of art education.

The Figure 4 proposes a forward-thinking framework for inclusive education, merging students with SEN and those without disabilities into a single, cohesive learning environment. This model fosters a cooperative and creative atmosphere, leveraging diverse techniques, strategies, and resources to enhance interactions between students and teachers. Emphasis is placed on inclusive art education, where students can engage with various branches of art through flexible, adaptive methodologies that cater to educational diversity. The structure promotes teacher collaboration, with leaders acting as facilitators rather than authoritative figures, guiding a shared, enriching experience where social and creative skills develop collectively. This approach redefines traditional roles and content, aiming to create an interactive space where inclusivity and creativity thrive equally among all students.

This proposal favors school coexistence through the new acceptance of human differences, which becomes a necessary tool for social integration, educational understanding, and school inclusion that seeks to guarantee high-quality and independent learning for students with SEN in art education. For example, there is an approximation of cognitive learning between peers (schoolmates), as described in Vygotsky's theory of the zone of proximal development (ZPD), which allows for learning that adapts to each individual's level of development (Bernaschina, 2019; Chaiklin, 2003; Daniels, 2003; Silalahi, 2019; Úcar, 2016; Vygotsky, 2009, 2012, 2013; Wertsch, 1988; Zuckerman, 2007).

With this finally, it is essential to know both art education and art teaching to deepen the quality of the inclusive school, reinforcing the Chilean educational system towards inclusive education for all students with and without disability. Creating inclusive schools necessitates of an educational response pertinent to students in terms of their needs, to the didactic proposals according to the heterogeneous characteristics of their students, and the use of educational resources and practices (Valenciano, 2009, p. 20). In this sense, it is possible to incorporate the inclusive methodology with the didactic proposal to improve educational quality through art teaching with the participation of students with SEN. The inclusive education

structure for art education is also incorporated into demand by the low quality of the Chilean educational system without the benefit of educational accessibility, of course, the cooperative learning of students in general. However, it is relevant to highlight that these measures should not focus exclusively on reducing the demand for inclusive students but on improving the quality to develop the cooperative learning process and art teaching.

Discussion

The new approach in Figures 2 to 4 of the inclusive methodology for art education and the inclusive education structure for art teaching promotes a challenge to support students with SEN in collaborative-creative learning, based on the teaching role (and teaching duo) towards "pedagogy of conceptual artist" (Bremmer et al., 2021) to provide curricular adaptation within public-private schools, including formal, informal and special schools. Both the traditional and contemporary didactic methodology and the inclusive education structure have not been sufficient due to the lack of awareness and artistic resources, which prevents collaborative work for art towards the inclusive school, such as the student participation on the curricular adaptation in art education, and interprofessional coordination (teaching role and teaching duo) for art teaching.

On the other hand, the post-contemporary didactic methodology corresponds to the positive impact study on students' self-confidence to stimulate social interactions and the different values of solidarity, respect, tolerance, and responsibility, which strengthens an inclusive culture in the school classroom. Likewise, art collaborative teaching —within the two groups— has also been shown to develop sociocognitive, creative, and metacognitive skills of inclusive students in various artistic branches, improving the climate in the school classroom. The models must contemplate and promote educational diversity in the teaching-learning processes, especially in the context where there is a heterogeneous student population, migratory flows, and the absence of participation of native peoples, women, and people with disability in the educational system. The didactic methodology in art fields, design, and technology must be adapted to the different values and promote a quality education that allows the individual and student's social potential to develop. In short, collaborative teaching is an educational model of inclusive culture that supports more solid and stimulating learning, improving interpersonal relationships.

The creation of inclusive schools maximizes the commitment to art education for the whole society, especially for students with SEN. By achieving the optimization of the most inclusive educational processes, i.e., creating safe, welcoming, collaborative, and stimulating school communities in the participation of activities in the classroom. In every educational system, it is possible to valued, and where inclusive values are shared and guide daily school decisions and policies. However, making these profound changes in schools to attend to educational diversity, it is hard to comprehensively address teaching differences through models of art education (inclusive education structure) and art teaching (inclusive or post-contemporary didactics). In addition, it is necessary to offer and renovate new spaces in schools where the educational staff —teaching role and teaching duo— can share artistic experiences and work together to build more inclusive conceptual ideas, and independently of students with and without disability to recognize the motivation collaborative-creative learning. As pointed out, education must ensure that diversity is a constructive factor to contribute to mutual understanding between people and groups, and our current didactic system is insufficient to improve the didactic methodology of cooperative learning toward socio-educational inclusion in the treatment and care of cultural diversity in the classroom (Ainscow, 1997, 2005, 2015, 2020; Ainscow & Miles, 2008; UNESCO, 2003; Valenciano, 2009).

Generally, most of the points related to the commitment to educational goals indicate that developing inclusive policies implies providing pedagogical support that increases the capacity of education centers to attend to the diversity of students (Alfaro-Urrutia, 2022; Iturra-González, 2019). By considering the support of arts education to help students with disability with educational content to make it accessible and creative. It is possible to know that all the policies should improve teacher performance and collaborative-creative learning within inclusive education models. There is no open participation in arguing the new version of Chilean educational policy, supporting the new inclusive education system, such as inclusive education in Chile to recognize and value quality for all required systems of society in general. It is crucial to highlight that the post-contemporary didactic of inclusive methodology and the inclusive education structure also facilitates social interaction improvement in the inclusive school for all subjects of art education in different branches. It is often necessary to implement a post-contemporary didactic that adapts to different learning styles, preferably with teacher support in pairs, to improve the art teaching process and cooperative learning and thus encourage student acceptance through cultural diversity and social vulnerability.

Finally, it is essential to institutionalize these

methodological changes in certain attitudes to generate new ruptures in different periods of generations, which implies a profound transformation of the Chilean educational system. To achieve this, rigorous planning and coordinated action among the stakeholders involved in the education field, such as authorities, teachers, students, and families, are required:

> The proposal to rethink cultural policies make addressing the principle of pluralism —in the sense of tolerance, respect and acceptance of a multiplicity of cultures— the challenges of technology and human creativity and of a world increasingly more media, the link between cultural environment. For this purpose, it is considered fundamental to broaden the concept of cultural policy, accepting that in the "national culture" are considered not only the arts and artists but an environment that encourages self-expression by individuals and communities (Rivero, 2011, pp. 227-228).

Point out that these necessary changes in the educational system cannot be driven solely by the will of others and the little school participation towards inclusion. There are few individuals to be able to broaden a careful consideration of the priority needs of students with SEN within the educational activity in art. In addition, it is essential to have the necessary resources to carry out social transformation and to guarantee educational sustainability in the long term. The complex scenario in the current time is analyzed to transform the Chilean educational system that faces the most significant challenges, such as unequal access to art education and its quality in cooperative-creative learning, insufficient resources, and a shortage of qualified teaching staff (with disability) within public-private schools. Therefore, it is possible to question and address these problems of the Chilean educational transformation without regard to the recognition of school inclusion and the participation of educational space in cultural-sustainable art.

Conclusion and Recomendations

After analyzing this proposal, it is clear that there is a need to incorporate curriculum adaptation in both educational models within the inclusive educational system, for both teachers and students. It is also important to consider the role of the Chilean State in educational policy towards educational inclusion and how education can transform cultural and educational diversity. From this study, we can draw new conclusions regarding commitment to shared educational goals.

By considering the support of arts education to help students with disability with educational content to make it accessible and creative. In conclusion, it is possible to update and design the new art teaching instruments and cooperative-creative learning for students with SEN to provide an innovative focus, recognizing their more respectful school spaces towards educational and cultural diversity. This reflection emphasizes the critical role of teaching inclusive art within a methodological framework designed to foster cooperative learning across various art disciplines. From this study leads to several important conclusions regarding the commitment to shared educational:

Firstly, the findings underscore the potential of art education to transform the educational landscape through two models-specifically, the post-contemporary didactics-of the inclusive methodology and the broader structure of inclusive education. Envisioning a future of school inclusion is vital to dismantling existing barriers faced by teachers lacking support for educational mediation and by students with disabilities who experience challenges in cooperative and creative learning within public and private educational settings. Achieving this goal requires a collective commitment from educational authorities and society at large.

Secondly, there is a need to update and design new proposals for art education for both teachers and students in the school classroom. The transformation emphasizes the importance of educational activities. Similarly, art education is notable for incorporating cooperative and creative learning for students with disability through curriculum adaptation in both public and private schools' educational policies.

Thirdly, the inclusive school system must be recognized for its potential to implement various new approaches to art education, ensuring that educational policies fully support the goal of inclusion. Additionally, it is crucial to address the dual isolation faced by teachers with disabilities-one stemming from the lack of recognition of their employment rights and the other from insufficient educational spaces to engage students with varying types and degrees of disabilities. Continuous and adequate training for educators is essential to enhance their commitment to inclusive education and cultural diversity, aligned with the principles of the inclusive educational policy framework.

These three proposals to define collaboration on the inclusive education model-through Figure 1 to 4-for art education, transforming inclusive mediation in the classroom. Not all educational systems facilitate collaborative work but also the teaching-learning process towards the role of educators, depending on different skills to benefit cooperative learning to other students without SEN. Likewise, the new approach to inclusive methodology

for the art and inclusive educational structure promotes a good challenge to improve curricular adaptation through the inclusive method in different educational contexts.

However, this proposal of different inclusive didactic structures, depending on the public-private schools within the inclusive educational system and the didactic field through the artistic tool. Finally, it is possible to conclude an inclusive educational system is within reach, contingent upon an active commitment to improving coordination among educational authorities and the broader educational community, including teachers, students, and parents. Updating and designing new art teaching instruments and cooperative-creative learning methodologies for students with SEN can foster innovative approaches that respect and promote educational and cultural diversity.

These necessary methodological changes-such as the new proposal for educational inclusion and learning for students with disabilities through art-reinforce a vision for the future of the educational system in Chile, aiming for long-term inclusivity and quality education. This transformation should be guided by the principles of pluralism, creativity, technology, and the interconnectedness of culture and the environment, expanding the concept of cultural policy to encourage individual and community expression.

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Use of Ad Texts in Teaching Listening and Writing Skills

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ABSTRACT

Ad text is an important information and persuasion tool. Advertising texts can be found in traditional or digital media such as newspapers, magazines, radio, e-mail, and social media. Advertising texts are not only a means of promoting a product or service, but also a means of conveying cultural and social messages. Elements such as text, icons, images, and music in the ad text complement each other and create a meaning. Combining these elements to attract the target audience's attention and effectively convey the message plays a critical role in the advertisement's success. Thus, it takes its place in the universe of meaning of the listener/viewer. Especially considering the increasing advertising intensity in the recent period when technology has developed, it is a fact that children are exposed to advertising messages. This situation further increases the importance of creating a critical perspective and media literacy skills. Ad text is a type of text that is used in both listening/monitoring and writing skills in the Turkish Curriculum (2019). This study aims to show that advertising texts can provide a theoretical framework for the acquisition of critical listening/watching and creative writing skills, based on the achievements in Turkish language lessons. In the study, theoretical information about the advertisement text was presented and activities suitable for listening/watching and writing skills were designed in the light of this information. As a result of the study, some suggestions were made for the effective and active use of advertising text in Turkish lessons.

Keywords: Listening/watching, writing, language teaching, ad text.

Introduction

People are constantly exposed to the flow of information through digital and traditional media tools. In addition to information, the media aims to direct products, ideas, or people (Azizoğlu, 2020). To put it more clearly, the messages in the media are designed to gain power or gain depending on political and economic concerns (Kurudayıoğlu, 2013). One of the important powers of the media is advertising. Advertising is an example of media encountered in many areas of life. Although the number of advertisements that people are exposed to in daily life is exaggerated, studies show that a man living in a metropolitan area is between 117-285; shows that women are exposed to advertisements between 161-484 (Şahin, 2021). Advertisements have functions such as informing, persuading, reminding, and adding value (Babacan, 2005; Tek, 1999). In advertising, messages are created in a targeted manner. The message is to be given in advertisements; written, oral, and visual techniques are used (Batı, 2019). Messages; magazine advertisements, outdoor advertisements, radio advertisements, newspaper advertisements, TV advertisements, and internet advertisements (Yalçın, 2019).

The advertisement, which is created through different communication channels, has an old history. In Europe in the Middle Ages, the communication established by the sellers as a result of shouting to draw attention to their products is considered to be the first traces of advertising (Topsümer & Elden, 2020). With the invention of the printing press in 1450, advertising texts began to be printed in writing (Serttaş, 2017), and verbal communication between the seller and the customer in the Middle Ages turned into written communication over time. In the 19th century, advertisements reached a wide audience through mass media such as newspapers and magazines. In the 20th century, in direct proportion to the developments in the fields of economy and technology, there has been a development in the advertising sector. As a result of advertising, radio advertisements, television advertisements, the discovery of the internet, and the widespread use of computers, it has started to contain various types of advertising (Şevik, 2022). According to Nazlı (2022), "advertising text, defined as a linguistic creation, is a means of communication" (p. 3). When the ad text is examined as a communication tool, it is noticed that it has some important features. Some of the features of the ad may include:

The message in the ad text is one-way; that is, it is oriented from the producer to the consumer.

