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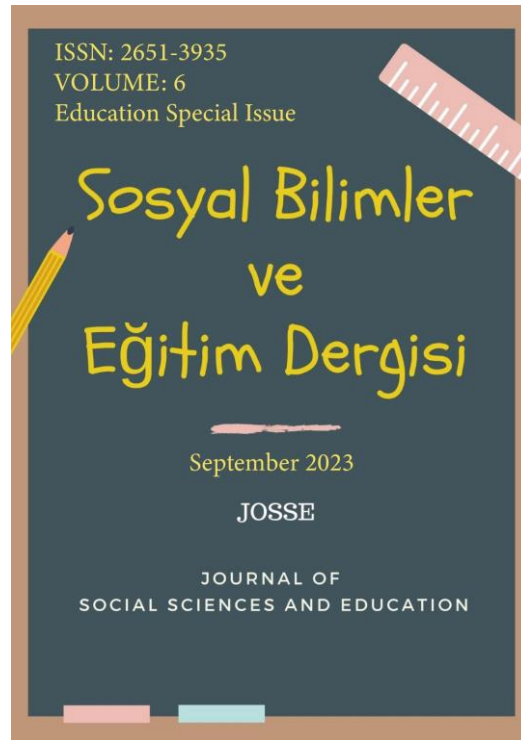
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Special Education Master's Students' Metaphorical Perceptions of Children Having High-Functioning Autism Spectrum Disorder

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Special Education Master’s Students’ Metaphorical Perceptions of Children Having High-Functioning Autism Spectrum Disorder

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ABSTRACT

Research Article

In the current study, aimed to determine the metaphorical perceptions of students receiving graduate education in the field of special education about high-functioning autism spectrum disorder. The study employed the phenomenological design, one of the qualitative research techniques, as the research method. The study group consists of 75 students pursuing a master’s degree in the Department of Special Education in the Faculty of Education at five different state universities during the spring term of the 2022-2023 academic year. The participants of the study were selected by using the convenience sampling method. The participants’ perceptions regarding children with high-functioning autism spectrum disorder were determined using a data collection tool that included the phrase “Children with high-functioning autism spectrum disorder are like... to me; because...” and questions to elicit demographic information of the participants. The data collected from the participants were analyzed using the content analysis method. In this study, the participants, who were master’s students in the Special Education Department, generated 75 metaphors regarding children with a high-functioning autism spectrum disorder. The metaphors derived from the data obtained from the participants were grouped and categorized into 6 categories based on their common characteristics as a result of the review of experts. When the generated metaphors were examined, it was seen that the participating students mostly liken children with high-functioning autism spectrum disorder to concepts such as flowers, rainbows, stars, boxes and computers. The study results indicate that the metaphors generated by the participants regarding children with high-functioning autism spectrum disorder are generally expressed through positive and concrete concepts.

Keywords: High-functioning autism spectrum disorder, metaphor, perception, special education

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Introduction

It is essential for individuals with special education needs to continue their lives as integrated into society and respected like other members of community. The teacher plays the most significant role in educating students with special education needs. In addition to being an expert in the field, the special education teacher should be compassionate, have a strong sense of empathy, and understand the other person. This sensitivity of the teacher is fed by their professional competencies and technical knowledge, as well as his/her ethical understanding (Soyer, 2010). Special education teachers in Turkey graduate by completing the Special Education undergraduate program in education faculties. In 2016, the fields of “Teaching Hearing Impaired Students, Teaching Intellectually Disabled Students, Teaching Visually Impaired Students and Teaching Gifted Students” were merged into a single program called Special Education (Yükseköğretim Kurumu [YÖK], 2016). In their study by Çitil, Karakoç and Küçüközyiğit (2018); states that although the theoretical knowledge of teacher candidates taking special education courses has increased in the field of special education, the lack of change in their attitudes towards individuals in need of special education is due to the fact that the content of the course is only theoretical and the weekly lesson hours are insufficient. As a result of this study, a suggestion is made to make an application that ensures that the special education course taken by prospective teachers is intertwined with experience after being covered theoretically. When approached from this perspective; In fact, it can be said that special education teachers must first master the characteristics of the student group they address, in order to provide accurate and effective education due to the large and diverse variety of students with special needs they teach.

Individuals with special education needs continue their education through different educational programs and learning environments tailored to their specific needs. Quality in the education of individuals with special needs can only be achieved when it is delivered by the personnel specialized in special education. One of the groups of individuals in need of special education is people who are diagnosed with autism spectrum disorder (ASD) (Millî Eğitim Bakanlığı [MEB], 2018). Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder that typically manifests itself in early childhood with limited social skills and repetitive behaviors (Turhan and Vuran, 2015). Individuals with high-functioning autism spectrum disorder are those who, despite their existing intellectual capacities, struggle to perceive and interpret social situations. They often have low awareness of the rules that

govern social situations, which can adversely affect their quality of life due to associated social skills deficits (Andari et al., 2009). High-functioning autism spectrum disorder is a term used to describe autistic individuals with delayed language development but no intellectual impairment (Montgomery et al., 2016). In various studies conducted using the Rorschach test in individuals with high-functioning autism spectrum disorder, it has been suggested that there are difficulties in perceiving reality accurately, perceptual testing and cognitive functioning (Ghaziuddin et al., 1995). One of the most typical characteristics distinguishing individuals diagnosed with high-functioning autism spectrum disorder from others is social skills deficits (Anderson et al., 2011).

Metaphors are the most important tool in facilitating the interpretation of words. Metaphors enable us to understand individuals' true thoughts more utilitarianly (Youmans, 2004). Metaphors are one of the tools that can be used to express perceptions (Müldür and Çevik, 2017). Metaphors are one of the best tools for expressing a thought with a rich language. Metaphors reveal the perceptions of concepts (Yalçın and Erginer, 2012). Metaphors assist in explaining something with as few words as possible and more emphatically (Ertürk, 2017). Therefore, metaphors are frequently used in educational and conceptual studies. In special education, various metaphor studies have been conducted on different sample groups and specific concepts related to special education. In the literature, studies have been conducted on the perceptions of pre-service teachers, university students, parents, and teachers regarding high-functioning autism spectrum disorder (Akkaya-Yılmaz, 2017; Akoğuz, 2014; Biçimli, 2022; Çandır, 2015; Genç, 2021). These studies generally examine the education of individuals diagnosed with high-functioning autism and how participants perceive autism. It has been found that sample groups tend to perceive autism more negatively, while teachers and pre-service teachers perceive autism more positively. For instance, a study conducted to identify the challenges elementary school students having high-functioning autism spectrum disorder face in inclusive education, the following factors were determined to cause problems: time, support services, priorities, materials, and how personnel perceives them. Individualized support, preliminary preparation, and increasing motivation were among the suggestions to overcome these difficulties (Silveira-Zaldivar and Curtis, 2019). In a study examining the perceptions of primary teachers regarding autism and inclusive practices, it was stated that teachers' most prominent perceptions of autism were social challenges and focused/restricted interests (Bolorian et al., 2022). Eliminating the shortage of teachers who are graduates of different branches and who do not work in schools

as special education teachers through a special education certificate program or master's degree should be addressed by the Ministry of National Education, but rather than ensuring that those working in the field of special education are employed, emphasis should be placed on their mastery of the field or the teacher qualifications they will need in the field (Ünlü, Melekoğlu and Ünlü, 2019). In this context, the fact that low-frequency student groups in need of special education, who graduated from the field or from outside the field and who are doing a master's degree in the field of special education, recognize the characteristic features or have the basic features at the beginning, is in terms of encouraging them to be recognized in latent, unrecognizable activities. It may be important. Relationships in this direction; The forces that are becoming popular in the literature today are family groups, especially for groups diagnosed with high-functioning autism in low-frequency special education.

While attitudes have a function that can lead to changes in individuals' behaviors, they are also effective in developing their self-identity (Kağıtçıbaşı, 1996). Individuals of school age are exposed to different attitudes of teachers regarding their positive and negative behaviors. These teacher approaches they encounter are an effective factor in the psychosocial development of students (Şipal, 2004). In order to destroy the negative social perception towards individuals in need of special education and to ensure the integration of individuals in need of special education into society, the awareness of special education teachers must be high in every field of special education (Akyıldız, 2017). It can be said that the scientific studies conducted have a positive impact on special education pre-service teachers by creating awareness of different subgroups of students with special needs. Bozkuş-Genç (2021) stated that pre-service teachers in the special education teaching department had more negative feelings and thoughts about individuals with High-Functioning Autism and pointed out that the teachers' attitudes changed positively at the end of the study. It is thought that determining the awareness of special education teachers or teachers of other branches about student groups that need special education may help develop lesson plans to be delivered in the undergraduate and graduate education process.

It is observed that there is limited research on determining the perceptions of students pursuing a master's degree in special education in Turkey regarding individuals with special education needs. On the subject of high-functioning autism spectrum disorder, it has been observed that there is limited research in the literature on the perceptions of master's students studying in the field of special education. Furthermore, given that high-functioning autism is a newly emerging topic in Turkey and the scarcity of in-depth qualitative and metaphorical

studies in this regard, this study is considered to be significant. Perceptions of the concept of "high-functioning autism" determined through metaphors and the orientation shown by these perceptions reveal insights on what kind of roles should be adopted by teachers while attending to students in need of special education. It is thought that determining the perceptions of special education teachers regarding the concept of "high-functioning autism" will subsequently contribute to the arrangements needed to shape and develop this perception. Therefore, the purpose of the current study is to determine the metaphorical perceptions of students pursuing a master's degree in the field of special education about high-functioning autism spectrum disorder. The research question of this study is "What are the metaphorical perceptions of master's students in the special education department regarding high-functioning autism spectrum disorder?" Within the context of this question, answers to the following sub-problems will be sought:

1. What are the metaphors created by students pursuing a master's degree in special education regarding children with high-functioning autism spectrum disorder?
2. In terms of common characteristics, within which concept categories are the metaphors created by students pursuing a master's degree in special education regarding children with high-functioning autism spectrum disorder gathered?
3. What are the justifications and explanations behind the metaphors created by students pursuing a master's degree in special education regarding children with high-functioning autism spectrum disorder?

Method

In this section, the design of the study, the study group and the collection and analysis of data will be discussed.

Model

The current study employed the phenomenological design, one of the qualitative research methods. Phenomenological research reveals the meaning and importance of experiences about a concept or phenomenon for individuals (Kıral, 2021). This design is used to reveal participants' perceptions of a situation or event, their way of making sense of it and their personal experiences. In the current study, the phenomenological research design was

chosen because the aim was to reveal the perceptions of students in the special education teaching department regarding children with high-functioning autism spectrum disorder through the use of metaphors.

Population and Study Group

The population of this study consists of students pursuing a master's degree in the field of special education in Turkey. The study group consists of 75 students who are pursuing a master's degree in the Department of Special Education in the Faculty of Education at five different state universities during the spring term of the 2022-2023 academic year. The participants were selected through convenience sampling, one of the purposive sampling methods.

Convenience sampling, which is one of the purposive sampling methods, enables the researcher to easily access a sample for data collection purposes (Büyüköztürk et al., 2008). Demographic characteristics of the study group are presented in Table 1.

Table 1

Demographic Characteristics of the Participants

Characteristic		Frequency(f)	Percentage(%)
Gender	Female	44	58.7
	Male	31	41.3
	Total	75	100
Type of the Master Program	Thesis program		
	Non-thesis program	23	30.7
	Total	52	69.3
		75	100
Undergraduate Program Graduated	Special education		
	Other	41	54.7
	Total	34	45.3
		75	100

As seen in Table 1, 44 (58.7%) of the participants are female, and 31 (41.3%) are male. It is also seen that of the students participating in the study and pursuing a master's degree in special education, 23 (30.7%) are enrolled in a thesis program, while 52 (69.3%) are enrolled in a non-thesis program. When the undergraduate programs they graduated from are examined, it is seen that 41 students (54.7%) graduated from special education programs, while 34 students (45.3%) graduated from other departments.

Data Collection

Data regarding the participants' perceptions of children diagnosed with high-functioning autism spectrum disorder were collected using a metaphor method through an open-ended questionnaire. The form used in the study consists of two parts. The first part consists of questions to elicit information about the participants' gender, type of the master program and undergraduate program. The second part, on the other hand, is designed to determine the metaphors related to children diagnosed with high-functioning autism spectrum disorder, using the phrase "Children with high-functioning autism spectrum disorder are like... to me because...". In scientific research, such phrases are used to determine metaphorical perceptions. In such phrases, the preposition "like" is used to make a simile and the conjunction "because" is used to indicate in which sense the simile is used (Saban, 2008).

After the instruction, which contains brief information about the meaning of the metaphor, was read, the form was distributed to the participants. A few sample applications were made in order to demonstrate how to fill out the form. Afterwards, they were asked to complete the sentence in the form based on their ideas about children with high-functioning autism spectrum disorder. The purpose of the study is to determine the metaphorical perceptions of the students who receive graduate education in the field of special education about children with high-functioning autism spectrum disorder. This form, which includes written explanations, constitutes the main data source of the study.

Analysis of Data

In this qualitative study, descriptive survey model were used. In this study, the information collected from the participants was analyzed by using the content and descriptive analyzes methods. The descriptive content analysis method means determining the general trends on the subject by examining the qualitative data in detail (Ültay et al., 2021). The main purpose of content analysis is to reach the concepts and relationships that can explain the collected data. Concepts lead us to themes, and through themes we can organize things better and make them more understandable. In this framework, it is tried to define the data through content analysis and to reveal the truths that may be hidden in the data (Yıldırım and Şimşek, 2013). Qualitative data collected in this study were analyzed in four stages: (1) Coding the data, (2) finding the themes, (3) organizing the codes and themes, and (4) defining and interpreting the findings.

Establishing Validity and Reliability

As in other research studies, the reliability and validity of the measurement results in metaphorical studies should be tested. This is accepted as the most important indicator of increasing the credibility of the findings obtained in a qualitative study (Lincoln and Guba, 1986). A sufficiently large sample was selected to demonstrate the credibility of this qualitative study. The research data and process were described in detail. Providing sufficient time during the data collection process of the current study allowed the study group to express their opinions more comfortably. Thus, the validity of the collected data was increased. In qualitative studies, situations such as misinterpretation of data obtained, categories formed based on closed-ended responses or reaching conclusions on the basis of insufficient data jeopardize the credibility of the study. Therefore, the examination of the study by experts specialized in qualitative research methods and who possess sufficient knowledge and experience in the field is one of the most important issues in terms of credibility (Creswell, 2003). In this study, which examines the metaphorical perceptions of graduate students in the special education department about children with high-functioning autism spectrum disorder, the expertise of two experts specialized in qualitative approaches was drawn on. The two experts contributed with a critical perspective throughout all the stages of the study and provided feedback to the researchers.

The results of a study should be transferable to similar study groups and settings (Houser, 2015). The selection of the sample, the characteristics of the study group and the setting are used to demonstrate transferability in qualitative research (Sharts-Hopko, 2002). In this study, the categorization, grouping and analysis of the metaphors obtained about children with high-functioning autism spectrum disorder, explanations made about the metaphors in the findings section and conducting a comprehensive literature review increased the transferability.

During the data collection stage of the study, allowing the study group to express their own thoughts, avoiding any form of guidance, and presenting a detailed report on how the data analysis is conducted positively influence the validity of the study (Creswell and Poth, 2016). The researchers, who conducted the study, grouped 75 independently produced metaphors into six categories, taking into account the explanations. Afterwards, the list of 75 metaphors and six categories produced for children with high-functioning autism spectrum disorder was given to two experts and they were asked to match the metaphors with the categories. As a result of the comparison, the reliability of the study was determined by using

the formula of Miles and Huberman (1994): “(Reliability = (agreement/agreement + disagreement) x 100)”. In qualitative studies, if the consistency between the evaluations of the researcher and the expert is 90% and above, it means that reliability is achieved (Saban, 2008). In the reliability study, two experts whose opinions were consulted included three metaphors (those stuck in between, snowball, diamond) in different categories than the researchers did. As a result, the reliability was calculated to be $(72 / 72+3) \times 100 = 96\%$.

Compliance with Ethical Standard

At all the stages of this study, a great care was taken not to violate the ethical rules and ethical rules were precisely followed. Ethical approval for the study was obtained as a result of the decision numbered 01-54 and taken in the session numbered 08 on May 16, 2023 by the Ethics Committee of Tokat Gaziosmanpaşa University.

Findings

In this section, the findings regarding the metaphors developed by the graduate students in the special education department toward children with high-functioning autism spectrum disorder are presented sequentially using tables and explanations.

Metaphorical Perceptions of Graduate Students in the Department of Special Education about Children with High-Functioning Autism Spectrum Disorder

The study employed a form consisting of an open-ended question and used the metaphor technique to determine the perceptions of graduate students in the Department of Special Education about children with a high-functioning autism spectrum disorder. The views of the participants were collected digitally using Google Forms. Any tool that adds different meanings to a concept or situation beyond its dictionary definition; allowing the depiction of another entity, concept, or situation, is called a metaphor (Deant-Szokolszky, 1993).

A person’s cognitive approach to any subject and how he/she sees this subject can be determined through metaphors (Short, 2000). It should not be overlooked that metaphors have disadvantages as well as advantages. In this sense, it is impossible to find a single metaphor that clearly expresses a phenomenon. It is important not to forget the power of metaphors to reveal different aspects of a phenomenon (Morgan, 1998). Metaphors are one of the most

powerful mental tools that shape, direct, and control our ideas about the occurrence and functioning of events (Saban, 2004). Metaphor studies are used in many different disciplines in education. When the relevant literature is reviewed, it is seen that there are metaphor studies on education administrators (Cerit, 2008; Çobanoğlu and Gökcalp, 2015; Singh, 2010), teaching (Ben-Peretz et al., 2003; Çelikkaya and Seyhan, 2017; Çelikten, 2006; Er-Tuna, 2019; Göçer and Aktürk, 2015; Impeccoven Lind, 2004), student (Alım et al., 2018; Kahyaoğlu, 2015; Koçak, 2011), school culture and class rules (Ha and Kim, 2021), educational sciences (Saban, 2006), teachers' metaphorical perceptions of classroom and classroom management (Örücü, 2012), spoken language (Tompkins and Lavley, 2002), child (Demirbaş, 2015; Kuyucu et al., 2013), applications in the field of education and instruction (Lakoff and Johnson, 1980).

According to the findings of the current study, the participants, who are graduate students at the Department of Special Education, produced 75 metaphors for children with high-functioning autism spectrum disorder (Table 2). The generated metaphors and their frequencies (f) are shown in Table 2. When Table 2 is examined, it is seen that 75 metaphors obtained were grouped into six categories in line with expert opinions. In the study, “flower (N=6)” was found to be the most used metaphor. It is seen that the metaphors produced by the participants about children with high-functioning autism spectrum disorder are generally expressed with positive and concrete concepts (Table 2).