- It's aimed at groups rather than individuals, but not all ads are aimed at everyone.
- Both linguistic and visual symbols are used to convey the advertising message.
- Advertisements take place in a competitive environment where the listener or reader has the chance to read or listen to what they want.
- Each ad contains the information that is most necessary for the listener.
- It is prepared to persuade people.
- Advertising is also a commercial communication (Dunn, 1956, p. 55; İnce, 1993, p. 232).

According to Öz (2011), it is effective to use advertisements to transfer information and ensure its permanence. Turkish lessons, in which the development of basic language skills takes place through texts, are not independent of daily life (Melanlıoğlu, 2013). Accordingly, it may be effective to take advantage of the resources that may be encountered in daily life in the education of basic language skills. "Identifying various situations from daily life (instructions, advertisements, announcements, recipes, news, weather, etc.) and planning educational activities by using these examples" (Doğan, 2013, p. 166) can contribute to the effectiveness of language teaching. Studies show that text types such as ephemera, brochures, news texts, advertising texts, social media messages, and e-mails in the Turkish Curriculum (2019) are materials that can be used to gain and support language skills (Çetinkaya-Edizer et al., 2018; Göçer & Garip, 2022). Correctly selected advertisements contribute to the linguistic and cultural skills of students (Altundağ, 2018). Mutlu and Süğümlü (2018) found the use of commercials as auxiliary materials in language teaching useful and summarized their benefits with the following items:

- contains real-life scenes.
- are lively and interesting.
- are economical, and do not require much time.
- can be used at all levels.
- develop listening/watching skills (p. 1045).

Literature review shows that public relations and advertising (Batı, 2019; Elden, 2018), media literacy (Şahin, 2021) are used in various areas such as language education (Aydın & Avcı, 2020; Maden, 2013; Mutlu & Süğümlü, 2018; Şenol, 2018). An analysis of literature review reveals that advertisement texts are used in critical listening/watching studies (Azizoğlu, 2020; Bayar, 2022; Boneless, 2015; Çarkıt, 2018; Erkek, 2020; Fidan, 2019; Güneş, 2019) and creative writing studies (Beydemir, 2010; Duru, 2014; Gökçe, 2007; Gökçe, 2020; Öztürk, 2007; Saluk, 2017; Türkyılmaz, 2021; Uluyüz, 2019; Yıldırım, 2018; Yüksel, 2016).

The aim of this study is to show that advertising texts can provide a theoretical framework for the acquisition of critical listening/watching and creative writing skills, based on the achievements in Turkish language lessons. In the study, first, the theoretical information obtained in the literature about the advertisement text was presented, and then activities suitable for listening/watching and writing skills were designed based on this information. It is hoped that this study, in which advertisement texts are associated with Turkish language instruction, will contribute to the literature.

Method

Research Design

This study is a design development and modeling study showing the usability of advertising texts in teaching the listening and writing skills in Turkish lessons. The advertisements used in this study were selected from content that has the potential to develop critical thinking and creative writing skills. Expert opinions were consulted in the selection of advertisements. Experts expressed their opinions regarding the pedagogical suitability and sustainability of the activities in the selection of advertisements. Advertisements can be used in different themes and learning areas. Not every ad can be included in the events. For this purpose, criteria such as linguistic suitability, serviceability to educational objectives, cultural and ethical suitability should be taken into consideration. In addition, the clarity of the message, the potential for interaction, and the visual and textual balance are also important in advertising selection. Although the advertisements included in this study are examples, it is recommended that instructors choose advertisements that are appropriate for different themes and learning areas.

Results

Examples of Activities Relating to the General Appearance and the Use of Advertising Texts

In this section, information about the advertising text is given under the headings of “Advertising Text and Its Place in Language Teaching”, “Use of Advertising Text in Teaching Critical Listening/Watching Skills”, “Use of Advertising Text in Teaching Creative Writing Skills” and sample activity designs prepared based on this information are presented.

Advertising Text and Its Place in Language Teaching

Advertising, which comes from the French root reclame, is one of the most effective and strategic forms of mass communication used to influence or change human behavior in a desired direction (Ünsal, 1984). Advertising text is the tool that provides the relationship between the advertiser and the target audience (Büyükbaykal, 2002). "Advertising texts include symbols, images, visual elements, sounds, and musical elements" (Doğanlı & Çelik, 2023, p. 1295). Through visual, auditory and audio-visual elements, advertisements “take the raw materials that everyone is familiar with in social life and create a meaning by reconstructing them for their own purposes” (Yavuz, 2006, p. 150). Advertising texts are used in areas such as health, sports, marketing, politics, and education. According to what Altundağ (2018) cited from Jeon (2008), the effect of advertising on education is in three dimensions: increasing interest and curiosity, language teaching and culture teaching. Drawing attention to the cultural dimension of advertising as well as its linguistic dimension, Akfırat (2010) states that language advertising contains language and culture by accepting it as a communicative activity.

According to what Aydın and Tunagür (2021) quoted from Williamson (2001), the cultural codes, history and life of the society are frequently seen in advertising texts. According to Altundağ (2018)'s quote from Hepner (1956), advertisements contain a lot of information about a country's culture in terms of the ways they influence people, presenting examples of the country's contemporary art and science, and reflecting the tastes of society members. Advertising texts that appeal to students' multiple senses and affect their affective processes “perpetuate language learning. The student continues to hear the content he has learned through advertisements outside the classroom and thus has the opportunity to constantly reinforce it” (Altundağ, 2018, p. 148). For this reason, “it creates a suitable environment for the development and use of students' comprehension and expression skills. The short duration of the advertisements and the fact that the messages to be given are given with effective words ensure that the learning is permanent and the learning process is fun for the students” (Altundağ, 2018, p. 155). “Advertising texts are capable of meeting many topics in Turkish education programs. Turkish, which is a double-articulated language, is also the transmitter of the culture in Turkish themes, which meets the textual knowledge and grammatical operability” (Bal, et al., 2020, p. 169). Potur (2023) recommends using page-based texts such as books, advertising posters, and graffiti, as well as time-based texts such as radio and television programs, internet and social media texts, and movies in Turkish lessons. Aydın (2018), who discussed the reason for the necessity of using advertising texts in teaching Turkish as a foreign language, determined that advertising texts have a poetic language rather than ordinary prose, and that they can be used as a unique material in the classroom environment in terms of having superior aspects such as attracting attention, persuading and being memorable. In a similar study, Akpınar (2004) mentioned that in addition to television advertisements, written, audio, and visual advertisements are unique materials that can be used instead of classical course materials in language teaching. Advertising texts are rich in audio and visuals; they offer a creative space. Therefore, it can be used in the teaching of basic language skills.

Under the following headings, information will be given about the usability of advertising texts in teaching critical listening/viewing and creative writing skills, and sample activities will be shared.

The Use of Advertising Text in Teaching Critical Listening/Watching

Advertisements appear in front of the consumer every day in various formats in order to persuade and make propaganda about a situation, by putting forward creative methods and techniques in a strong way. According to Ünlü (2018), advertisements containing ideology expand their

sphere of influence by suggesting the necessity of consumers to consume products. “A person who has been exposed to advertisements and propaganda in a similar format many times, without questioning the essence of the message, may believe that using the advertised product will immediately solve their problems and be happy" (Şahin, 2021, p. 25). Beyreli and Konuk (2018) state that they are not aware of the persuasion used implicitly in advertisements, advertisements, communication/mass media, and that they are vulnerable to the use of implicit persuasion. In particular, children, who are seen as "consumers of the future", are also chosen as the target of advertisements (Ensar & Gündüz, 2023, p. 262). It is argued that advertisements are effective on children (Özçam & Bilgin, 2012), whereas children cannot criticize the message in the advertisement (Dural & Dural, 2015). Being able to read the advertisement is not limited to understanding the message, but also includes the ability to examine the meaning within the social structure in which the relevant advertisement exists (Ritson & Elliot, 1995). Children need to gain critical skills in the face of the effects of advertising. The development of critical skills, understanding, and analyzing the messages in the advertisement is parallel to being a conscious consumer. Many consumers may have negative experiences as a result of not analyzing ads from a critical point of view. According to Boneless (2015), the way to minimize such grievances is through critical listening. Advertisements are considered ideal for many different reasons, especially in terms of teaching listening (Smith & Rawley, 1997). The number and complexity of stimuli from media tools are increasing day by day. There is a need for critical listening/monitoring to analyze, evaluate, etc. these stimuli (Güneş, 2019). According to Aslan (2021), critical listening is a type of listening to evaluates the validity, reliability, scientific, and logical nature of verbal input aimed at influencing or persuasion, forming feelings and thoughts on the subject, and making conscious decisions by the evaluation. Since students are frequently exposed to advertising texts, the critical listening process should be used actively (Şahin, 2014). By creating classroom environments where multiple media tools are used, critical listening/viewing environments should be enriched with materials and content that can appeal to the eye, ear, and sense of touch. As a matter of fact, Tüzel (2014) recommends that advertisements will be an example of listening texts that can be used to gain critical listening skills in one of his studies, and that in the selection of such texts, the features that the texts to be included in the textbooks should be based on the characteristics and states that these texts are tools for developing critical listening skills. Similarly, Akyol (2006) stated that critical listening studies can be done easily on advertising films and shared a sample application. It is recommended to ask the following questions to analyze the meanings of advertising messages and to conduct advertising analytics (Şahin, 2021). Some questions to consider are:

- Who is the target audience of the advertisement? In what ways does the advertisement aim to influence the audience and how does it do so?
- How is the design of the advertisement? Is there a balance in the design or are there other formal elements? How are the key elements placed?
- How are visual and verbal elements related? What message does this relationship give to the reader or viewer?
- What kind of signs and symbols do we encounter? What role do they play in the effectiveness of the advertisement?
- What is the background of the advertisement and what message does this background convey to the audience? Where is the product located and what is the importance of the background?
- What kinds of actions are included in the advertisement? What is the significance of these actions?
- What kind of theme can we extract from the ad?
- What can be said about the language used in the advertisement? Is the language used informative, intended to elicit emotional responses, or both?
- What kind of facial expressions have been created and what is the meaning of these facial expressions?
- What is the advertised product and what is its importance in society and culture?
- What are the aesthetic features?
- Which sociological, political, economic, and cultural attitudes are indirectly reflected in the advertisement?

Advertisements have been cited as an example in some studies on critical listening/watching in the national literature (Akyol, 2006; Azizoğlu, 2020; Bayar, 2022; Boneless, 2015; Çarkıt, 2018; Fidan, 2019; Güneş, 2019;

Male, 2020; Tüzel, 2014). In the international literature, few studies show that advertisements used in language lessons contribute to listening comprehension (Oliveira, 2001; Saputro & Sulistyani, 2016). However, in these studies, there was no study showing the use of advertising texts independently in teaching critical listening skills. Based on the information in the literature, an activity was designed to demonstrate the usability of advertising text in teaching critical listening/watching skills and shared through Table 1.

Table 1.

Activity Design Demonstrating the Usability of Advertising Texts in Teaching Critical Listening/Watching Skills

Lesson: Turkish
Grade Level: 6th Grade
Theme: Science and Technology
Learning Area: Listening/Watching
Gain: T.6.1.10. Evaluates the content of what they listen/watch.
Students listen/watch commercials and work to determine the messages and implicit meanings in them.
Students question the consistency in the content.
Listening/Watching Material: Video recordings of Kent Şeker brand.

Event Process

- Students prepare their notebooks to take notes while listening/watching.
- Advertising film is presented to students.
- While the students are listening/watching the commercial, they note the elements that interest them in the advertisement.
- At the end of the listening/watching process, students are asked the following questions and they are asked to answer these questions.
    - How are the audio, written and visual elements in the advertisement presented?
    - What emotions does the advertisement make you feel?
    - What is the slogan used in the advertisement?
    - What is the purpose of the advertisement?
    - What is the message in the ad?
    - What are the reasons for purchasing the product in the advertisement?
    - Are the reasons given for purchasing the product in the advertisement convincing?
- Students are shown the second commercial film.
- After the first commercial, the same questions are asked again and the students are expected to provide answers.
- Students are asked to explain the similarities or differences between the first and second commercials.

The Use of Advertising Text in Teaching Creative Writing Skills

Advertisements are aimed at selling a product. To achieve this goal, consumers' attention is attracted and various persuasion methods are preferred. Related methods "As Leech (1966, p. 175-193) points out, poetic language, which we can call creative writing techniques, is carried out through linguistic deviations, repetitions at the level of sound, word or sentence, choruses in which music and language are used together, the use of theatrical elements together with language, or verbal arts such as metaphor, simile, personification" (İnce, 1993, p. 233).

Creative writing is to present the impressions obtained from the outside world in a different way (Aşılıoğlu, 1993). Temizkan (2010, p. 285) states that the most important purpose of creative writing activities is to enable students to express their feelings and thoughts in a fluent, interesting, and original way instead of writing repetitive, ordinary, boring articles. Kaplan (2017) states that activities such as creating media texts, writing news texts, and writing sample advertising texts can be done in Turkish lessons. According to Denizer (2007, p. 9), "production in copywriting; It starts with creativity." Although the advertising texts are not long, it is a type where students can show their investigative side and creativity (Arı, 2013, p. 503). In addition, "it is extremely suitable for producing writing activities by taking into account the age, language level, learning goals, culture, interests, and readiness of the students" (Yılmaz, 2021, p. 68). In a study, Yılmaz (2021) aimed to determine the contribution of the use of commercials in Turkish as a foreign language teaching lessons to students' writing skills. In this research, which is

shaped according to the action research model, Turkish Airlines' "85th Year" was preferred. Based on this commercial, writing activities were created. The relevant activities were applied to five participants consisting of Yüzüncü Yıl University TÖMER students in the Zoom application during three planned lesson hours. As a result of the research, it was determined that the use of advertising films in the lessons teaching Turkish as a foreign language enabled students to show a positive attitude toward writing, increased participation in activities, and reduced their anxiety and motivation. Sarar Kuzu and Altaş Kaya (2012) took their creative writing studies to a different dimension in a study in which they aimed to design public advertisements for primary school 6th, 7th, and 8th grade students in Turkish lessons. As a result of this observational study, positive feedback was received. Özdemir and Çevik (2018) examined the effect of creative writing studies on attitudes toward writing and creative writing success, and they enabled the experimental group to experience creative writing studies of different qualities. Ad copywriting activities included in creative writing activities were appreciated by the students. Although it is not considered within the scope of studies on creative writing activities, it can be mentioned that there are studies in which advertising texts are used in some writing studies and the positive effects of these texts are determined. Mutlu and Süğümlü (2018) state that the activities of evaluating commercials, creating their advertisements, and writing based on advertisements will improve both speaking and writing skills. Ökten and Sauner (2015), on the other hand, in their study on pictorial text readings in teaching Turkish as a foreign language, it was concluded that both beginner and intermediate-level learners were effective in learning reading and writing skills with short, illustrated materials such as anecdotes and advertising texts.

Various studies on creative writing skills in the national literature (Beydemir, 2010; Duru, 2014; Gökçe, 2007; Gökçe, 2020; Öztürk, 2007; Saluk, 2017; Türkyılmaz, 2021; Uluyüz, 2019; Yıldırım, 2018; Yüksel, 2016). However, the number of studies exemplifying the use of advertising text in creative writing skills is limited (Erdoğan, 2012; Göçer & Garip, 2020; Oral, 2014; Sarar-Kuzu & Altas-Kaya, 2012; Uluyüz, 2019; Proper, 2019; Yılmaz, 2021; Yüksel, 2016).

Based on the information in the literature, an activity was designed to show the usability of advertising text in teaching creative writing skills and was presented in Table 2.

Table 2.

Activity Design Demonstrating the Usability of Advertising Texts in Teaching Creative Writing Skills

Lesson: Turkish
Grade Level: 6th Grade
Theme: Science and Technology
Learning Area: Writing
Gain: T.6.4.14. Writes short texts.
Announcement, advertisement, and advertisement texts are printed.

Event Process

- Students are asked to imagine themselves as someone working in the advertising industry.
- Students are asked to think about a product that consumers need.
- It is said that an advertisement will be prepared about the selected product.
- It is ensured that the images related to the product to be advertised are created by the students. Students create images of the product(s) by taking into account the expectations, needs, desires and dreams of consumers.
    - I'm a customer, don't sell me chocolate, buy happiness.
    - I'm a customer, don't sell me a car, buy ……
    - I'm a customer don't sell me phones, buy ……..
- Students are expected to answer the following questions in the prepared advertisement text.
    - What is the purpose of my ad?
    - What message will be given in the advertisement?
    - Which persuasion strategy will be used in the advertisement? (Again, product peer popularity, celebrity support, etc.)
    - How will audio, written or visual elements be used in the advertisement?
    - Why should consumers buy this product?
    - What is the slogan of the advertisement?
- After the ad text is created, it is checked and shared.

Discussion

The main purpose of language education in schools is to provide students with reading, listening, speaking, and writing skills by the achievements of their grade level and to enable them to use them effectively (Göçer, 2015). The richness of text genres can be used for the acquisition and development of basic language skills. One of the types of rich text is ads, which represents an example of communicative text. Advertisements that people frequently encounter in various media such as magazines, newspapers, television, radio, internet, and social media in daily life; It is supported by elements such as color, music, shape, slogan. These texts, which form a whole with their elements and contain them dynamically, "have features such as remarkable, impressive, and catchy with their short text" (Şenol, 2018, p. 57). Denizer (2007) points out the close relationship between advertising and language skills by stating that as a result of the abstraction of creativity in advertising, functions aimed at understanding and explaining come to the fore. Nilsen (1976) recommends the use of advertising to realize the characteristics of language. In addition, he finds the language of advertising to have creative and effective word games and sees it as a material worth using in the classroom. Yılmaz's (2021) view of advertisements as a source for applicable activities in the course is in line with Nilsen's (1976) view. These results suggest that advertising text can be used in teaching basic language skills. When we look at the advertising texts that are the subject of language teaching in the literature, it is not found that while the studies are focused on foreign language teaching, the advertising text is used independently in mother tongue teaching.

This study aims to show that advertising texts can provide a theoretical framework for the acquisition of critical listening/watching and creative writing skills, based on the achievements in Turkish language lessons. For this purpose, firstly, studies on advertising text in the literature were examined. Secondly, the literature review has been deepened and studies have been found in which critical listening/watching and creative writing are related to advertising texts. The content of the study was organized in line with these findings and information about critical listening/watching and creative writing was given. Then, a limited number of studies were mentioned in which these language skills were associated with the advertising text. Based on the information obtained, a critical listening/watching activity and a creative writing activity were designed in which advertising text was used.

When the studies in which the advertising text was used in foreign language teaching were examined, some results were encountered. One of these results is that advertisements are a resource to teach the target language and culture. The second is the use of TV commercials, which are often used. Şenol (2018) has shown in his study that advertisements on television can be used to introduce the linguistic characteristics of Turkish and the elements specific to Turkish culture in teaching Turkish as a foreign language. Kara and Altunsoy (2017) researched the use of television advertisements in teaching stereotyped expressions in Turkish by revealing that advertising is a source feature. Similarly, Akpınar (2004) evaluated television advertisements as an authentic language source and conducted a study on their usability in foreign language teaching. Aydın and Avcı (2020) examined the language features in advertising texts and shared sample activities on their use in teaching Turkish as a foreign language. Saputro and Sulistyani (2016) investigated how television commercials can be used in teaching the skill of listening to English as a foreign language. As a result of the research, it was found that advertisements improve listening skills and help to speak naturally. Mutlu and Süğümlü (2018), on the other hand, separated the commercials in terms of their level and subject in their study and included their use in different language skills and levels. On the other hand, Oliveira (2001) stated that short expressions and word games in advertisements support the active use of language, from simple descriptive sentences to the use of persuasive language. In a study, Altundağ (2018) aimed to examine how TV commercials can be used in teaching Korean as a foreign language. In order to observe the effects of advertisements on Korean language teaching, the opinions of 44 students in the Department of Korean Language and Literature at Ankara University were taken. According to the results obtained from this research, advertisements are a useful resource that shows the creative use of language in the classroom environment. Strauss (1999), on the other hand, supported these studies by stating that TV commercials can

help develop basic language skills when used correctly.

In a recent qualitative study conducted by Ensar and Gündüz (2023), the achievements and explanations in the Secondary School Turkish Curriculum (2019) and the activities in a Turkish textbook taught at the 5th, 6th, 7th, and 8th grade levels were examined according to advertising literacy. At the end of the review, it was determined that there were gains related to advertising literacy in the Secondary School Turkish Curriculum (2019), but the gains did not show a balanced distribution. In Turkish textbooks, on the other hand, there were no listening/watching and reading texts that would be associated with advertising literacy. In addition, it has been determined that the limited number of activities related to advertising literacy do not reflect the main purpose of the advertisements. In the study, suggestions were made for the use of advertising texts. As a matter of fact, according to the research conducted by Wang (2000), many activities such as vocabulary teaching, reading, speaking, and discussion can be produced by using advertisements, although they are short-term. Through these activities, effective and permanent language teaching can be possible. Today, the increasing presence of multi-layered texts (Tüzel, 2013) makes it necessary to include advertisements with multi-layered text features (Atasoy, 2020) in Turkish textbooks (Ensar & Gündüz, 2023).

Conclusion and Recommendations

Research shows that advertisements are an effective tool in language teaching and contribute to the development of different skills. Multi-layered texts such as television commercials provide an important resource for the development of creative and critical thinking skills both in teaching Turkish as a foreign language and in mother tongue education processes. Studies by researchers such as Şenol (2018), Kara and Altunsoy (2017), and Akpınar (2004) emphasize the potential of advertisements to introduce unique uses of language and teach cultural elements. In addition, Aydın and Avcı (2020) and Mutlu and Süğümlü (2018) demonstrated the use of advertising texts at different levels in terms of language skills. Turkish textbooks should include multi-layered texts that can be associated with advertising literacy and these texts should be supported by activities that reflect the main purpose of the advertisements. In fact, the study of Ensar and Gündüz (2023) has shown that the current curriculum and materials are deficient in this regard. As research such as Wang (2000) and Oliveira (2001) has shown, effective language teaching is possible through advertisements. In this context, the use of advertising texts as a versatile teaching material in language education processes should be encouraged. Developing various activities by utilizing the linguistic, visual and cultural elements contained in advertising texts for the development of students' critical and creative language skills will add an innovative dimension to language teaching.

According to the findings obtained as a result of the examination of national and international studies, it is thought that basic language skills, especially listening/watching and writing skills, can be gained effectively and practically in Turkish lessons through advertising texts. As a result of this study, the following suggestions were included.

- Advertising texts can be used in the training of critical listening/watching skills and creative writing skills in Turkish lessons.
- A guide can be prepared that includes critical listening and creative writing activities related to advertising texts. This guide can be structured according to different grade levels.
- Workshops can be planned for teachers on how to use advertisements in education.
- Advertisement texts in different formats (magazine advertisements, outdoor advertisements, radio advertisements, newspaper advertisements, television advertisements, and internet advertisements) can be brought to the classroom environment in Turkish lessons.
- While analyzing advertisements, students can be taught concepts such as misleading advertising techniques, rhetorical devices, and media manipulation.
- Students may be asked to analyze local advertisements in the area they live in. This provides students with the opportunity to critically examine their own cultural context.
- Digital tools (e.g. Padlet, Canva, or Kahoot) can be used during ad analysis. Additionally, students can use apps (e.g. Powtoon or Animaker) to create their own short ads.
- Students may be asked to note and categorize the advertisements they are exposed to during the day.

- It can be ensured that students animate the advertisement text they have created in the classroom environment or present it in the classroom by shooting a video.
- Activities can be designed for students to change the slogans used in the advertisements they listen to, watch, or read.
- Sharing the developed activities on online education platforms can help reach a wider audience of teachers.
- Studies can be carried out to determine the persuasion strategies used in advertisements.

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Early Childhood STEM Education Research in Türkiye: A Meta-Synthesis Study

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ABSTRACT

This research aims to establish a comprehensive framework for studying STEM education in early childhood using the meta-synthesis approach. A total of 97 studies conducted in Türkiye between 2017 and October 2024 were examined, focusing on their contributions to the field. The studies were categorized based on sample groups, research methods, data collection tools, and the impact of STEM-based educational practices on children, teachers, and teacher candidates. The findings highlight that STEM education in early childhood generally yields positive outcomes, fostering children's cognitive, social, and problem-solving skills. Teachers and teacher candidates also benefit, as these practices enhance their interdisciplinary teaching abilities and confidence in integrating STEM into their curricula. Despite the growing interest in STEM education, certain areas remain underexplored, such as long-term impacts on children, parental involvement, and the role of school administrators. Additionally, while experimental methods dominate, there is a need for more qualitative and mixed-methods research to provide a nuanced understanding of contextual and process-oriented factors. The results indicate a significant increase in research dedicated to STEM education in recent years, reflecting its critical role in preparing children for the demands of the 21st century. This meta-synthesis study provides a comprehensive overview of trends, gaps, and future directions in the field. By identifying commonalities and under-emphasized points, it offers valuable insights for researchers, educators, and policymakers aiming to advance STEM education in early childhood settings.

Keywords: Early childhood education, meta-synthesis, preschool STEM education, STEM education studies.

Introduction

In today's rapidly evolving educational landscape, driven by consant technological advancements, developing essential skills in children has become increasingly important. Fostering analytical thinking, problem-solving, creativity and collaboration from an early age is key to ensuring their future academic and professional success. STEM education (science, technology, engineering, and mathematics) has emerged as an important educational reform to meet these needs (NRC, 2011; NGSS Lead States, 2013). STEM education provides a comprehensive teaching and learning approach that combines these four disciplines (Corlu, 2013, 2014). Sanders (2009) states that integrated STEM education requires at least two or more of these disciplines to be taught together and supports the development of a qualified, well-rounded workforce.