Table 2

Metaphors Developed by the Graduate Students at the Department of Special Education Regarding Children with High Functioning Autism Spectrum Disorder

Number	Metaphor	f	%	Number	Metaphor	f	%
1	Tree	1	1.33	26	Snowball	1	1.33
2	Alarm Clock	1	1.33	27	Rock	1	1.33
3	Those Stuck in Between	1	1.33	28	Uncharted Land	1	1.33
4	Gift	2	2.66	29	Book	2	2.66
5	Workshop	1	1.33	30	Box	3	4.00
6	Mirror	1	1.33	31	Moneybox	1	1.33
7	Spring	1	1.33	32	Labyrinth	2	2.66
8	Computer	3	4.00	33	Mineral	1	1.33
9	Blank Notebook	2	2.66	34	Matryoshka Doll	1	1.33
10	Blank Canvas	1	1.33	35	Angel	1	1.33
11	Glass	1	1.33	36	Special	2	2.66
12	Flower	6	8.00	37	Ocean	2	2.66
13	Rough Sea	1	1.33	38	Shortcut	1	1.33
14	Decorative Flower Pot	1	1.33	39	Precious Stone	1	1.33

15	Diamond	2	2.66	40	Puzzle	2	2.66
16	A Book in a Different Language	1	1.33	41	Robot	1	1.33
17	Sapling	2	2.66	42	Surprise Egg	2	2.66
18	Rainbow	5	6.66	43	Peg Top	1	1.33
19	Raw Material	1	1.33	44	Messenger	1	1.33
20	Dough	1	1.33	45	Source of Life	1	1.33
21	Gift Box	1	1.33	46	Toddler	1	1.33
22	Gift Pack	1	1.33	47	Star	3	4.00
23	Superhuman Being	1	1.33	48	Road	1	1.33
24	Cactus	1	1.33	49	Rubik's Cube	1	1.33
25	Wingless Bird	2	2.66				
Total						75	100

Of the total of 75 metaphors produced in the current study, 16 (diamond, sapling, labyrinth, blank notebook, special, computer, wingless bird, puzzle, flower, box, ocean, surprise egg, book, gift, rainbow, star) were used by 2 to 6 participants while 59 of them were developed by only one participant.

Categories for the Metaphors Developed by the Graduate Students at the Special Education Department Regarding Children with High Functioning Autism Spectrum Disorder

The metaphors derived from the data obtained were grouped according to their common features and gathered into 6 categories by taking expert opinions. The metaphors collected in 6 categories are listed and shown in Table 3.

Table 3

Categories of the Metaphors Developed by the Graduate Students at the Special Education Department Regarding Children with High Functioning Autism Spectrum Disorder

No	Categories	Metaphors	f	%	NoM	%
1	Patience	Diamond (2), decorative flower pot (1), cactus (1), dough (1), sapling (2), labyrinth (2), road (1).	10	13.33	7	14.28
2	Unique	Blank notebook (2), special (2), messenger (1), mirror (1), computer (3), rock (1), shortcut (1), Rubik's Cube (1)	12	16.00	8	16.32
3	Attention	Toddler (1), wingless bird (2), tree (1), puzzle (2), flower (6), raw material (1), source of life (1), glass (1)	15	20.00	8	16.32
4	Mysterious	Gift pack (1), box (3), uncharted land (1), ocean (2), surprise egg (2), blank canvas (1), matryoshka doll (1), book (2), moneybox (1)	14	18.66	9	18.36
5	Valuable	Workshop (1), precious stone (1), rough sea (1), gift (2), angel (1), mineral (1)	7	9.33	6	12.24

6 Different	A book in a different language (1), rainbow (5), gift box (1), star (3), snowball (1), peg-top (1), alarm clock (1), superhuman being (1), spring (1), robot (1), those stuck in between (1)	17	22.66	11	22.44
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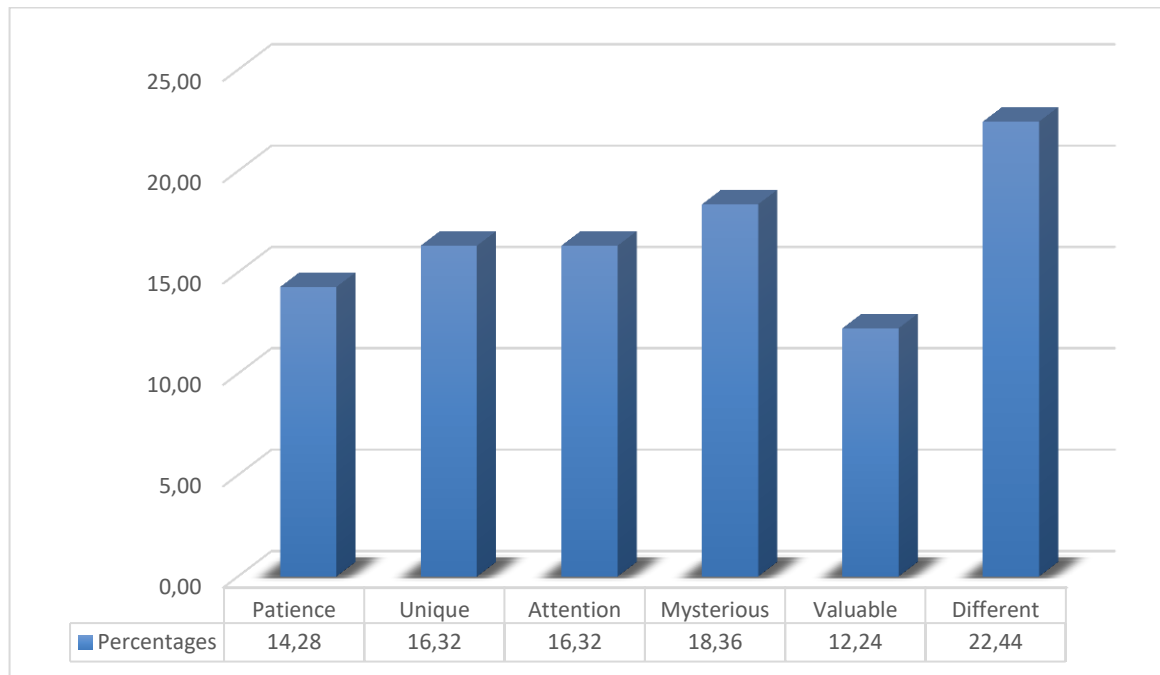
Total	75	100	49	100
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Note: NoM: Number of Metaphors

A total of 75 metaphors developed by the graduate students at the Special Education Department regarding children with high-functioning autism spectrum disorder were grouped into six categories (Figure 1).

Figure 1

Percentages of the Categories of the Metaphors Developed by the Graduate Students at the Special Education Department regarding Children with High Functioning Autism Spectrum Disorder



When the frequency and number of the metaphors created in the study are examined, it is seen that 7 ($f=10$) metaphors were created in the category of patience, 8 ($f=12$) in the category unique, 8 ($f=15$) in the category of attention, 9 ($f=14$) in the category of mysterious, 6 ($f=7$) in the category of valuable and 11 ($f=17$) in the category of different. Thus, a total of 49 metaphors ($f=75$) were created.

Conceptual Categories

The metaphors produced by the participants and classified into six categories and validated through expert opinions are presented in tables together with their accompanying explanations.

1. Explanations in the Category of Patience

Sample explanations for the metaphors in the category of patience are given in Table 4.

Table 4

Metaphors in the Category of Patience and Sample Explanations

Metaphor	Sample Explanation
Decorative Flowerpot	<i>"If necessary, care is taken, flowers will grow inside. Remains as an ornament if proper care is not taken (S54)."</i>
Diamond	<i>"Making a diamond is difficult. It requires patience. Similarly, assisting children with high-functioning autism to bring out their existing performance also works the same way. It requires patience. But the result is highly valuable, like a diamond (S14)."</i>
Diamond	<i>"Because it needs to be carefully crafted and nurtured (S51)."</i>
Sapling	<i>"Because it grows and flourishes as you keep nurturing it. It blooms, bears fruit (S68)."</i>
Sapling	<i>"Because they require attention and care. They are sensitive, delicate, and not prone to being hurt (S38)."</i>
Dough	<i>"If you dedicate enough time and effort, and work in a disciplined manner, it is impossible not to achieve results. You can shape it as you desire (S58)."</i>
Cactus	<i>"Because I cannot predict what kind of flower will bloom in the end (S55)."</i>
Labyrinth	<i>"Because there are multiple and complex paths to reach the goal (S75)."</i>
Labyrinth	<i>"Because in order to understand children with high-functioning autism spectrum disorder, different approaches should be tried (S25)."</i>
Road	<i>"We need to carefully understand children with high-functioning autism spectrum disorder and then follow up with proper monitoring. Collaborative efforts between school and family are required to facilitate the child's integration into society (S63)."</i>

This category includes the statements of students who think that children with high-functioning autism spectrum disorder require patience. This category is represented by 10 special education graduate students and 7 metaphors (Table 4). In the category of patience, there are diamond (N=2), decorative flowerpot (N=1), cactus (N=1), dough (N=1), sapling (N=2), labyrinth (N=2), and road (N=1) metaphors. Among the total of 6 categories included in the study, the category of patience accounts for 13.33%.

2. Explanations in the Category of Unique

This category is represented by 12 graduate students from the Department of Special Education and 8 metaphors. Sample explanations for the metaphors in the category of unique are given in Table 5.