Early childhood is particularly suitable for introducing STEM because young children are naturally curious and willing to explore their environment (Clements & Sarama, 2016; Campbell & Speldewinde, 2022). Research suggests that interdisciplinary approaches support more effective learning processes for young children (Moomaw & Davis, 2010). Engaging with STEM concepts allows children to explore, observe, experiment, compare, classify, and solve problems; processes that mirror scientific discovery (Katz, 2010). Through guided STEM activities, children's curiosity can be nurtured, helping them build a strong foundation of skills needed for their future (Eshach & Fried, 2005).

The shift in educational priorities from past to present-day needs has highlighted the necessity for all children to build a strong foundation in STEM disciplines (Clements & Sarama, 2016; McClure et al., 2017; Stone-MacDonald et al., 2011; Torres-Crespo et al., 2014). The Early STEM Matters (2017) working group report draws attention to the importance of starting STEM education in the early years of children's lives. Research shows that early STEM education supports the development of children in areas such as school readiness (Toran et al., 2020), problem-skills (Akçay-Malçok & Ceylan, 2022; Erol et al., 2023; Yalçın & Erden, 2021), basic scientific processing skills (Keçeci et al., 2019; Khamhaengpol et al., 2024), engineering skills (Başaran & Bay, 2023), creativity (Akgündüz & Akpınar,

2018; Erol et al., 2023; Temiz &Çevik, 2024; Yalçın & Erden, 2021), critical thinking (Akgündüz & Akpınar, 2018), spatial ability (He et al., 2021), and concept acquisition (Toran et al., 2020).

In early childhood STEM education, it is essential that STEM integration is compatible with children's developmental stages and meets their cognitive, social, intellectual, and academic needs. McClure et al. (2017) emphasize that a well-designed STEM curriculum should be developmentally appropriate, building on young children's natural curiosity and learning abilities. Given young children's propensity to learn through experience, a curriculum that fosters their intellectual curiosity by providing hands-on, experiential learning opportunities is important. Such a curriculum helps children make sense of their environment by encouraging exploratory behaviors and critical thinking, as suggested by Katz (2010). It is stated that participation in developmentally appropriate STEM activities in the preschool period allows children to develop more advanced skills in these areas (Aldemir & Kermani, 2016). These studies lead to the idea that STEM experiences at an early age will provide a solid foundation for children's future academic success (Tippett & Milford, 2017).

In addition to supporting the impact of STEM on early childhood education, teachers' knowledge and experience levels about STEM are critical to increasing their desire to implement and self-efficacy to effectively integrate this education in the classroom. Because, studies reveal that STEM topics are often underrepresented in early childhood classrooms (Tippett & Milford, 2017). Attention needs to be drawn to studies that raise awareness among teachers about the importance of STEM at an early age and what its effects will be in the future (Wang et al., 2011). Corlu et al. (2014), in the Call for Papers on STEM Education, drew attention to the importance of the quality of STEM expert teachers and teacher training in the field of STEM for our country. Because when it comes to preschool curriculum, teachers are responsible for designing activities that are both developmentally appropriate and engaging (Soylu, 2016). In this context, it is vital to focus on classroom practices related to STEM that aim to engage children's interest in STEM disciplines, support their exploration of these concepts, and enhance their higher-order thinking skills (Çiftçi et al., 2022). Integrating these goals into early childhood education will pave the way for children to establish a foundation for long-term interaction with STEM fields from an early age. While the importance of introducing STEM education from an early age is widely recognized (Chesloff, 2013; DeJarnette, 2018; Moomaw & Davis, 2010; Johnston, Kervin & Wyeth, 2022; Yang et al., 2022), research focusing specifically on STEM education in the preschool years remains relatively scarce compared to its implementation in higher grade levels.

Compared to its implementation in higher grade levels, STEM education in early childhood is still an emerging field. (Chesloff, 2013; Van-Keulen, 2018). The earlier children are introduced to integrated STEM experiences, the greater their potential to contribute to the future global workforce. As for today, it is crucial for children to learn through an integrated approach across multiple disciplines. To achieve this, teachers need to be willing to well-prepared to implement STEM activities, while parents and school administrators also have awareness and positive attitudes toward STEM. By working together, they can create a supportive environment that promotes the STEM learning for children.

Purpose of the Study

This study aims to provide a contribution to the field by conducting a comprehensive analysis of the existing literature that emphasizes the importance of early STEM education, examining findings and methodological approaches. In this context, the research includes three main questions:

- What are the general characteristics of the studies conducted (years of research, methods used, data collection tools, study groups)?
- What are the similarities and differences among the studies conducted?
- What are the effects of the studies on the study groups (preschool children, preschool teachers, and preschool teacher candidates)?

Method

Research Model

In the research, "meta-synthesis" research method, one of the qualitative research designs, was used. Meta-synthesis is a systematic statistical comparison used to illustrate the results of research, generalizations and interpretive transformations created by merging the results (Bondas & Hall, 2007; Polat & Ay, 2016). Due to the numerous studies conducted in the field, results of which confirmability is determined can be achieved due to its high generalizability (Büyüköztürk et al., 2008). In the meta-synthesis method, it is to reveal similar and different aspects of the studies with the conceptual analysis (Sandelowski et al., 2007). One of the primary goals of metasynthesis is to enhance understanding of specific phenomena by integrating findings from various studies. This integration can reveal

new insights, identify gaps in existing research, and contribute to theory development (Hennebert et al., 2023; Malterud, 2018).

In the data collection process, research conducted between 2017 and October 2024, a period during which research on STEM education has intensified, was used as the dataset with the aim of accessing up-to-date studies. Due to the publication process of the article, research from the entire year of 2024 could not be included; instead, research up to October was examined. A total of 97 studies containing the keywords "STEM Education in Early Childhood, STEAM Education in Early Childhood, STEM Education in Preschool, STEAM Education in Preschool, FeTeMM Education in Early Childhood" were accessed from databases including Google Scholar, TÜBİTAK ULAKBİLİM, YÖK National Thesis Center, Educational Resources Information Center (ERIC), and Scopus. Our analysis of 97 studies, which excluded review articles, highlights the impact of diverse variables such as scientific process skills, problem-solving skills, creativity development, attitudes towards STEM education, awareness of STEM education, and related topics.

Coding Method Used in the Research

The themes dealt with in the studies, all qualitative and quantitative findings were examined and presented in Appendix 1 along with the their respective codes. In addition, the studies are listed according to the year of publication and "X_1, X_2, X_3.....X_{97}" the analyzes were made based on these coding values and are presented in Appendix 2.

Data Analysis

The analysis of the data in the meta-synthesis study is collected under 7 headings (Akuzum & Ozmen, 2013):

Table 1.

Data Analysis Titles

	Data analysis phase in meta-synthesis study	Research Done
Stage 1	Deciding and Starting a Factual Study: This is the first step in defining the subject to be researched.	In this study, the field of study was chosen as "STEM Approach in Early Childhood".
Stage 2	Deciding Which Studies to Use Regarding the Selected Field: This stage includes a literature review for the studies to be analyzed.	In accordance with the criteria determined in the research, 97 studies were selected.
Stage 3	Reading Qualitative Data:	At this stage, the concepts included in the themes and sub-themes of the included studies were examined and key expressions related to the themes were obtained.
Stage 4	Determining How the Data Are Related to Each Other: This is the stage where the similar and different aspects of the studies are determined.	The general characteristics of the studies included in the research are shown in Table 2.
Stage 5:	Transforming Data: Transformations are made based on assumptions generated from studies.	Transformation was made according to the general characteristics and similar characteristics of the studies included in the research.
Stage 6:	Synthesizing Transformations: This stage is used when a large amount of data is included in the research and provides a high level of abstraction.	A synthesis was formed based on the general characteristics and similar characteristics of the studies included in the research.
Stage 7	Stage 7: Expressing the Syntheses: In the last stage, the data obtained by applying the data analysis steps of the meta-synthesis research method were synthesized and expressed.	The synthesis obtained based on the general characteristics and similar characteristics of the studies included in the research was expressed.

Results

The distribution of the analyzed studies by years is shown in Table 2.

Table 2.
Distribution of Studies Included in Meta-Synthesis by Years

Year	Frequency	Percent (%)
2017	1	1.03
2018	9	9.28
2019	20	20.62
2020	15	15.46
2021	15	15.46
2022	13	13.40
2023	15	15.46
2024	9	9.28

When Table 2 is examined, 1.03% (n=1) of the STEM-based early childhood studies were conducted in 2017, 9.28% (n=9) in 2018, 20.62% (n=20) in 2019, 15.46% (n=15) in 2020 and 2021, 13.40% (n=13) in 2022, 15.46% (n=15) in 2023, and 9.28% (n=9) up to October 2024.

The research models used in the studies examined within the scope of the research are shown in Table 3.

Table 3.
*Methods Used in Examined Studies**

Research Model	Frequency	Percent
Experimental Research	52	53.61
Descriptive Research	21	21.65
Mixed Research	12	12.37
Relational Research	3	3.09
Special Case Studies	7	7.22
Action Research	2	2.06

*Note: The classification of research models was made according to Büyüköztürk et al. (2008), Creswell (2002), Erkuş (2016).

When Table 3 is examined, it is seen that 53.61% (n=52) of the studies analyzed within the scope of the research were carried out according to the experimental research model, 21.65% (n=21) were carried out in descriptive research, 12.37% (n=12) in mixed research, 3.09% (n=3) in relational research, and 2.06% (n=2) in action research. In the light of the findings, 7.22% (n=7) of the studies were special case studies. Descriptive statistics regarding the data collection tools used in the studies are given in Table 4.

Table 4.
*Data Collection Tools Used in the Studies Examined**

Data Collection Tools		Frequency	Percent %
Quantitative	Scale	70	79.55
	Test	14	15.91
	Questionnaire	3	3.41
	Inventory	1	1.14
	Total	88	100
Qualitative	Interviews	54	70.13
	Documents	14	18.18
	Audio-visual materials	3	3.90
	Observations	6	7.79
	Total	77	100

*Note: The classification of data collection tools was made according to Creswell (2016); İlhan and Çetin (2021); Karasar (2009).

When Table 4 is examined, it is seen that 79.55% (n=70) scale, 15.91% (n=14) test, and 3.41% (n=3) questionnaire were used as quantitative data collection tools. Additionally, 70.13% (n=54) interviews, 18.18% (n=14) documents, 3.90% (n=3) audio-visual materials, and 7.79% (n=6) observations were used as qualitative data collection tools. Descriptive statistics regarding the study groups included in the studies are given in Table 5.

Table 5.
Sample Group Included in the Studies Examined

Sample Group	Frequency	Percent %
Preschool children	47	43.12
Preschool teacher candidates	28	25.73
Preschool teachers	26	23.85
Parents	6	5.50
Other (administrators)	2	1.83

When Table 5 is examined, of the studies conducted on the STEM approach in the early childhood period (n=97), 48.61% (n=35) of the study group were preschool children, 25.73% (n=19) were preschool teacher candidates, 23.85% (n=17) were preschool teachers, 5.50% (n=4) were parents, and 1.83% (n=1) were other (administrators). Considering the studies examined, it is evident that the majority of studies conducted in early childhood focus primarily on children. Following this, preschool teachers are included as participants in the studies, while studies involving parents and administrators are relatively few. Key phrases and concepts that reveal similar and different aspects of the studies examined by adhering to the steps of the meta-synthesis method are shown in Table 6.

Table 6.

Similar and Different Aspects of the Studies Examined

Code			Key Phrases and Concepts	f	%
Preschool teachers		VSA	STEM Education is important for children (X_2, X_{10}, X_{15}, X_{31}, X_{32}, X_{37}, X_6, X_{73}, X_{79}, X_{82}, X_{16})	11	18.97
			Have difficulties in the implementation (X_6, $X_{16,}$ $X_{75,}$ X_{76})	4	6.9
			Have no idea about STEM Approach (X_9, X_{12}, X_{48})	3	5.17
			Want to receive STEM-themed education and apply it in their lessons (X_1, X_{14}, X_{90})	3	5.17
			Key themes for successful STEM planning: materials, group work, classroom management, time management, child suitability, problem identification, activity planning, and implementation (X_{66})	1	1.72
			Most of them prepared and implemented STEM integrated lesson plans successfully. (X_{65})	1	1.72
		SSEB	Low STEM teaching self-efficacy beliefs (X_7)	1	1.72
			Lower self-efficacy levels than primary teachers (X_4)	1	1.72
			No significant difference in self-efficacy by gender/grade, but higher in those with STEM training (X_{72})	1	1.72
			STEM awareness does not vary by demographics but is higher in those with STEM training (X_{62}).	1	1.72
		STT	Struggle with STEM lesson planning but improve over time (X_3, X_{28}, X_{32}, X_{49}, $X5_2$, X_{53}).	6	10.34
			Believe preparatory activities should come first, empathy skills should be fostered, and special needs considered (X66).	1	1.72
		ASA	Does not show a significant difference according to demographic variables but differs significantly according to their STEM education status(X_{62}).	1	1.72
Preschool teacher candidates		VSA	STEM Education is important for children (X_{28}, X_{49}, X_{52}, $X_{53,}$ X_{72}, X_{75})	6	10.34
			Have difficulties in the implementation process (X_{28}, X_{49}, X_{52}, X_{53})	4	6.9
		ASA	High awareness and orientation towards STEM (X_{55})	1	1.72
			Male candidates have higher awareness; STEM education increases awareness (X_{30}).	1	1.72
Families		VSA	STEM Education is important for children (X_{10}, X_{15}, X_{31})	3	5.17
			Have no idea about STEM Approach (X_{37})	1	1.72
Children		SSI	Associate science with living things, technology with robots, math with numbers; few mention engineering (X13).	1	1.72
		STT	STEM activities positively impact children's conceptual development and questioning skills (X_{60}, X_{79}).	2	3.45
	ATS		Science, Technology and Engineering Scale of the C-PALLS+STEM (X_{46}) STEM Parent Awareness Scale (X_{36})	2	3.45

When Table 6 is examined, studies conducted with preschool teachers on the STEM approach show that 18.97% (n=11) of these studies consider STEM education to be important for children. 6.9% (n=4) of them reported difficulties in the implementation process, while 5.17% (n=3) of the teachers indicated that they had no knowledge of STEM. Additionally, 1.72% (n=1) of the studies found that teachers successfully implemented STEM activities.

In another study (1.72%, n=1), eight themes regarding solutions for the successful planning and implementation of STEM-based activities by pre-service teachers were identified, including: materials to be used, group work conducted by pre-service teachers, classroom organization and management, time management, suitability for children's level, problem identification and expression, activity planning and practice, and STEM education applications (X66). Furthermore, 1.72% (n=1) of the studies found that teachers had low self-efficacy in STEM education, and 1.72% (n=1) indicated that their self-efficacy was lower compared to primary teachers. In 3.45% (n=2) of the studies, STEM self-efficacy was found not to vary by gender or class variables but to differ according to STEM education status.

In 10.34% (n=6) of the studies, teachers initially faced challenges in preparing STEM lesson plans but improved over time. Additionally, 1.72% (n=1) emphasized the

importance of considering individual differences and supporting children's empathy skills. Another 1.72% (n=1) revealed that STEM awareness did not vary according to demographic variables but did change according to whether the teachers had received STEM training.

In studies involving preschool teacher candidates, 10.34% (n=6) highlighted the importance of STEM education for children, while 6.9% (n=4) reported difficulties in implementation. In 1.72% (n=1) of the studies, candidates demonstrated high levels of awareness and orientation towards STEM education. Additionally, it was found that male students had higher awareness levels of STEM compared to female students and that STEM education had a positive impact on awareness.

Studies conducted with children on the STEM approach showed that 1.72% (n=1) associated science with the living realm, technology mostly with robots, and mathematics with numbers, with almost no child expressing an opinion on the field of engineering. In studies involving families, 5.17% (n=3) indicated that STEM education is important for children, while 1.72% (n=1) stated that families had no knowledge of the STEM approach. Lastly, 3.45% (n=2) of the studies focused on the development and adaptation of STEM-related scales.

Table 7.

Impact of STEM Education of Preschool Children

Dependent variable and code		Independent variable and research code	Affect	f	%
SSPS	Scientific Process Skills	STEM (X_5, X_{17}, X_{25}, X_{27}, X_{29}, X_{31}, X_{39}, X_{40}, X_{57}, X_{58}); STEM+Drama (X_{24}); STEM+A (X_{88})		12	23.08
SPSS	Problem-Solving Skills	STEM (X_{19}, X_{20}, X_{29}, X_{38}, X_{41}, X_{51}, X_{67}, X_{73}, X_{90}, X_{94}, X_{96}); STEM with simple materials and robotic (X_{23})		12	23.08
SC	Creativity	STEM (X_{18}, X_{26}, X_{38}, X_{68}); STEM+Drama (X_{24}); STEAM (X_{89}, X_{97})		7	13.46
SBD	Cognitive Thinking	STEM (X_{20}, X_{25})		2	3.85
ScriT	Critical Thinking	STEM (x_{68})		1	1.92
SSI	Scientist Image	STEM (X_{21})		1	1.92
SAVP	Visual Perception	STEM (X_{61})		1	1.92
SIBT	Inquiry-Based Thinking	STEM (X_{45})	Positively	1	1.92
SDMC	Dev. of Math. Concept	STEM (X_{42})		1	1.92
SSR	School Readiness	STEM (X_{43}); STEAM (X_{79})		2	1.92
SAASC	Academic Self-Concept	STEM assisted with Robotic (X_{23})		1	1.92
SEDP	Engineering Design Process	STEM (X_{35}, X_{94}); STEAM (X_{87})		3	1.92
SSM	Science Motivation	STEM (X_{45}, X_{82})		2	1.92
SASC	Science Conceptual	STEM with 5E model (X_{71})		1	1.92
ATS	Attitude Towards STEM	STEM (X_{35}, X_{80})		2	1.92
SES	Self-Esteem	STEM Based on Montessori (X_{70})		1	1.92
SDMS	Decision-Making	STEM (X_{29})	Limited	1	1.92
SSPS	Scientific Process Skills	STEM (X_{21})	Not	1	1.92

In Table 7, studies examining the effects of STEM applications on children from various perspectives are analyzed. It was revealed that in 23.08% (n=12) of them scientific process skills; 23.08% (n=12) of them problem solving skills; 13.46% (n=7) of them creativity; 3.85% (n=2) of them cognitive thinking; 1.92% (n=1) of them critical thinking; 1.92% (n=1) of them scientist images; 1.92% (n=1) of them visual perceptions; 1.92% (n=1) of them development of mathematic concept; 3.85% (n=2) of them school readiness; 1.92% (n=1) of them academic self-concepts; 5.77% (n=3) of them engineering design processes; 3.85% (n=2) of them science motivations; 1.92% (n=1) of them science conceptual; 3.85% (n=2) of them attitude towards STEM and 1.92% (n=1) of them self-esteem were positively affected. In addition, 1.92% (n=1) of the studies found that it had a limited effect on children's decision-making, and it was revealed that 1.92% (n=1) did not contribute to scientific process skills.

Table 8.
Impact of STEM Education of Preschool Teacher

Dependent variable and code		Independent variable and research code	Affect	f	%
SSEB	Self-Efficacy Belief	STEM (X_{47}, X_{56}, X_{78})	Positively	3	21.43
ATS	Attitude Towards STEM	STEM (X_{47}, X_{56}, X_{80})		3	21.43
SRT	Reflective Thinking	STEM (X_{50})		1	7.14
SATP	Attitude Towards Profession	STEM (X_{34})		1	7.14
ASA	Awareness of STEM	STEM (X_{22})		1	7.14
SSPS	Scientific Process Skills	STEM (X_{22}, X_{88})		2	14.29
SASC	Science Conceptual	STEM (X_{64}, X_{90})		2	14.29
SATS	Attitude Towards Science	STEM Based on Montessori (X_{11})		1	7.14

When Table 8 is examined, studies examining the effects of STEM practices on pre-school teacher candidates from various perspectives are analyzed. In the studies reviewed, 21.43% (n=3) positively affected self-efficacy beliefs; 21.43% (n=3) influenced attitude towards STEM; 7.14% (n=1) impacted reflective thinking; 7.14% (n=1) affected attitude towards profession; 7.14% (n=1) enhanced awareness of STEM; 14.29% (n=2) improved scientific process skills; 14.29% (n=2) supported science conceptual understanding; and 7.14% (n=1) influenced attitude towards science.

Table 9.
Impact of STEM Education of Preschool Teacher Candidates

Dependent variable and code		Independent variable and research code	Affect	f	%
ScriT	Critical Thinking	STEM (X_{59}, X_{75}), UCT-STEM (X_{77}) STEM Based on Montessori (X_{8}, X_{33})	Positively	5	27.78
SCT	Computational Thinking	STEM (X_{59})		1	5.56
S21stCS	21st Century Skills	STEM (X_{59}, X_{81})		1	5.56
SC	Creativity	STEM (X_{76}, X_{81}), STEM Based on Montessori ($X_{8,}$ X_{11})		4	22.22
SPSS	Problem-Solving Skills	STEM (X_{76}), STEM Based on Montessori (X_{8})		2	11.11
SDLS	Self-Directed Learning Skills	STEM (X_{95}), STEM Based on Montessori (X_{63}, X_{69})		2	11.11
SLLT	Lifelong Learning Tendency	STEM (X_{95}), STEM Based on Montessori (X_{69})		2	11.11
SCLE	Constructivist Learning Environment	STEM Based on Montessori (X_{69})		1	5.56

When Table 9 is examined, studies examining the effects of STEM applications on preschool teacher candidates from various aspects revealed that 27.78% (n=5) of them showed positive effects on critical thinking; 5.56% (n=1) on computational thinking; 5.56% (n=1) on 21st century skills; 22.22% (n=4) on creativity; 11.11% (n=2) on problem-solving skills; 11.11% (n=2) on self-directed learning skills; 11.11% (n=2) on lifelong learning tendency; and 5.56% (n=1) on constructivist learning environment.

Discussion

This meta-synthesis research aims to present the general framework of recent studies on the STEM approach in early childhood and to shed light on future research. To this end, 97 studies conducted in the field of STEM in early childhood between 2017 and October 2024 were examined. The analysis of the findings shows that STEM-based educational practices have a positive impact on children, preschool teachers, and teacher candidates in early childhood. This

finding supports the literature emphasizing the developmental significance of STEM education in early childhood: Research indicates that high-quality early childhood education, which includes STEM learning, is vital for fostering curiosity and a love for learning STEM disciplines in young children (Campbell & Speldewinde, 2022). There is a consensus internationally on the importance of starting STEM education at an early age. For instance, the National Academies emphasize that students without early STEM experiences until fourth grade generally lag behind in basic math and science skills (Pantoya et al., 2015).

Our findings indicate that STEM studies based on early childhood have generally increased over the years. Similar results were obtained in the studies by Yıldırım (2016) and Herdam and Ünal (2018). It is observed that children's participation in the study groups of the examined research is higher. Subsequently, it was emphasized that preschool teacher candidates and preschool teachers are also included in the study groups. However, we can say that studies involving parents and other stakeholders (e.g., administrators) are relatively few. In the future, increasing research conducted with these study groups is important for evaluating the STEM approach from various aspects. Most of the research methods used in the studies were experimental and descriptive research types. It is important to prefer experimental studies more to reveal the effects of STEM-based educational practices on children. It is observed that mixed, relational, and special case and action research methods are more limited. Sandelowski emphasizes that mixed methods can enhance the quality and relevance of research by integrating various perspectives (Sandelowski, 2013). An exploratory case study conducted by Poyraz and Kumtepe (2019) provides valuable insights and is effective for understanding the dynamics of STEM teaching. Rowland et al. (2019) discuss the use of qualitative techniques in STEM education research and state that it can lead to significant insights, especially in underrepresented subfields.

Most of the data collection tools used in the studies are scales and interviews. Documents and tests are also used; however, audiovisual materials, observations, and inventories are utilized to a limited extent. The widespread use of interview forms, which are a suitable data collection tool for STEM, is an important finding. Additionally, the use of children's drawings, product/activity evaluation rubrics, and STEM notebooks supports the idea that the STEM approach focuses not only on outcomes but also on processes. However, the lack of process-oriented portfolios for children and teachers is striking. In developed countries, portfolio-based studies that monitor the development of children and teachers are an important aspect of early childhood STEM education practices (Harris et al., 2016; Milford & Tippet, 2015). Future research in this area should prioritize the use of portfolios for children, teachers, and even families to document developmental progress in the educational process.

STEM education has become a significant focus area in early childhood education. The studies synthesized in this work highlight the positive effects of STEM education on both preschool children and their teachers. The results indicate that STEM education positively impacts various skills and attitudes, such as scientific process skills, problem-solving skills, creativity, self-efficacy beliefs, and attitudes toward STEM and science. It appears that the most emphasized topic is the effect on children's scientific process skills. The studies conclude that the educational practices of the STEM approach positively influence children's scientific process skills. However, one study found that STEM-based educational practices did not affect children's scientific process skills. Research in the literature emphasizes that exposure to STEM concepts at an early age enhances fundamental skills of scientific literacy, such as critical thinking, problem-solving, and inquiry-based learning, and increases learning motivation (Salahova, 2023; Sydon & Phuntsho, 2022). Piasta et al. (2013) emphasize that a significant percentage of preschool classrooms provide opportunities for children to engage in critical thinking experiences, which are essential components of scientific process skills, such as predicting, observing, and questioning. STEM activities enable children to actively participate in a natural learning environment and reinforce their scientific thinking skills (Bagiati et al., 2015). Supporting children's skills with STEM in early years contributes to their academic success in later years (Uğraş & Genç, 2018).