Table 5

Metaphors in the Category of Unique and Sample Explanations

Metaphor	Sample Explanation
Mirror	<i>"Because it reflects what it sees from the other person (S67)."</i>
Computer	<i>"Because they have a very high memory (S18)."</i>
Computer	<i>"Because they are fast and clear in understanding and analyzing (S61)."</i>
Computer	<i>"Because the brains of children with high-functioning autism spectrum disorder are unique. If given the opportunity, great talents emerge (S30)."</i>
Blank Notebook	<i>"Because if we can understand them and provide proper guidance without delay, we can fill that notebook beautifully. Otherwise, there will be many gaps in that notebook. This, in turn, will lead to many problems in later years (S7)."</i>
Blank Notebook	<i>"Because their memory is as clean as the page of a blank notebook. This notebook must be filled in correctly so that they can be prepared for life, live without needing anyone, and be useful to others (S31)."</i>
Rock	<i>"Because they are very strong emotionally, they are not easily affected by external influences (S19)."</i>
Special	<i>"Because these individuals exhibit similar characteristics to typically developing children in terms of IQ, they show significantly different traits in areas such as science, mathematics, and art. I am aware that their diagnosis is quite challenging. I have heard that this disorder is believed to be present in individuals who have excelled and stood out in society in these fields. They are said to experience more difficulties in social and emotional aspects. I believe these children are special (S8)."</i>
Special Messenger	<i>"Because their education is given more intensively and individually (S10)."</i>
Shortcut	<i>"Because they inform us from a different domain of consciousness (S53)."</i>
Rubik's Cube	<i>"Because you cannot see the crowded masses there; you walk alone on that path full of ups and downs, but at the end of the road, you may surpass others (S21)."</i>
	<i>"Because they are active, curious and learning creatures (S37)."</i>

In the category of unique, there are blank notebook (N=2), special (N=2), messenger (N=1), mirror (N=1), computer (N=3), rock (N=1), shortcut (N) =1), Rubik's Cube (N=1) metaphors. Among the total of 6 categories included in the study, the category of unique accounts for 16%.

3. Explanations in the Category of Attention

The category of attention is represented by 15 graduate students from the Department of Special Education and 8 metaphors. Sample explanations for the metaphors in the category of attention are given in Table 6.

This category includes the statements of students who think that the education of children with high-functioning autism spectrum disorder requires attention.

Table 6

Metaphors in the Category of Attention and Sample Explanations

Metaphor	Sample Explanation
Tree	<i>“Because if they are supported according to their interests and talents, they can achieve much better development and produce remarkable outcomes (S12).”</i>
Glass	<i>“Because just like glass can shatter with a small impact, the hearts of children with high-functioning autism spectrum disorder can be easily broken (S27).”</i>
Flower	<i>“Due to their differences from typical individuals, they experience limitations and challenges. Therefore, they are in need of special attention and support (S43).”</i>
Flower	<i>“They are like a section of a flower that has bloomed in a different color, as they are valuable flowers with distinct characteristics that set them apart from the majority in terms of their creation (S47).”</i>
Flower	<i>“Because they are like precious flowers (S20).”</i>
Flower	<i>“Because they do not exhibit typical development compared to their peers, their care and attention needs should be met (S36).”</i>
Flower	<i>“Because if you don’t show them attention, they wither, fail to thrive, and eventually wilt (S69).”</i>
Flower	<i>“Because they are as delicate and graceful as a flower. They require guidance and direction. Just like a flower, they blossom and develop in the direction they are guided (S39).”</i>
Raw Material	<i>“Because they are malleable raw materials. They vary depending on the shape given to them, much like how raw materials can be molded into different forms (S40).”</i>
Wingless Bird	<i>“Because they need the help of others (S32).”</i>
Wingless Bird	<i>“Because they need love. Feeding them with love makes them free (S28).”</i>
Puzzle	<i>“Because we need to find the pieces that will correctly complete a whole, like the pieces of the puzzle, and create the picture (S2).”</i>
Puzzle	<i>“Because initially, when you first take them out of the box, they are disordered and chaotic. However, as we start organizing and placing the pieces in their respective positions, they begin to make sense and each small piece placed brings excitement and contributes to the overall meaning. When the puzzle is completed, a stunningly beautiful product emerges (S42).”</i>
Source of Life	<i>“Because if approached correctly, they can become a source of happiness, joy, and hope (S29).”</i>
Toddler	<i>“Because both of them rely on others to exist and succeed (S9).”</i>

In the category of attention, there are toddler (N=1), wingless bird (N=2), tree (N=1), puzzle (N=2), flower (N=6), raw material (N=1), a source of life (N=1) and glass (N=1) metaphors. Among the total of 6 categories included in the study, the category of attention accounts for 20%.

4. Explanations in the Category of Mysterious

The metaphors and sample explanations in the category of mysterious are shown in Table 7. The category of mysterious is represented by 14 graduate students from the Department of Special Education and 9 metaphors. This category includes student sentences

that try to reveal the unknown and mysterious aspects of children with high-functioning autism spectrum disorder (Table 7).

Table 7

Metaphors in the Category of Mysterious and Sample Explanations

Metaphor	Sample Explanation
Blank Canvas	<i>"Because it is unpredictable what kind of picture will emerge in the end (S56)."</i>
Gift Pack	<i>"You don't know what surprise will come out of it (S11)."</i>
Uncharted Land	<i>"Because no one knows what it might do when it's discovered further (S15)."</i>
Book	<i>"Because he/she has the intelligence to know everything in his/her fields of interest (S49)."</i>
Book	<i>"Because it contains a lot of information in itself (S70)."</i>
Money Box	<i>"Because the money box is often locked. We can see the value inside when we unlock it (S59)."</i>
Box	<i>"Because we don't know what's in it. It should be researched, studied, and explored (S4)."</i>
Box	<i>It is not clear what will come out of it (S13)."</i>
Box	<i>"Because they have unique personalities. How we approach them, how we treat them with kindness, the empty box becomes the most beautiful entity (S26)."</i>
Matryoshka Doll	<i>"Because children with high-functioning autism spectrum disorder differentiate in cognitive, social, linguistic, and other areas, and reaching them fully requires time and a continuous effort. Therefore, they can be likened to matryoshka dolls (S60)."</i>
Ocean	<i>"Because it contains many ores in its depths that we need to figure out what it is and how it happened (S22)."</i>
Ocean	<i>"Because as we go deeper into the ocean, we discover more mysterious aspects of it (S74)."</i>
Surprise Egg	<i>"Because it is not clear what is outside, but you can open the inside and see the gift (S35)."</i>
Surprise Egg	<i>"Because you never know what will come out of it (S72)."</i>

In the category of mysterious, there are gift box (N=1), box (N=3), uncharted land (N=1), ocean (N=2), surprise egg (N=2), blank canvas (N=1), matryoshka doll (N=1), book (N=2), money box (N=1) metaphors. Among the total of 6 categories included in the study, the category of mysterious accounts for 18.66%.

5. Explanations in the Category of Valuable

The metaphors and sample explanations in the category of valuable are shown in Table 8. This category is represented by seven graduate students from the Department of Special Education and six metaphors. This category includes student statements that try to reveal the valuable aspects of children with high-functioning autism spectrum disorder (Table 8).

Table 8

Metaphors in the Category of Valuable and Sample Explanations

Metaphor	Sample Explanation
Gift	<i>“Because they have a value that will add a lot to this world with their differences (S65).”</i>
Gift	<i>“Because within children with high-functioning autism spectrum disorder, whom we perceive as challenges in our lives, there are hidden different beauties and gifts for us (S23).”</i>
Workshop	<i>“Because experience is gained through working in the workshop. Similarly, working with children with high-functioning autism spectrum disorder also leads to gaining new experiences (S24).”</i>
Rough Sea	<i>“Because they contain a thousand kinds of beauty in them (S57).”</i>
Angel	<i>“Because children with high-functioning autism spectrum disorder don’t lie, judge or play mind games (S66).”</i>
Mineral	<i>“Because they gain value when they are processed (S71).”</i>
Precious Stone	<i>“Because they are like raw ore (S46).”</i>

In the category of valuable, there are workshop (N=1), precious stone (N=1), rough sea (N=1), gift (N=2), angel (N=1), and mineral (N=1) metaphors. Among the total of 6 categories included in the study, the category of valuable accounts for 9.33%.

6. Explanations in the Category of Different

In the current study, the category with the highest number of metaphors is the category of different. The category of different includes student statements that try to reveal the unknown and different aspects of children with high-functioning autism spectrum disorder. The metaphors and sample explanations in the category of different are shown in Table 9. This category is represented by 17 graduate students from the Department of Special Education and 11 metaphors.