The findings of this study summarize the perspectives of preschool teachers, teacher candidates, families, and children regarding STEM education in early childhood. Most preschool teachers believe that STEM education is important for children, but they face challenges in the implementation phase. However, they are developing themselves in the process of preparing STEM lesson plans. While it was found that teachers receiving STEM education have a higher level of awareness, preschool teacher candidates also have a positive and high level of awareness and orientation. STEM education is also important for families but research involving parents is quite limited compared to other studies. Activities prepared based on the STEM approach positively affect preschool children's conceptual development and inquiry-based thinking skills. This situation indicates a lack of pedagogical content knowledge about the STEM approach among preschool teachers. Indeed, studies examining the effects of the STEM

approach on teachers' attitudes, awareness, and self-efficacy beliefs have concluded that the STEM education provided to teachers has a positive impact on their attitudes, awareness, and self-efficacy beliefs regarding the STEM approach. This situation is also compatible with the aforementioned scenario. Although preschool teachers may have negative attitudes toward the STEM approach, a lack of knowledge, and low self-efficacy beliefs, training supported by pedagogical content knowledge for STEM education positively influences their attitudes, awareness, and self-efficacy beliefs. Therefore, providing more STEM training will enhance the quality of preschool teachers' STEM practices in the classroom. Studies have shown that when teachers receive sufficient training and support, their self-efficacy and confidence in teaching STEM subjects increase, which positively affects their students' learning outcomes (Demircan, 2021; Gözüm et al., 2022). Aldemir and Kermani (2016) found that a well-designed STEM curriculum improves teachers' attitudes and professional competencies. Supporting this view, Fridberg et al. (2022) state that increased knowledge and experience in STEM can significantly enhance teachers' instructional practices and their ability to facilitate STEM learning in the classroom. Stohlmann et al. (2012) advocate for integrated STEM education approaches that encourage collaboration and problem-solving among young students. The effective implementation of STEM education requires not only adequate training but also supportive educational environments that foster collaboration and innovation among educators (Kastriti et al., 2022). Additionally, it is important for teacher training programs to include components that specifically address the integration of STEM into early childhood education (Shernoff et al., 2017). Papadakis et al. emphasize the importance of understanding the challenges teachers face in implementing STEM curricula, suggesting that education should address these specific needs (Papadakis et al., 2021).

This meta-synthesis illustrates the evolving landscape of STEM education in early childhood, underscoring its widespread recognition as a powerful approach for enhancing young learners' foundational skills in science, technology, engineering, and mathematics. Through an analysis of studies spanning recent years, this work has highlighted not only the benefits of STEM education for children's cognitive and scientific skill development but also the growing interest in equipping teachers and teacher candidates with STEM-related competencies. Furthermore, while early findings predominantly focus on children and teachers, the limited exploration of STEM's impact on families and broader educational stakeholders points to potential areas for expansion in future studies. The diverse methodologies employed and tools used across studies also suggest a dynamic field, with promising avenues for further innovation in both experimental and mixed-methods research. The cumulative evidence thus reinforces the importance of integrating STEM into early childhood education as a means to nurture inquisitive, resourceful learners ready to meet the challenges of an increasingly STEM-oriented world.

Conclusion and Recommendations

The findings of this study support the idea that STEM education is beneficial for both preschool children and teachers. The positive effects on skills and attitudes, such as scientific process skills, problem-solving skills, creativity, and self-efficacy beliefs, align with the goals of early childhood education aimed at developing children's cognitive, social, and emotional skills. By introducing STEM to children at an early age, we can help them develop essential problem-solving and critical thinking skills that will benefit their academic and professional careers. In addition to the benefits provided to children, STEM education also demonstrates a positive impact on the attitudes and skills of teacher candidates. STEM education can help teachers improve their reflective thinking, STEM awareness, and attitudes toward STEM and science. This situation may lead to the development of more equipped teachers who possess the knowledge and skills to provide effective STEM education to young children. It indicates that not all areas of STEM education have been equally researched, and the effects of some variables have only been examined in a single study. Therefore, more research is needed to fully understand the benefits and limitations of STEM education in early childhood education.

In our current research, a limited number of databases were used, and a restricted time frame was considered. Future research could focus on interdisciplinary STEM studies for preschool teachers and teacher candidates, studies involving the participation of parents and other educational stakeholders (administrators, school personnel), greater emphasis on mixed methods and qualitative research methods, studies on child portfolios, process-oriented evaluations, focusing on relatively underexplored areas of social and emotional development, international comparisons, or the development of datasets through meta-synthesis or meta-analysis studies.

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Social Studies Education in Preschool Period: A Document Review

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ABSTRACT

In this study, the research on social studies education in preschool education between 1999 and 2022 was analyzed in detail. A total of 70 studies were examined through YÖK National Thesis Center, ERIC, ULAKBİM, Google Scholar and Turcademy databases. The focal points of the research include sub-problems such as publication year, publication type, subject areas, method, design, study group, data collection tool, stated conclusion and recommendation. Descriptive analysis method was used to analyze the data obtained from the study, which was based on document analysis, one of the qualitative research methods. As a result of the research, it was determined that the majority of the studies examined were carried out in order to reveal the importance and place of teaching social studies and the disciplines within the scope of this course. In addition, it was determined that there has been an increase in the number of studies conducted in the field since 2012 and the most studies were conducted in 2019. Finally, other important findings were that most of the studies in the field were carried out in the form of articles, most of the studies focused on the subject area of geography and were generally conducted with a qualitative research approach.

Keywords: Preschool education, social studies education, document analysis.

Introduction

Preschool education is a process encompassing the early years of life, aimed at reaching all societal levels and shaping individuals' personal development into adulthood. (MHSSCF, 2003; Oguzkan & Oral, 1987). Although there are various opinions on what ages this period covers and how this period should be named (Gulacti, 2014), the 0-6 age range (0-72 months) in which the child begins primary school, usually starting at birth, is considered a pre-school period (Başal, 2005; Choi, 2013; Çelik & Gündoğdu, 2007). It is also evident that there is a general consensus in the relevant literature regarding the importance of this process. Indeed, related research shows that effective teaching during the pre-school period significantly contributes to the development of children's mental capacities and social skills. There are also significant findings in the field of research showing that children receiving pre-school education are more participatory, coherent, and more successful at the next level of education than their non-teaching peers (Gültekin-Akduman, 2012).

The main goal of the investment in pre-school education in Turkey is to reach the same levels as in developed countries. Although recent years have seen a significant increase in school, student, teacher and classroom numbers, Turkey, with the exception of the 5-year-old group, still lags behind the countries in the Organization for Economic Development and Cooperation (OECD) in terms of the school rates and the number of students per teacher (OECD, 2024). Another important issue that Turkey lacked in preschool education is the context of education that was practiced during this period. Because it is found that countries recognized worldwide as advanced include cognitive, sensory, psychomotor and self-care skills in their pre-school teaching programs, as well as social science disciplines such as social information, history and geography (Kirtel, 2012).

In Turkey, though, socially literate, or especially socio-cultural, as some educators have described it (Coşkun-Keskin & Daysal-Ersoy, 2012; Coşkun-Keskin & Kırtel, 2016; Kirtel, 2018; Kirtel & Almighty, 2019) subjects are not sufficiently featured in the preschool training program, but are required to note that only certain gains and indicators in the field of cognitive and social emotional development are associated with social knowledge (Akhan & Şimşek-Çetin, 2015; Aktın, 2019a; Aktın & Dilek, 2014; MoNE, 2013; Yüksek-Usta & Kizman, 2023).

This is most important because an understanding of pre-school children, particularly those involved in historical discipline, which relied on the notion that they would not be able to learn some concepts of time, has significantly impacted the Turkish education system (Coskun-Keskin &Daysal-Ersoy, 2012). The basis of this understanding is based on Piaget's theory of cognitive development. Piaget and his followers are well known for their views that the concepts and skills needed for historical thinking did not develop until the period of abstract processing (Dilek, 2007). This view influenced educators in many countries, including Turkey, to reduce the historical context for young children before concrete procedures and even eliminate this course altogether (Ata, 1999).

In the following years, both Bruner's history teaching and "the idea that at whatever age any subject of history can be made clear to every child" (Ata, 1999), as well as some educators' views on the ability to teach history to young children (Egan, 1978; 1982) saw a major turning point in this area. At this juncture, some developed countries sought to address the issue because they saw the idea that history lessons should be introduced after the age of 16 by Piaget and his followers, a time too late for them to pass on their values to children who would be members of society as citizens in the future (Ata, 1999).

In the United States (Egan, 2010), one of these countries, where geography, along with history, was not considered "developmentally appropriate" for young children because of its abstract concepts, the problem was solved by the introduction of a social knowledge course into elementary programs (Ata, 1999), which later became available during the pre-school period. This solution enables students today in the United States to begin teaching social information at a pre-school level and to come across subjects relevant to this area at a very early age (Aktın & Dilek, 2014; Yiğit & Sezer, 2009). As another example, students ages 5 to 7 in the UK named Key Stage 1 are offered the chance to teach both historical and geographical subjects (Department for Education [DfE], 2013a; 2013b). It is also known that in Germany, children in pre-school education are presented with issues related to historical discipline (Pamuk, 2020).

Some research in Turkey also suggests that children in pre-school education may have past perceptions developed through different activities (Zembat et al., 2013; Zembat et al., 2014) and shows that they can learn and understand concepts such as the past and time (Ersoy, 2011). However, as Piaget's understanding of abstract processes-concrete processes continues to be effective in Turkey, it is regrettably delayed by the fact that children who are constantly intertwined with social science areas such as history during the natural flow of their lives receive education in schools for social information/history (Pamuk, 2020). A negative consequence of this delay is that children in pre-schooling Turkey can acquire through social education and be active, responsible (NCSS, 1989) and well-regarded as a citizen (Seefeldt et al., 2015), make their own decisions by understanding the world (Kirtel, 2018), ability to engage in a cause-and-effect relationship, be aware of different cultures (Kirtel, 2018), create a basis for their future by questioning their past (Kirtel, 2012), develop a sense of responsibility, respect for others (Jackman, 2001), and respect and empathize with differences (Yüksek-Usta & Tezel-Şahin, 2022).

Literature screening has shown that studies of social education in Turkey during the pre-school period are studied and there are two important studies using the same research model. The first is a survey by Aktın (2019b) called "Social Information and Pre-School Education". Aktın contributed to the field by examining 40 studies conducted between 1999 and 2018. Another study, Ontas et al., (2021), is "Preschool Reflections of the Lecture on Life Information and Social Information". This study focused on 14 studies published in peer-reviewed journals from 2010 to 2021.

Both have provided valuable contributions to the field. However, it is believed that this study may contribute significantly to the field, as it examines all of the works that have been received from the study, graduate and doctoral dissertation, manifesto, book, book section and translation book types, which were written on social studies in the pre-school period from 1999 to 2022. This comprehensive review will also provide important guidance to individuals who will conduct research as a more detailed picture of studies of social education was presented in the pre-school period. This research aims to illustrate deficiencies and trends in literature by addressing studies in the field of social education in the pre-school period from a broad perspective. A review will be a powerful resource for researchers and educators, especially those who want to keep an eye on developments in this area. It is also seen as a key guideline for future research direction and the adoption of innovative approaches to education.

The aim of this study is to take a look at the studies conducted between 1999 and 2022 on the teaching of social knowledge and disciplines such as history, geography, and economics that formed this field, and to show how the advances in the field reflected in the academic world. Another goal of the study is to establish how the trend in Turkey in studies of social knowledge in the pre-school period and the teaching of disciplines in this

area is active. This is to help guide researchers looking for work in the field by identifying the general situation in pre-school education studies in Turkey on social studies. To address these objectives, the central question of the study is "What are the general trends in the study of social education in the pre-school period from 1999 to 2022?" is set to. To that end, the research's sub-problems were studies of social education from 1999 to 2022; what are the basic causes of publication, publication years, types, subject areas, research methods, patterns, workgroups, data collection tools, and results and recommendations.

Method

Research Design

This research on social studies education was designed and conducted in a qualitative manner. Although qualitative research is usually conducted with direct people, some qualitative researchers can also take advantage of textual methods in their work (Given, 2021). The work was done using one of these techniques: document analysis. In qualitative research, document analysis can be used as an independent method in addition to completing other data collection techniques (Ozkan, 2022).

Data sources of the research

The research was aimed at studying studies in social studies education in the pre-school period from 1999 to 2022. The research's data sources include 66 online and 4 printed sources obtained from the National Thesis Center, ERIC, ULAKBIM, Google Academic and Turcademy databases. These resources are available with the keywords "preschool", "early childhood / early childhood", "education / education", "social studies", "history / history", "geography / geography", "economy / economy" and "citizenship / citizenship". A total of 70 studies have been studied, 40 of them are papers, 11 are graduate studies, 7 are proclamations, 5 are doctoral theses, 4 are book chapters, 2 are books, and 1 are translations. Furthermore, the studies were conducted in Turkey and were careful to include the words "pre-school", "early childhood", "education", "social information", "history", "geography", "economy" and "citizenship" in the words of title or key.

Data Analysis

For analysis of research results, the method of imagery analysis and content analysis was utilized. The main purpose of the mathematical analysis is to summarize and interpret the data in the research results in accordance with predetermined themes (Yıldırım & Şimşek, 2013). In this context, the resulting data has been systematically and explicitly described first. These statements were then explained, interpreted, and attempted to achieve a variety of results by studying cause and effect relations

In this study, 11 themes have been identified, primarily for the purpose of research, broadcast year, broadcast type, subject areas, method, pattern, workgroup, data collection tool/tools, most important result, and most important advice. Subsequently, 70 studies have been coded A1, A2...A70. These codes and specified themes have been exported to an Excel file and saved the most detailed information of each research based on themes. Finally, 70 studies of social education in the pre-school period were examined based on the themes set out, and the data obtained was presented in tables along with the frequencies. In this study, after the study was determined, two educators specializing in both research and Intel research approaches were exchanged. Researchers regularly hold meetings with these two field educators. In these meetings, researchers jointly evaluated the process (Yıldırım & Şimşek, 2013) by sharing their data, data analysis, and results.

Additionally, analysis of the data has been studied in conjunction with a field educator who has over 10 years experience and is an expert on Intel research. The field educator has exchanged views with the expert and information at points of separation. After the first meeting, the analysis resumed individually, but was reunited and agreed upon at the end of the study. The reliability percentage of the analysis was found to be 90.5%, according to Miles & Huberman's (2015) calculation method (Reliability = Opinion Union / Opinion Divide + Opinion Divide). In addition, a research journal has been created after the research topic has been clarified. This is one of the best ways to organize and document work from beginning to end. This journal has formed the backbone of the study and allowed it to meticulously follow each step and base its findings on a solid basis (Merriam, 2013).

Results

Following are the findings of a study conducted in Turkey between 1999 and 2022 to analyze research on social education in the pre-school period.

Table 1.

The Most Used Purposes in Studies on Social Studies Education in Preschool Period

Purposes	f
To reveal the importance and place of teaching social studies and the disciplines that make up this field	23
To reveal the applicability of sociocultural education and the competencies that students will gain	10
Giving students the concepts of time and space through various applications, programs and activities	6
Identifying and developing spatial and map reading skills	4
Giving information about teaching practices in this field in different countries	3
Developing students' imagination skills	3
Examine the effects of various approaches and practices on students' knowledge and skill level	3
Improving students' perception of the past	2
Determining the effect of history and geography curriculum on students' emotional intelligence and respect for differences	2
Determining the presence of geographical concepts in storybooks for students	2
Identifying and developing students' historical thinking skills	2
To reveal students' awareness of geographical events and situations	1
Not specified	5
Other	4
Toplam	70

As seen in Table 1, most of the studies on social studies education in preschools between 1999 and 2022 focused on the importance of teaching social studies and the disciplines within the scope of this field and its place in education. For this purpose, it should be noted that most of the research was conducted in the field of social studies education (not in sub-disciplines). The second most researched area was geography education. The applicability of sociocultural education and the competencies to be gained by students draw attention as the second important purpose of the studies carried out in the field. When the studies carried out within the scope of this purpose are examined, it is generally aimed to show how and with which activities sociocultural education can be given, how important Turkish greats such as Mimar Sinan can be learned, how important events and phenomena such as old professions, Çanakkale victory, nevruz can be presented and how children learn their culture. The third important aim of the studies conducted in the field is to provide preschool students with the concepts of time and space through various applications, programs and activities. Identifying and developing spatial and map reading skills, presenting information about teaching practices in preschool education in different countries, developing preschool students' imagination skills, and revealing the effects of some approaches and practices on students' knowledge and skill levels have been the objectives stated in studies in this field at similar rates. In the studies on different countries, it was aimed to provide information about the practices in history, social studies and geography teaching in countries such as England, America and Austria. In addition, in the studies that aimed to reveal how preschool children use their imagination skills in historical thinking processes and how they construct the past, the products made by the students from clay and museum visits were utilized for this purpose.

Making sure that the students' perception of the past is enhanced, the history and geography teaching program determines the impact students have on understanding the emotional intelligence and respect for differences, the existence of geographical concepts in storybooks for preschoolers, and the development and development of historical thinking skills of students studying in the pre-school period have been equally emphasized by researchers in their work. Studies conducted to improve historical thinking skills of children studying in the pre-school period require the use of visual timeline and museum outing. Four studies have also been conducted in the field, with the aim in the other category, and five studies showing no purpose of the study.

Table 2.
Publishing Years of Pre-School Studies on Social Information Education

Years	f
1999	1
2001	1
2003	1
2005	1
2006	1
2007	2
2008	2
2009	1
2010	1
2011	3
2012	9
2013	2
2014	7
2015	5
2016	6
2017	5
2018	5
2019	10
2020	2
2021	3
2022	2
Total	70

As seen from Table 2, there has been a significant increase in the number of studies conducted especially in the field since 2012. It is also evident that the most studies of social education in the pre-school period were carried out in 2019 (6 articles, 1 doctoral thesis, 1 book, 1 book section, and 1 statement), and should not be ignored. It is also important to note that the first study of the field was the master's thesis, which was established in 1999 under the discipline of history. However, the earliest works on other types of publications are: it is listed in 2001 as a paper on geography, a memo on civic education in 2007, a book on geography discipline in 2010, a doctoral thesis on geography in 2011, a translation book on social studies education in 2015, and a book in social studies again in 2019.

Table 3.
Types of Studies on Social Studies Education in Preschool Period

Study Type	f
Article	40
Master thesis	11
Declaration	7
PhD thesis	5
Book chapter	4
Book	2
Translated book	1
Total	70

Most of the publications in the field of social studies education in preschool period were articles. As a result of the review conducted within the scope of the research, it was determined that 16 of the relevant articles were in the fields of geography, 11 in social studies, 10 in history and one in economics. In addition, it should be noted that history and geography disciplines were handled together in two articles. Master's theses constitute the second most common type of publication in the related field. It was seen that 5 of the master's theses on social studies education in preschool period were in the field of geography, 3 in the field of social studies and 3 in the field of history. The third priority in the publication types in the field is the papers presented in various platforms. It was determined that 3 of these papers were made in the fields of history and social studies and 1 in the subject areas of citizenship. As seen in Table 3, another type of publication in the specified time interval is doctoral dissertations. It was determined that 2 of these doctoral dissertations were prepared in a way to cover different subject areas (history and geography), 2 in geography and 1 in social studies. In addition, it was found that 4 book chapters were written in the related field, 2 of which were related to social studies and 2 of which were related to geography discipline. Finally, it should be stated that the other types of publications in the related field are books and translated books prepared for social studies teaching.

Table 4.
Subject Areas of Studies on Social Studies Education in Preschool Period

Subject Area	f
Geography	27
Social Studies Education	23
History	18
Citizenship	1
Economy	1
Total	70

Geography has been the field in which the most studies on social studies education in preschool period have been conducted. In the studies conducted on the subject area of geography, the importance of geography teaching in preschool education, spatial skills training and the presence of geographical achievements in the preschool curriculum were generally emphasized. The second most frequent studies in the related field are directly related to social studies education. It is understood that the studies on social studies education focused on sociocultural education, interest levels of teachers and prospective teachers in social studies education and the importance of social studies education in preschool period. History was

the third subject area with the highest number of studies. It is understood that the studies conducted in the field of history generally focused on teaching the concept of time in preschool education and developing chronological thinking skills, determining children's imagination skills in the historical thinking process, increasing children's perception of the past, and revealing the importance of history education in early childhood. In addition, it should be emphasized that four studies in the field addressed the subject areas of history and geography together, and one study was conducted in the fields of citizenship and economy.

Table 5.

Research Methods of Studies on Social Studies Education in Preschool Period

Research Method	f
Qualitative	51
Quantitative	18
Mixed	1
Total	70

It is seen that qualitative methods have been adopted in a great majority (51) of the studies on social studies education in preschool period. The second most utilized method type in the related field was quantitative with 18 studies. In addition, it should be noted that mixed method, which aims to obtain more comprehensive findings by using qualitative and quantitative methods together, was utilized in only one study.

Table 6.

Patterns of Studies on Social Studies Education in Preschool Period

Research Design	f
Case study	12
Experimental	11
Action research	11
Scanning	9
Document analysis	5
Quasi-experimental	2
Phenomenology	1
Not specified	20
Total	71

As can be seen in Table 6, the studies on social studies education in preschool period between 1999 and 2022 show diversity in terms of designs. The most commonly used design in these studies is the case study. The case study design was generally used in articles, master's theses and papers. It is seen that the second most frequently used designs in the studies in the field are experimental and action research. The experimental design was employed in master's and doctoral theses and articles. It was understood that the studies in the action research design were articles, master's and doctoral theses and papers. The third design utilized in the studies was survey. With this design, studies in the form of articles, master's theses and papers have been put forward. In addition, it is understood that document analysis is another important design utilized in the studies in the field. It was determined that the studies conducted with this design consisted of articles and book chapters. Finally, it should be stated that 20 of the studies on social studies education in preschool period did not specify which research design was utilized.

Table 7.

Study Group of the Studies on Social Studies Education in Preschool Period

Working Group/Data Sources	f
Preschool children	37
Pre-school teachers	11
Pre-school teacher candidates	5
Document	2
Academic staff	1
Not specified	17
Total	73

As can be seen from the information in Table 7, preschool children constitute the participant group in which the most studies were conducted in the related field. It was determined that these studies conducted with preschool children were articles, master's theses, doctoral dissertations and papers. Preschool teachers stand out as the second most preferred study group by researchers in this field. The studies conducted with preschool teachers were in the form of articles and master's theses. Pre-service teachers constitute the third most preferred study group. It was determined that the studies conducted with pre-service teachers were articles, papers and master's theses. In addition, it was seen that preschool teachers and students were used together as the study group in one paper study, and documents and preschool teachers were used together as the study group in one article and one master's thesis. Finally, it should be noted that only one article included academic staff as the study group and 17 studies did not provide any information about the study group.

Table 8.

Data Collection Tools

Data Collection Tool	f
Interview	27
Document	12
Observation	11
Student products	11
Scale	9
Video recordings	8
Form	8
Survey	8
Test	7
Events	5
Drama	4
Visual materials	2
Software	1
Not specified	10
Total	123

The interview draws attention as the most used data collection tool in the studies conducted in the related field. The second most preferred data collection tool in the studies on social studies education in preschool period was document, and the third data collection tools were observation and student products. In the studies utilizing student products, it is seen that the researchers collected data through student drawings and products made with clay. In the related studies, scales, video recordings, questionnaires and tests were the most preferred data collection tools. Activities draw attention as another data collection tool used in the studies in the field. In these studies, researchers generally obtained data through games, painting, music, nature and three-dimensional activities. Drama, visual materials and software were the least preferred data collection tools in the studies. In the studies utilizing visual materials, tools such as timelines, oil lamps, stoves and jugs were used. In addition, it should be emphasized that 10 studies in this field did not provide any information about the data collection tool.

Table 9.

Results of Studies on Social Studies Education in Preschool Period

Results	f
Students can understand the concepts of past and present through appropriate education, activities and programs	16
Teaching social studies and the disciplines within the scope of this course can provide students with important competencies and skills	16
Social studies and the disciplines included in this course should be included in pre-school education	11
The concepts and acquisitions related to the geography discipline within the scope of the social studies course are included in preschool curricula	2
The concepts and acquisitions related to the geography discipline within the scope of the social studies course are not sufficiently included in the preschool curriculum	2
The teaching of social studies and the disciplines within the scope of this course is appropriate to the developmental level of students	2
The teaching of social studies and the disciplines within the scope of this course is not appropriate for the developmental level of students	2
Some programs implemented in preschool education period are effective in the development of students' spatial perception and skills	2
In different countries, the teaching of social studies and the disciplines within the scope of this course starts in the preschool period	1
In recent years, there has been a significant increase in the number of studies in this field	1
The achievements related to the geography discipline within the scope of the social studies course are given with activities in other fields	1
Students are interested in the discipline of geography within the scope of social studies course	1
Not specified	8
Other	3
Unreachable	2
Total	70

The first of the most important results obtained from the studies on social studies education in preschool period is that students can understand the concepts of past and time if appropriate education, activities and programs are provided. In these studies, education, activities and programs that enable students to understand the concepts of past and time were expressed as museum visits, sociocultural education, computer-assisted education, Turkish language activities, a day in the Ottoman Empire, art activities and creative activity programs. It is noteworthy that teaching social studies and the disciplines within the scope of this field can provide students with important competencies and skills. In these studies, these competencies and skills were stated as map and globe reading, scientific thinking, imagination, environmental sensitivity, geographical awareness, and developing an understanding of the immediate environment and the world. As can be seen from the table, the second important result in the studies analyzed is the inclusion of teaching social studies and the disciplines such as geography and history in preschool education. It should be emphasized that the studies in this category were generally conducted with preschool teachers and prospective teachers. In addition, in these studies, the subject areas to be acquired in preschool education period were stated as geography, social studies and history respectively. Starting the teaching of social studies and the disciplines within the scope of this course in the preschool period draws attention as one of the important results of the studies conducted in this field. Again, the fact that there has been a significant increase in the number of studies conducted in the field in recent years and that the achievements in the field of geography are given through science / nature / mathematics activities are results that can be considered important although they are stated in one study.

Table 10.