Table 9

Metaphors in the Category of Different and Sample Explanations

Metaphor	Sample Explanation
Alarm Clock	<i>“Because they stick to their routine and keep insisting until their routine is fulfilled (S34).”</i>
Those Stuck in Between	<i>“Because children with high-functioning autism spectrum disorder, who are not easily diagnosed, as far as I know, do not typically experience difficulties in verbal expression. Due to the challenging nature of labeling this condition as an illness, I believe these children often find themselves in a gray area (S50).”</i>
Spring	<i>“Because in the spring season, nature becomes vibrant and adorned with beautiful colors. Similarly, children with high-functioning autism spectrum disorder are diverse and colorful, each possessing unique qualities (S64).”</i>
A Book in a Different Language	<i>“Because they are the people who have difficulties in communicating and having difficulty in empathizing (S62).”</i>

Rainbow	<i>"High functioning autism spectrum disorder is the difference. There are various types of autism (S1)."</i>
Rainbow	<i>"Because personality traits such as the colors in the rainbow show different characteristics from each other (S3)."</i>
Rainbow	<i>"Because their personality traits are different from each other and they are colorful (S16)."</i>
Rainbow	<i>"Each child has different colors and features (S52)."</i>
Rainbow	<i>"Because high-functioning autism spectrum disorder is not a disability, but a difference. Each child is a different color. Every color represents diversity. Regardless of what the color is, they become more beautiful when they are together with other colors (S41)."</i>
Gift Box	<i>"Because in every gift box, there is a different gift, and they are like two completely different children with unique characteristics (S5)."</i>
Superhuman Being	<i>"Because their approaches and perspectives on events are very different and surprising (S48)."</i>
Snowball	<i>"Because where they will go, how much they will grow, when they break, their benefits, and their harms cannot be fully known and predicted. It always takes time to understand them (S17)."</i>
Robot	<i>"Because children with high-functioning autism spectrum disorder often experience difficulties in expressing their emotions or understanding emotions, similar to robots (S45)."</i>
Peg Top	<i>"Because they are in an independent movement within themselves (S73)."</i>
Star	<i>"Despite the presence of numerous stars, planets, and celestial bodies in the surroundings, they remain unique and different from everyone else. Similarly, children with high-functioning autism spectrum disorder are the same. Despite the presence of many people around them, they remain solitary due to difficulties in socializing (S6)."</i>
Star	<i>"When they receive attentive education, they can be like stars shining in the night sky (S44)."</i>
Star	<i>"Because every child shines as recognized (S33)."</i>

In the category of different, there are book (N=1), rainbow (N=5), gift box (N=1), star (N=3), snowball (N=1), peg-top (N=1), alarm clock (N=1), superhuman being (N=1), spring (N=1), robot (N=1), those stuck in between (N=1) metaphors. Among the total of 6 categories included in the study, the category of different accounts for 22.66%.

Discussion and Results

When the studies on high-functioning autism spectrum disorder and metaphors are examined, it can be seen that in the international literature, research has predominantly focused on the metaphorical understanding of students with high-functioning autism spectrum disorder. Melogni et al. (2012) compared the metaphorical understanding levels of 24 students with high-functioning autism spectrum disorder, with an average age of 8.5, to typically developing children aged 5 and 6. The study found that students with high-functioning autism disorder exhibited partial delays in metaphorical understanding. In a similar study, Soltani et al. (2023) examined the understanding of abstract concepts and concrete metaphors in children with autism and typically developing children with normal language skills. The study

concluded that children with autism had difficulties comprehending visual and auditory metaphors, indicating their weaker performance in metaphorical understanding. In the national literature, only one study has been found on high-functioning autism spectrum disorder and metaphors (Genç, 2021). The study found that the pre-service teachers had a positive metaphorical perception of individuals with high-functioning autism spectrum disorder.

In studies on gifted individuals, it has been observed that metaphors emphasize both general and specific abilities such as being different from peers, being valuable, being versatile, having a wide capacity, being mysterious and having high performance (Akgül, 2021; Neumeister et al., 2007; Özsoy, 2014).

The current study aimed to determine the metaphors used by graduate students studying in the field of special education to describe individuals with high-functioning autism spectrum disorder.

Within the scope of the first sub-problem of this study, it was aimed to find an answer to the question “What metaphors do graduate students studying in the field of special education create for children with high-functioning autism spectrum disorder?” As a result of the analysis conducted in this regard, a total of 75 metaphors were obtained, and based on expert opinions, 6 categories were created. When the metaphors developed by the graduate students at the Special Education Department for children with high-functioning autism spectrum disorder were examined, it was found that the most commonly used metaphors were flower (6), rainbow (5), computer, star and box (3). Similarly, in their study, Dayı et al. (2020) found that pre-service teachers frequently used the flower metaphor to describe students with disabilities. In the current study, most metaphors (N=33) were expressed only once. This is thought to be due to the graduate students’ intimate knowledge, experience, attitudes and emotional differences. In this regard, studies can also be conducted with the participation of teachers, doctoral students and parents on high-functioning autism spectrum disorder.

In line with the second sub-problem of the study, the metaphors used by the graduate students for children with high-functioning autism spectrum disorder were categorized into 6 categories. These categories are; “patience”, “unique”, “attention”, “mysterious”, “valuable” and “different”. Karahan and Sezer, (2023) in their study examining the perceptions of associate degree students in the department of civil aviation and cabin services towards autism with the help of metaphor, found that associate degree students could not recognize

individuals with autism among individuals in need of special education and that they needed training to communicate in order to help individuals with autism. Mermerçoğlu, (2018) found that teacher proficiency level is important for gifted individuals to meet their educational needs. Thus, there should be compulsory courses to be given on special education in undergraduate level.

Within the context of the third sub-problem of the study, the justifications and explanations accompanying the metaphors created by the graduate students were examined. It is understood that the metaphors produced by the participants regarding children with high-functioning autism spectrum disorder are generally expressed with positive and concrete concepts. The category having the highest number of metaphors is the category of different. When the explanations made for the metaphors in this category were examined, it was seen that it was emphasized in the reasons that these individuals should be carefully trained as they require special attention, that they are like a mysterious ore, that they are precious and that they have special qualifications. Furthermore, it was noted that with sufficient time and care, it is possible to achieve positive outcomes. In this regard, it can be said that the participants used highly descriptive expressions about individuals with high-functioning autism spectrum disorder and demonstrated knowledge in this field. According to this finding, future studies in the field of special education can include not only metaphorical but also analogical investigations.

In general, the participants expressed positive views regarding individuals with high-functioning autism spectrum disorder, demonstrating awareness of the qualities and unique needs of these individuals. Similarly, studies on autism (Genç, 2021) and students with disabilities (Dayı et al., 2020) revealed positive metaphorical perceptions of individuals with high-functioning autism disorder. Akgül (2022), contrary to the findings of the current study, concluded that autism evokes negative emotions for most parents. Another dimension of the current study is that it provides an exemplary case of the perceptions of graduate students in the Special Education Department regarding individuals with high-functioning autism spectrum disorder. These graduate students are striving to become more professionally adept in special education by pursuing a master's degree. In addition, it can be said that the participation of pre-service teachers and teachers in studies on groups of children with special education needs and conducting different studies in this field can have an important contribution to special education. Dereli, (2020) determined the metaphor perceptions of university students who took the barrier-free life course towards individuals in need of special

education before and after reading the book titled 'Disabled Port'. As a result of the study, it was found that pre-service teachers' positive metaphors increased after reading the book.

Recommendations

The study aimed to shed light on metaphorical perceptions of high-functioning autism spectrum disorder. This study also provided insights into the participants' content knowledge and experience regarding high-functioning autism spectrum disorder. In this regard, further metaphorical perception studies can be conducted in this field to depict the current situation; using different samples.

This research reveals how graduate students perceive children with a high-functioning autism spectrum disorder. In this context, it is believed that the metaphors that emerged from the study will provide insights into how pre-service teachers in the Special Education Department should be guided in the education of children with high-functioning autism spectrum disorder. The current study can be supported by mixed-method studies that allow for in-depth examination with a broader sample, including pre-service teachers from other teaching fields in universities. Thus, an opportunity for a more comprehensive investigation can be provided. In this study, the thoughts of graduate students regarding high-functioning autism were investigated through metaphors. However, it was not examined whether there was a difference between teachers of different branches and teachers who graduated from the special education department. For this purpose, considering that every branch teacher will encounter special education students and that they take courses on special education during their undergraduate education, comparative studies can be planned to investigate the differences between these two different groups in the future.

Compliance with Ethical Standard

At all the stages of this study, a great care was taken not to violate the ethical rules and ethical rules were precisely followed. Ethical approval for the study was obtained as a result of the decision numbered 01-54 and taken in the session numbered 08 on May 16, 2023 by the Ethics Committee of Tokat Gaziosmanpaşa University.

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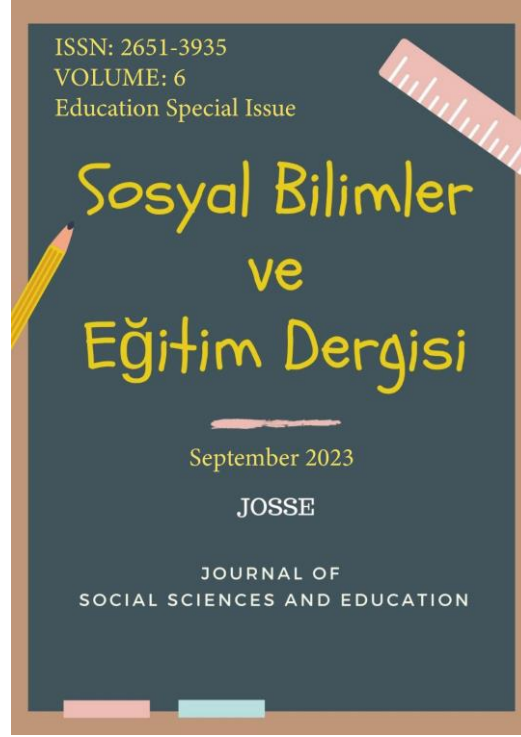
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An In-Depth Review on Teaching Practice: The Case of Social Studies

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Ministry of National Education

ABSTRACT

The aim of this study is to review the teaching practice course, conducted to prepare pre-service teachers studying in faculties of education for the teaching profession in terms of practical as well as theoretical knowledge, within the framework of different variables. The study was conducted by adopting the principles of qualitative study method. A semi-structured interview form prepared by the researchers was used to collect data required. In this regard, the study included 10 pre-service social studies teachers who taking the teaching practice course, 10 social studies teachers working in the practice schools, and 10 secondary school students studying in the practice class. Descriptive analysis and content analysis methods were used to analyze the data obtained as a result of the interviews. At the end of the study, we found that the pre-service teachers experienced feelings of excitement, happiness, pride, inadequacy, disappointment and fear during the lecturing processes. Moreover, we have revealed that the mentor teachers that they mostly considered the pre-service teachers inadequate in terms of content knowledge and pedagogical knowledge. The students is carried out find pre-service teachers adequate in terms of classroom management and lecturing, but the fact that pre-service teachers mostly use narration and question and answer methods stands out as a negative situation.

Keywords: Social studies education, teacher education, practical education, teaching practice, preservice teacher

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Introduction

Today, societies are making great efforts to improve themselves in every field. In this regard, education, functioning as a locomotive by leading social development, is one of the most stressed areas. Because the need for qualified manpower is increasing day by day for societies to progress and rise in every field. The qualified manpower needed can only be provided through education. On the other hand, there are many factors affecting the quality of education. One of the most important factors affecting the quality of education is the teacher. Because teachers play a key role in the education and training process. In the literature, a teacher is defined as a person who is assigned to guide the learning experiences of students in a public or private educational institution in order to guide them in line with their individual knowledge, skills and values (Öncül, 2000). The teaching profession is different from other professions in terms of its area of responsibility and job description (Oral & Dağlı,1999). Teaching is characterized as an occupation that requires professionalism. It is not possible to compensate for mistakes made during teaching. As in other professions, it is not possible to correct a wrong deed by taking a step back.

Taking all the steps to be taken in teaching through control is considered extremely important in terms of raising young individuals who will be the active citizens of the future as good people and good citizens. Because it is very difficult to compensate for the mistakes made. Develioğlu (1987) states that every element of education is knotted, untied and evaluated by the teacher. In addition, he emphasizes that making the teacher valuable, respecting his/her honor and personality, ensuring the welfare and security of the teacher means the fate of the future of the nation. According to Büyükkaragöz (1985), the progress of a country and its ability to reach the position it deserves among other countries in socio-cultural terms is directly related to raising the rate of education and training of the people of that country and training quality teachers. Oğuzkan (1993) states that teacher training is a multidimensional and comprehensive issue. While the selection of pre-service teachers, pre-service training of teachers, monitoring and evaluation studies within the internship process are included in the teacher training process, issues such as in-service training are also included in the concept of teacher training (Oral & Dağlı, 1999). In this context, the first and most fundamental task in teacher training is undertaken by teacher training undergraduate programs. Therefore, it is important for pre-service teachers to receive an effective education during their undergraduate education. In addition to the theoretical education given in teacher

training programs, practical education is also very important in the process of preparing pre-service teachers for the profession.

The importance of Teaching Practice in universities within pre-service education in teacher training cannot be denied without any doubt (Aksu& Demirtaş, 2006). Teaching Practice is a course planned for the pre-service teacher to try and develop his/her knowledge and skills in a school environment and to gain the characteristics required by the profession (Bektaş & Ayvaz, 2013). In the Teaching Practice process, the pre-service teacher makes an effort to recognize and prepare for the profession he/she will undertake in the future (Çetin& Bulut, 2002). For this reason, the teaching practice and process is an important period for pre-service teachers to gain their first experiences that they will use in their professional lives. Teaching Practice is a course that is put into practice in universities in order to enable pre-service teachers to observe, practice and evaluate the education and training process in the schools where they will practice (Alaz & Konur, 2009). The aim of this course is to enable pre-service teachers to gain the ability to work in harmony with other teachers by being in the same environment with them, to plan and implement activities within the process, and to recognize the development and individual differences of students (Gültekin, 2005).

The activities in the Teaching Practice course carry the purpose of practice beyond observation. For this reason, the Teaching Practice course has an important place in terms of preparing pre-service teachers for teaching and providing them with professional knowledge and skills (Aksu & Demirtaş, 2006). The foundations of the Teaching Practise course started to be laid within the scope of the National Education Development Project between 1994-1998 with the cooperation of the Council of Higher Education and the World Bank in order to create today's teacher profile. Within the scope of the restructuring of the faculties of education, it became a course implemented within the scope of the joint responsibility of the faculties and MoNE schools (Aydın, Selçuk, & Yeşilyurt, 2007). Sands Özçelik & Gardner (1996) list the aims of the Teaching Practice course as follows: (I) to provide pre-service teachers with the professional competence to teach and evaluate at the level of education they have received, (II) to prepare pre-service teachers for the profession, (III) to make pre-service teachers into teachers who have the necessary understanding and attitudes to create an effective school environment. In order to train teachers better and to achieve the aim of the course in question, first of all, attention should be paid to the effective conduct of this period, which is expressed as pre-service (Alaz & Konur, 2009).

One of the ways to understand the effectiveness of the Teaching Practice and the extent to which its objectives are realized or can be realized is the evaluation of the Teaching Practice process by pre-service teachers, teachers and students in practice schools (Aksu & Demirtaş, 2006). A review of the literature reveals that there are various problems related to pre-service teachers' professional knowledge levels and the functioning of the Teaching Practise course. The studies of researchers such as Aksu and Demirtaş (2006), Arı and Kiraz (1998), Çetin and Bulut (2002), Çetintaş and Genç (2005), Özkılıç, Kartal and Bilgin (2008) show that there are some problems related to the professional knowledge levels of pre-service teachers and the functioning of the Teaching Practice course. On the other hand, it should not be ignored that the Teaching Practice course contributes to the professional development of pre-service teachers (Alaz & Konur, 2009). Cumhuriyet and Güven (2018) aimed to determine the perceptions of pre-service teachers about the school practise and concluded that most of the pre-service teachers experienced some disappointments at the beginning of the Teaching Practise process, but they also gained important gains at the end of this process. A study conducted by Williams and Alawiye (2001) concluded that the Teaching Practice has important benefits in terms of preparing pre-service teachers for professional life. At the end of a pilot implementation called the Professional Partnership Program, it was found that teachers, students and pre-service teachers in the practice school had positive experiences. However, we can say that there is a partial difference in the level of pre-service teachers' utilization of the Teaching Practise course (Aydın et. al., 2007). Because, as mentioned above, it is emphasised in the studies (Akkoç, 2003; Bağcıoğlu, 1997; Bektaş & Can, 2019; Çetintaş & Genç, 2005; Çevik & Alat, 2012) that there are some problems and deficiencies in the Teaching Practice process.

On the other hand, when the related literature is examined, it is seen that the studies on Teaching Practice are mostly aimed at examining the views of prospective teachers (Dursun & Kuzu, 2008; Gökçe & Demirhan, 2005; Güven, 2004; Kiraz & Uyangör 1999; Paker, 2000; Paker, 2008; Saka, 2019; Sarıçoban, 2008; Sarıtaş, 2007; Silay & Gök, 2004; Yavuz, 2019). However, the opinions of the mentor teachers and the students studying in the practice schools, who are the stakeholders of the Teaching Practice process, are also extremely important. Because mentor teachers and students are also among the factors that determine the effectiveness of the implementation process. For this reason, examining the opinions and experiences of pre-service teachers, mentor teachers and students in practise schools about the implementation process will provide important benefits in terms of making the Teaching

Practice course more effective. However, an examination of the literature reveals that the opinions of pre-service teachers are generally examined, while the opinions of mentors and students are not consulted. This is considered to be an important deficiency in the literature. It is thought that there is a need for a comprehensive study in which the opinions of pre-service teachers, mentor teachers and students are consulted. This study aims to examine the opinions of pre-service social studies teachers, teachers and students on the Teaching Practise course.

Aim of the Study

The aim of this study is to reveal the opinions of pre-service Social Studies teachers, mentor teachers and students in the practice schools about the teaching practice course. In line with this purpose, answers to the following questions were sought.

What are the opinions of pre-service social studies teachers about the Teaching Practice?

What are the opinions of the mentor teachers about the Teaching Practice?

What are the opinions of the students in the practice schools about the Teaching Practice?

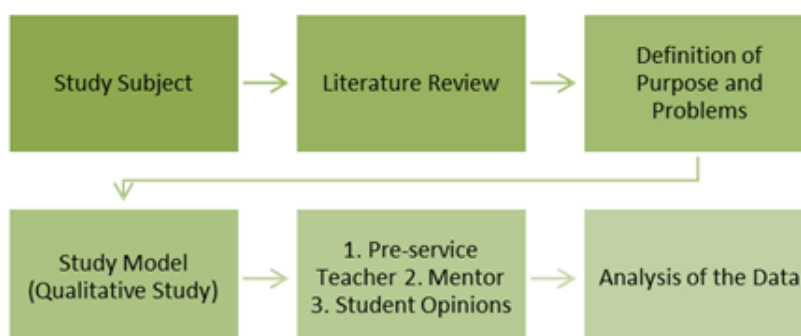
Method

Model

This section includes information about the research method and the research process under the headings of research model, participants, data collection tools, data collection process and data analysis. Figure 1 schematizes the general process of the study.

Figure 1

General process of the study (Yıldırım & Şimşek, 2018)



This is a qualitative study conducted to identify and examine the opinions of pre-service Social Studies teachers, mentors and students studying in practise schools about the Teaching Practice course. The induction principle is applied in qualitative research and explanations are made to the data collected about the problem (Patton, 1990). Explanations and interpretations achieve their purpose to the extent that they help researchers to understand similar issues. In research shaped by qualitative method, the aim is to present a realistic and descriptive situation related to the research subject rather than quantifying data and reaching generalizations (Morse, 2016). In qualitative research, it is necessary to include direct quotations and details as much as possible in order to increase the validity and reliability of the results (Yıldırım & Şimşek, 2018).

In order to understand the method preferred in this study more clearly, it is necessary to look at the study questions, how these questions will be answered, and the methods by which the answers will be analyzed. In this context, Table 1 presents the design of the study.