Suggestions in Studies on Social Studies Education in Preschool Period

Recommendations	f
Including courses on social studies and the disciplines that make up this field in pre-school undergraduate education	18
Including achievements, indicators and activities related to social studies and the disciplines that make up this field in preschool curricula	17
Utilizing activities, programs and practices to develop children's time, space and historical imagination skills	5
Training pre-school educators on some historical and geographical concepts	3
Utilizing out-of-school environments to improve students' understanding of history	2
Including the achievements implicitly related to history in the pre-school curriculum under the title of history teaching	2
Combating the negative views that history and geography cannot be taught in preschool period	2
Conducting research on how geography teaching in preschool period is done in different countries	1
Other	4
Not specified	13
Unreachable	3
Total	70

As can be seen in Table 11, the highest level of recommendation in the studies on social studies education in preschool period is to include courses on social studies and the disciplines that make up this field in undergraduate programs. The disciplines that were most frequently suggested to be included in preschool undergraduate programs were geography and social studies, respectively. In one study, social studies and history disciplines were handled under a single title and suggested to be added to preschool undergraduate programs. Including outcomes, indicators and activities covering social studies and its sub-disciplines in preschool education programs is the second suggestion that comes to the fore in the studies in the related field. The areas mentioned in this regard are social studies, geography and history. The use of activities, programs and practices that will help develop children's time, space and historical imagination skills in early childhood emerges as a third recommendation in this regard. While some studies in this category suggested named programs such as computer-assisted instruction and spatial perception training to develop time, space and historical imagination skills in early childhood, other studies used more general terms such as in and out-of-school activities and different educational practices. Providing training to preschool educators on concepts related to history/geography disciplines such as time and space is a relatively high ranked suggestion in this regard. In addition, making use of out-of-school environments such as museums and historical environments in order to improve the historical understanding of students studying in this

period, presenting the acquisitions related to history, which are implicitly included in preschool curricula, under the name of this discipline, and making an effort to eliminate the negative thoughts that history and geography cannot be taught in preschool period through appropriate activities are also frequently mentioned suggestions.

Discussion

As it is known, since the concept of time is abstract, it is one of the most difficult concepts to acquire in preschool education (Kol, 2012). However, despite this difficulty, if appropriate activities are used, children can use time-related concepts correctly and show the ability to establish relationships between these concepts (Coşkun-Keskin & Kırtel, 2016). Similarly, preschool teachers in the study conducted by Er et al. (2022) also stated perceiving space as the geographical subject/skills that children have the most difficulty in this period.

In the studies analyzed, computer-assisted instruction was one of the tools used to teach students the concept of time. Aktın & Dilek (2016) also mentioned computer-assisted instruction as one of the approaches to be utilized in teaching the concept of time to preschool children. In addition, maps were also seen to be one of the tools utilized for this purpose. As it is known, maps are one of the important materials that can be used to concretize abstract concepts. In particular, finding and marking the names of places and places on the map by children can help them concretize abstract places (Kırtel, 2018). Due to the important feature of maps, it is seen that some studies in the field have made use of this material in order for students to concretize the concept of space.

It is understood that the first study in the field was a master's thesis in 1999 within the scope of history discipline. In addition, it was determined that the first studies in other types of publications were; an article in the field of geography in 2001, a paper within the scope of citizenship education in 2007, a book chapter on geography discipline in 2010, a doctoral dissertation on geography in 2011, a translated book in the field of social studies education in 2015, and a book written in the field of social studies in 2019. In addition, the number of studies in the related field has increased since 2012 and the highest number of studies was conducted in 2019. It should be noted that these findings obtained from the research overlap with the findings obtained from Aktın's (2019b) study.

It was determined that the most common types of publications in the related field were articles, master's theses, papers, doctoral dissertations, book chapters, books and translated books, respectively. An important point to be noted here is that only one of the books produced in the countries that come to the forefront in the field of social studies education in preschool period and are characterized as developed has been brought to the field through translation. Aktın (2019b) also states in his study that there is only one translated book on social studies education in preschool period, which supports this finding obtained from this study.

The discipline with the most studies in social studies education has been determined to be geography. Akhan and Şimşek-Çetin (2015) also emphasize that geography education is one of the most heavily weighted disciplines in the field of research in Turkey. Studies within this discipline usually focus on the importance of early childhood geography education, the training of spatial skills in children, and the existence of geographically related achievements in early childhood programs. Akin's (2019b) observations that geography teaching during pre-school education in Turkey was focused on the location and importance of geography education and on spatial skills supported the results of this research. The second highest study was in social studies. Aktın's (2019b) study also found that the most studied areas during the pre-school period were geography, history education, and social studies, respectively. The second position of social information in this research is illustrated by the fact that studies of social studies in the interim have increased in number from historical discipline. Studies in social studies have been mainly focused on socio-cultural education, the levels of interest in teaching social information for pre-school teachers and teachers, and the importance of teaching social knowledge in the pre-school period. Aktın's (2019b) study also found that one of the topics that was prominent in research on social education in the pre-school period was the study's significance.

History has been the third most studied discipline in the field. Studies in connection with history discipline have generally focused on the teaching of time and the development of chronological thinking skills in children, determining children's vision skills, ensuring better perception of the past in children, and expressing the importance of history education in the pre-school period. Akin (2019b) also notes that studies of history teaching in Turkey during the pre-school period focused on time in the early years, but increased research aimed at developing historical thinking skills in young children in the following years. It also reveals that some studies of the field involved have been prepared to include the disciplines of history and geography. History and geography are known as the two major areas of pre-school education programs that complement one another, especially social studies (Guler &

Tugrul, 2007). And there's a lot of overlap between the disciplines of history and geography. Both disciplines seek to explore similar sources in order to demonstrate how people live, work, faith, home, food, and dress (Cooper, 2002). It is thought that these overlaps and similarities between the two fields may have been influential in some researchers in taking the disciplines of history and geography together. Finally, it is important to say that the least work on the field is done on civic education and economy, with the same frequency. This finding is supported by the findings of Aktın's (2019b) research.

In studies examined under the study, the most frequently favored pattern is state work, while experimental and action research is highlighted in the relevant field as the same frequently and second-preferred patterns. Aktın's (2019b) research in this area found that the most experimental work was done in the preliminary test-final test model, and in particular in the article type, research from qualitative research approaches to action research and case study. This difference can be explained by the fact that in studies in the time period that passes, the case study pattern is preferred by researchers more often. In pre-school studies of social education, the most favored working groups were students, teachers, and teachers, respectively. However, the fact that academics with a very important presence in the field may merely have participated in the study itself is considered a significant deficiency.

The most commonly used data collection tool in the study has been interviews. In addition, documents are determined to be second-hand observation and third-preferred data collection tools. Forms, video recordings, and surveys have all been centered on the work done in the field as an equally frequent data collection tool. Göktaş et al. (2012) found that surveys are among the most commonly used data collection tools in educational research in Turkey. Contrary to this finding, we may find that the adoption of a largely qualitative research approach to the medium range of studies conducted in the field has been effective. Testing and events have been the bottom-up data collection tools for training social information in the pre-school period. Research using activities as a data retrieval tool has found that Turkish language, painting, music, nature, 3D studies and gaming are used. Games have a vital role in helping children explore the world they've lived in and their relationship with it (Cooper, 2002). Games are considered to be one of the tools for the event, as well as for training social information (Kirtel, 2018). Some researchers might say that they use games to harness these characteristics in the data collection phase. In the most recent studies in the field, drama, visual material, and game-based software have been found to be used as a data collection tool. Using visual materials as a data collection tool, preferred tools are shown in timelines, kandil, stove and pitcher. As it turns out, studies of social education in the pre-school period have collected data from various sources. Similarly, Aktın (2019b) emphasizes that researchers generally obtain data from a variety of sources in the field.

One of the first results from studies in the field is that children in pre-school settings through appropriate training, events and programs can understand past and time concepts. Museum trips are described in these studies as one of the activities that allow students to understand past and time concepts. Museums, as it's known, are alternative learning environments that provide information about events that occurred in the past through concrete findings to people. Museums now have training workshops within them and are now able to travel with children from the pre-school education level. When providing information about the abstract past during these travels, connecting children with objects from the past to the present can help them better understand history (Akyol & Köksal-Akyol, 2017). Other education, events and programs that help students in pre-school years to better understand past and time concepts have been highlighted as socio-cultural education, computer-aided education, Turkish language activity, a day in the Ottoman Empire, and art events. Art is one of the most important tools that can be used in this period for children to learn about the past. One of these works, in particular, is considered important both for attracting children and for them to recognize that these works were created by people with very different lifestyles in the past (Harnett, 2014). The study of social knowledge and the disciplines that make up this space is the second important conclusion that has been mentioned in the studies. These include areas that were intended for pre-school education, geography, social information, and history, respectively. Öntaş et al. (2021) concluded in their research that the most important results of studies on life information and social information education in the preschool period were that social information and life information fields should also be addressed during the preschool period. Another conclusion of the study was that. In different countries such as the United States, social knowledge and the history of this field began teaching in the pre-school period. Indeed, during the pre-school period, the United States was noted as one of the countries involved in social studies teaching programs (Akhan & Şimşek-Çetin, 2015; Aktın, 2014; NCSS (1994). There has been a significant increase in the number of relevant field studies over the past 10 years, and other results stated in the study of science/nature/mathematics activities of the achievements in geography discipline within the social

studies course. As highlighted by Baysan & Aydogan (2016), Turkish pre-school education programs are intended to serve as a basis for geography teaching at the highest levels of educational institutions, often offered as part of science activities (science-nature and mathematics) related to geography.

In studies, it has been shown that the most expressed recommendation is to include social knowledge and disciplines in pre-school undergraduate programs at universities. In the United States, some universities with a bachelor's degree in pre-school education are known to feature classes for teaching social studies in their programs. (Akhan & Şimşek-Çetin, 2015). Researchers at Turkey also seem to believe in the importance of this practice and to propose suggestions for social information and the disciplines involved in pre-school teaching programs. The most recommended areas for participation in the undergraduate training programs were geography and social information, respectively. Historical discipline has been expressed in one study alone along with social knowledge. The promotion of social knowledge and participation in pre-school education programs and disciplines in this area is the second most cited proposal in the study examined. In the context of this proposal, the first required field to be included in pre-school education programs is social information, followed by geography. The discipline of history has also been expressed once, in conjunction with the fields of social knowledge and geography. The third frequently mentioned recommendation in the field concerned; this is to utilize events, programs and applications that help students in the training step develop time, venue, and historical imaging skills. It is another important proposal in this area to offer pre-school teachers training for the time and place concepts associated with the history/geography disciplines. Furthermore, the use of out-of-school environments such as museums and historical surroundings to improve pre-school students' understanding of history is the same frequently cited in studies concerning the discipline in which historically relevant achievements are presented in the pre-school education program, and the study of obstructing adverse considerations for the inability to teach subjects such as history and geography through proper activities.

Conclusion and Recommendations

As a result of the research, it was seen that the most prominent purpose in the studies examined was to reveal the importance and place of teaching social studies and the disciplines that make up this field. The applicability of sociocultural education in the preschool education period and the competencies that students can gain are the second most important aims emphasized in this regard. The aims expressed in this context are; how sociocultural education can be given to children, which activities can be used, how important events and facts can be presented, and how important Turkish elders can be learned. In fact, the desire to provide preschool children with information about important historical figures who played a role in the history of their country is not unique to Turkey. For example, in England, one of the most important aims of history education, which is called Key Stage 1 and covers children between the ages of 5-7, is to provide students with information about important historical figures in their own past (Harnett, 2014). As another example, in the history/social sciences program implemented in the state of California in the United States of America, it is known that teachers are asked to introduce historical figures who stand out in American history with their honesty, courage and patriotism to their students (HSSFCPS, 2017). Providing preschool students with the concepts of time and space through various practices, programs, and activities is the third important goal stated in the studies analyzed.

The following recommendations are available in light of research findings.

- In Turkey, studies of social education in the pre-school period have increased, especially since 2012. However, more research is needed in Turkey than in other countries around the world, where studies in this area are not sufficient.
- Research findings suggest that postgraduate studies in this area are not yet available as desired. Postgraduate studies, especially in the common counseling of academics specializing in pre-school and social studies, are thought to be of considerable value to the field.
- The study found that there were only two original and one translation book in the field of social studies education during the pre-school period. Researchers in Turkey have produced books and translations in this field, which could help fill a significant gap.
- In the relevant field of history education, the lack of studies is evident in the development of historical thinking skills and past perceptions of children. The implementation of activities that focus on these aspects can make a significant contribution to the field.
- Research findings show that the least studies conducted in the context of social studies

education during the pre-school period were done in the economic and civic education sectors. For this reason, more research can be done in areas such as economics and civic education, focusing on education of social knowledge in the pre-school period.

- Research findings show that in studies in the field, academics are the least favored group of researchers. For this reason, studies can be conducted in the pre-school period, detailing the views of specialized academics for the education of social information.
- This research aims to establish general trends by examining studies of social education in Turkey during the pre-school period. Likewise, research can be done in other countries to examine the trends of related studies.
- In Turkey, similar research on a regular basis may be useful in order to determine the general situation and shortcomings of teaching social information in a pre-school period.

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