Table 1

Design of the Study

Study questions	Data collection tool	Data analysis methodology
1. What are the opinions of pre-service social studies teachers about Teaching Practice?	Semi-structured Interview Form	Content and Descriptive Analysis
2. What are the opinions of the mentor teachers about the Teaching Practice?	Semi-structured Interview Form	Content and Descriptive Analysis
3. What are the opinions of the students in the practice schools about the Teaching Practice?	Semi-structured Interview Form	Content and Descriptive Analysis

Sample and Population

The study used criterion sampling, which is one of the purposive sampling methods, to examine the opinions of pre-service teachers, mentor teachers and students on the Teaching Practice course. The basic logic in the criterion sampling method is to study situations with predetermined criteria. The criteria in question can be created by the researcher or a previously prepared list of criteria can be used (Yıldırım & Şimşek, 2018).

Within the scope of this study, firstly, interviews were conducted with 10 pre-service social studies teachers who were studying at Marmara University Atatürk Faculty of

Education Social Studies Teacher Education Program and were in their final year (4th grade). In this context, the main criterion for the selection of the participants in the study was that they were fourth-year students in the Social Studies Teacher Education Program and were taking the Teaching Practice course. In accordance with this basic criterion, interviews were conducted on a voluntary basis with 10 pre-service teachers (5 male, 5 female) studying in the Social Studies Teacher Education Program in the 2021-2022 academic year.

Secondly, interviews were conducted with the mentor teachers in the schools where the interviewed pre-service teachers were practicing. The two main criteria for determining these participants, who were working in secondary schools in different districts of Istanbul, were to have been teaching Social Studies for at least ten years and to be currently working as a mentor teacher. Based on these criteria, interviews were conducted with 10 teachers (5 male, 5 female) who were working as mentor teachers in the 2021-2022 academic year on a voluntary basis.

Finally, interviews were conducted with the students in the classes where the interviewed pre-service teachers and mentors were located. The main criterion for determining the participants was to be studying in the classrooms where the practice was carried out. Interviews were conducted with 10 students (5 boys and 5 girls), who were determined by taking these criteria into consideration, with the permission of their parents on a voluntary basis. Necessary permissions were obtained from official institutions for the interviews with all participants and Ethics Committee Approval was obtained from Marmara University Institute of Educational Sciences.

Data Collection Tool and Collection of Data

The study used a semi-structured interview form as a data collection tool. One of the most commonly used data collection methods in qualitative research is interview (Yıldırım & Şimşek, 2018). Interviewing is defined by Stewart and Cash (1985) as "a mutual and interactive communication process based on asking and answering questions for a predetermined and serious purpose" (p.7). The purpose of the interview is to enter the participant's inner world and understand their perspectives. With the interview method, the researcher aims to understand the unobservable such as experiences, attitudes, interpretations, thoughts, mental reactions and perceptions (Patton, 1987, as cited in Yıldırım & Şimşek, 2018). This method provides the researcher with the opportunity to get to the root of the personal opinions, experiences and judgments of the participants, to comprehend the

perspectives of the participants and to obtain information about the issues that the researcher overlooked (Glesne, 2013; Karasar, 2005). For these reasons, semi-structured interview technique was also used as a data collection tool in the study. The preparation process of the semi-structured interview form used in the study is shown in Figure 2.

Figure 2

Preparation Process of The Semi-Structured Interview Form (Yıldırım & Şimşek, 2018)



As seen in Figure 2, while preparing the semi-structured interview form, which is a data collection tool, a literature review was first conducted. A question pool was created by taking into consideration the purpose of the research and the information obtained from the literature review. Then, the opinions of a group of 6 experts consisting of field, measurement and evaluation and language experts were sought. The questions were revised by taking the expert opinions into consideration. Then, a pilot study was conducted and the questions were revised again in line with the results of the pilot study. Finally, the semi-structured interview form was finalized and data collection started. Firstly, interviews were conducted with pre-service teachers, secondly with mentor teachers and finally with students.

Analysis of the Data

Descriptive analysis reveals the data as it is, while content analysis divides the data into categories and themes. Interpretation is used to interpret and relate what the data means and what it expresses. In both descriptive analysis and content analysis, interpretation is used to explain what the collected data means (Miles & Huberman, 1994). Descriptive analysis and content analysis were used to analyze the data obtained in this study.

For the analysis of the data, the voice recordings were transcribed at the first stage and the data were analyzed. These data were then divided into codes and categories. The categories were presented under certain headings. In analyzing the data, direct quotations were used to reflect the opinions of the interviewees more objectively. In addition, expert opinion was taken regarding the coding of the data at each stage of the content analysis process. The codings were made separately by both authors and these codings were compared. The analysis was finalised by taking expert opinion on the issues in doubt. Thus, the reliability of the research was also tried to be ensured. In the study, the codes such as PT1, PT2, PT3, PT4, PT5, PT6, PT7, PT8, PT9, PT10 were given to the participant pre-service teachers; M1, M2, M3, M4, M5, M6, M7, M8, M9, M10 were given to the mentor teachers; and S1, S2, S3, S4, S5, S6, S7, S8, S9, S10 were given to the students.

Compliance with Ethical Standard

During this study, the rules outlined in the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were adhered to, and the actions outlined in the "Scientific Research and Activities Against Publication Ethics" directive were avoided.

The name of the board performing ethical evaluation = Marmara University Social and Human Sciences Scientific Research and Publication Ethics Board

Date of ethical evaluation decision = 19.12.2022

Ethics committee decision number =10-19

Findings

This part of the study presents the findings obtained in line with the research questions under three sub-headings. The first subtitle presents the findings regarding the opinions of pre-service Social Studies teachers on the Teaching Practice course, the second subtitle presents the findings regarding the opinions of the Social Studies teachers working in the

implementation schools on the teaching practice course, and finally, the third subtitle presents the findings regarding the opinions of the students studying in the implementation schools on the Teaching Practice course.

Findings Related to Pre-service Social Studies Teachers' Views on the Teaching Practice Course

This subtitle discusses the findings related to the first sub-problem of the study, which is *"What are the opinions of pre-service social studies teachers about the Teaching Practice?"*.

The first question directed to the participants in order to determine the opinions of pre-service Social Studies teachers about the Teaching Practice course was *"What are your feelings during your lectures in the teaching practice you realized within the scope of the Teaching Practice course?"*. Table 2 shows the categories and codes that emerged as a result of the analysis of the answers given by the participants to this question.

Table 2

Participants' Feelings During the Lectures they Delivered in the Scope of Teaching Practice

Theme	Categories	Codes	f
Feelings during lecturing	Positive	Excitement	PT3, PT5, PT6, PT1, PT8, PT10
		Happiness	PT3, PT6, PT9, PT10, PT8
		Pride	PT3, PT2
	Negative	Inadequacy	PT5, PT2
		Disappointment	PT7, PT9
		Fear	PT3, PT1, PT5

An analysis of the participants' answers to the question *"What are your feelings during your lectures in the teaching practice you realized within the scope of the Teaching Practice course?"* reveals that a category named "Feelings During Lecture" was formed. In addition, the codes hereof wre "excitement (f6)", "happiness (f5)", "pride (f2)", "inadequacy (f2)", "disappointment (f2)" and "fear (f1)".

In the light of this information, it was determined that more than half of the participants were excited while they were teaching at the practise schools. In this regard, PT3 stated that *"... On the other hand, I am very excited when I personally enter the class because*

I am in front of the students for the first time. Even though we have received theoretical education, when it comes to putting it into practice, there is excitement... (PT3)", PT5 said "I was very excited, especially in my first lesson. In the following lessons, it decreased a little... (PT5)", PT6 said "... Besides that, I was quite excited because it was a very new situation for me and the students. Later on, my excitement diminished a little bit, but still there was always excitement... (PT6)", PT1 said "... This situation actually caused me to get excited. I attribute my excitement to this... (PT1)", PT8 said "... Of course one gets excited. This is natural, especially for someone like me who is excited... (PT8)" and finally PT10 said "The first thing I felt was excitement in every lesson. I honestly do not think that the mentor teacher supported me in this regard... (PT10)" In line with these statements, we can say that more than half of the participants, who were Social Studies teacher candidates, were excited during the lessons they gave at the schools where they did their lecture.

When Table 2 is examined, we see that half of the participants felt happy while they were teaching at the practise schools. PT3 explained this happiness and the reason for this happiness as follows: *"I was very happy and proud during the lessons because teaching was a profession that I had always dreamed of. We always took theoretical courses at the university for three years, so the practice is completely different. The happiness it gives is also completely different (PT3)".* PT6 stated that she was happy while she was teaching by saying *"... But despite everything, I was actually happy... (PT6)",* while PT9 said *"The first thing I felt was happiness... (PT9)",* PT10 said *"... But I am happy to be with the students. They never really upset me during the lessons... (PT10)"* and PT8 said *"... But the happiness at that moment actually calms the excitement... (PT8)"* .

Two of the participants expressed that they were proud of themselves while they were teaching. PT3 stated that *"... I was very happy and proud during the lessons because teaching was a profession that I had always dreamed of... (PT3)"* while PT2 said *"... But in spite of everything, I was proud of myself every time I entered the class. Because I managed to make it to that day. The situation of not being appointed is a bit related to the system. It is not so much about me. This situation cannot prevent me from being proud of myself at that moment... (PT2)".* As seen in Table 2, some of the participants felt inadequate while they were giving lessons. PT5 stated this situation as follows: *"... The reason for this excitement is actually a little bit about feeling inadequate at that moment. We have always received theoretical training. The practice may require completely different competencies... (PT5)"* and

PT4 said *"I personally felt inadequate at those moments. The students were partly responsible for this. Because I saw that they did not take us too seriously... (PT4)"*.

An analysis of Table 2 reveals that some of the participants experienced disappointment. Regarding this situation, PT7 said *"The biggest thing I felt was disappointment. Because neither the school administration nor the practice teachers nor the students take the Teaching Practice course and us seriously... (PT7)"* and PT9 made the following statement *"... This situation created disappointment in me... (PT9)"*. Three of the participant pre-service social studies teachers expressed that they felt some fears while teaching. PT3 described her fears as *"... Also, another emotion I felt during the lessons was fear. Because no matter how much we are new and inexperienced. Like, will anyone disrupt the order in the lesson, if a student causes a problem, how can I solve the problem (PT3)"*. Similarly, PT1 stated the following about the fear she experienced in the lessons and the reasons for this fear: *"I was not a little scared during the lessons because I was worried that I would panic in case of a problem posed by the students or that they would ask a question and I would not be able to answer it. This situation actually caused me to get excited... (PT1)"*. PT5 stated that *"... Feeling inadequate in this way also caused me to be afraid. (PT5)"*.

When evaluated in general, we see that more than half of the participants felt excited, half of the participants were happy and some of them were proud of themselves during the lessons they gave within the scope of Teaching Practice. In addition, some of the participants felt inadequate, some of them felt disappointed in the lessons they gave, and finally, some of them felt fear.

The second question posed to the participants in order to determine the opinions of pre-service Social Studies teachers about the Teaching Practice course was *"What are your thoughts about the attitudes and behaviors of the students towards you and your teaching during your lectures?"*. Table 3 shows the categories and codes that emerged as a result of the analysis of the participants' answers to this question.

Table 3

Participants' Opinions on the Attitudes and Behaviors of Students Studying at Practice Schools

Theme	Categories	Codes	f
At tit ud	Attitudes and Behaviors Towards Pre-service Teachers	Communication was Good	PT2, PT3, PT5, PT6, PT10

Attitudes and Behaviors towards the Lecture	Respectful	PT3, PT5, PT6, PT10
	They See Us as Interns and Temporaries	PT1, PT4, PT7
	No Communication	PT8, PT9
	They stayed away	PT7, PT9
	Positive	PT2, PT3, PT5, PT6, PT10
	Not Taking Seriously	PT1, PT4, PT7, PT9
	Indifferent	PT1, PT4, PT8

An analysis of the participants' answers to the question *"What are your thoughts about students' attitudes and behaviors towards you and your lectures?"* revealed two categories as "Attitudes and Behaviors Towards Student Teachers" and "Attitudes and Behaviors Towards the Course". In addition, the codes within the framework of the category named "Attitudes and Behaviors Towards Student Teachers" were: "communication was good (*f5*)", "respectful (*f4*)", "they see us as trainees and temporary (*f3*)", "no communication (*f2*)", and "they stayed away (*f2*)". In addition, under the category of "Attitudes and Behaviors Towards the Course", there were the codes: "positive (*f5*)", "not taking seriously (*f4*)" and "indifferent (*f3*)".

An analysis of the codes within the category named "Attitudes and Behaviors Towards Pre-service Teachers" in Table 3 shows that fifty percent of the participants described their communication with the students in the schools where they practiced as good. In this context, PT2 said, *"I did not have any problems in communicating with the students in the classes I taught. I can say that we communicated very effectively (PT2)"*, PT3 said *"They treated us very well. They were friendly... (PT3)"*, PT5 said *"Despite all my inexperience, their approach towards me was positive. There was a good communication. At first, I wondered if they would be disrespectful... (PT5)"*, PT6 said *"... But I still had a good communication with the students... (PT6)"* and PT10 said *"It makes a difference for the students. They are happy that we are in the classroom. Although sometimes there were some minor problems, our dialog was good... (PT10)"*. In addition, four of the participants were of the opinion that the students were respectful. PT3 stated that *"... What attracted my attention the most was that they were very respectful towards us. The practise teacher had already made the necessary warning to the students about this issue at the beginning... (PT3)"*, while PT5 said *"... However, they did not show any disrespect, on the contrary, they were very respectful... (PT5)"*, PT6 said *"... They were respectful and measured towards me... (PT6)"* and PT10 said *"... There were some minor problems but they were not disrespectful... (PT10)"*.

As seen in Table 3, some of the participants evaluated the attitudes and behaviors of the students in the practice schools towards the pre-service teachers as negative in some respects. In this direction, three of the participants think that the students see them as interns and temporary. In this regard, PT1 stated that "... I cannot say that there was a very effective communication. In fact, they see us as an ordinary intern and therefore they think that we are there for a short time, that we are temporary... (PT1)", while PT4 said "... I think they see us as temporary... (PT4)" and PT7 said "I did not have any problems, but I cannot say that we had a very good communication. I think they didn't take the dialog seriously because they saw me as temporary... (PT7)". In addition, two of the participants expressed that they did not communicate with the students as follows: PT8 "I did not have much communication with the students. Since it is already a short period of time, communication cannot be established... (PT8)", PT9 "There was almost no communication with the students... (PT9)". Again, two of the participants stated that the students stayed away from them as follows: PT7 "That's why they stayed away a little bit (PT7)", PT9 "... This is because they stay away... (PT9)".

An analysis of the participants' answers to the question "What are your thoughts about the attitudes and behaviors of the students towards you and your lectures during your lectures?" shows that there was another category called "Attitudes and Behaviors Towards the Lecture". In this context, it is determined that half of the participants, who are Social Studies teacher candidates, are of the opinion that students exhibit positive attitudes and behaviors towards the lectures they give. In this direction, the participants used the following statements: PT2 "... The lessons were going very well. I honestly did not see any negative attitudes towards the lesson... (PT2)", PT3 "... Good communication also influenced the lessons. Although the students were not as good as they were in the practise teacher's class, they were very good in the class... (PT3)", PT5 "I saw that students exhibited positive attitudes and behaviors in my lessons... (PT5)", PT6 "I did not observe any negative behavior of the students in the lessons I attended... (PT6)" and PT10 "They had a positive attitude towards the lesson. I was also happy about this... (PT10)".

As seen in Table 3, some of the participants stated that the courses they gave were not taken seriously by the students. Regarding this situation, the participants used the following expressions: PT1 "... Actually, the reason for everything is that the students do not take my lectures seriously... (PT1)", PT4 "Students see my lessons as an additional activity. Because they know that I will not give exams and I will not give grades. Therefore, they do not take it seriously... (PT4)", PT7 "I do not have the authority to grade the course. I am not authorized

to take any disciplinary action. Students are aware of this situation. Therefore, they don't take my class too seriously (PT7)." and PT9 "... In general, I saw that they did not take the lesson seriously in the lessons I attended... (PT9)". In addition, three of the participants thought that students were not interested in the lesson. PT1 explained this situation as follows: "Students are not interested in the lesson. They do not have much of a problem such as learning this, learning that, asking questions or making a contribution to the lesson... (PT1)". Similarly, PT4 made the following statements "... Therefore, they are not interested in the lessons I am in (PT4)". Lastly, PT8 expressed the students' lack of interest in the lesson as follows: "I saw that the students were uninterested in the lessons. There are actually many reasons for this. Necessary measures can be taken, but... (PT8)".

The third question directed to the participants in order to determine the opinions of pre-service Social Studies teachers about the Teaching Practice course was "Which part you had the most difficulty during a 40-minute lecture? Why?". Table 4 shows the categories and codes that emerged as a result of the analysis of the answers given by the participants to this question.

Table 4

Participants' Opinions on the Difficulties they Experienced During Lectures

Difficulties experienced during lectures	
Codes	f
Drawing Attention	PT1, PT4, PT8
Motivation	PT1, PT7, PT8
Review	PT9
I have no problem	PT2, PT3, PT5, PT6, PT10

The analysis of the participants' answers to the question "Which part you had the most difficulty during a 40-minute lecture? Why?", revealed the category "Difficulties Experienced During Lecture" was formed. In addition, there were the codes "drawing attention (f3)", "motivation (f3)", "reviewing (f1)" and "I have no problem (f5)" within the framework of this category.

When Table 4 is analyzed, we observe that half of the participants experienced problems in any part of the lecture, while half of the participants did not experience problems in any part of the lecture. Three of the participants who stated that they had problems during the lesson thought that they mainly had problems in drawing attention. In this regard, PT1 said, "In the lessons I attended, I had the most problems in the attention-getting part. Because

as I just told you, they don't take the lessons I attend seriously. They don't even take me seriously. We are temporary in their eyes... (PT1)". PT4, who experienced the same situation said: "I had the most difficulty in attracting and gathering the attention of the students at the beginning of the lesson... (PT4)" and PT8 said "I had difficulties in the first stage of the lesson in drawing attention. It is because of the students not me. Because the students do not take the lesson seriously. In the next stages, the lesson gets better... (PT8)" Again, three participants who stated that they had problems during the lectures thought that they had difficulties in inmotivation. PT1: "As I have always stated, students do not take us seriously, they see the lessons we give as a formality. We do not have any sanction anyway. For this reason, I have a lot of difficulty in the motivation part. I have difficulty in attracting attention and motivating them, because according to them, the course I have taken is a formality. Arrangements should be made at this point. The practice period should be extended and we should be authorized to give grades... (PT1)". PT7: "... For this reason, I have difficulty in motivating the students because they do not take the class seriously... (PT7)" Finally, PT8 explained the situation as follows: "I had difficulty motivating them because they were not interested in the lesson (PT8)". One participant stated that she had difficulties with reviewing during the lecture. PT9: "I rarely attend the lesson. As a matter of fact, since I cannot come to the lesson every week, I do not know exactly what the mentor teacher explained in the previous lesson. Even if I know, I do not know what she touched on the most within the scope of the subject. Therefore, I have problems with reviewing. (PT9)".

An analysis of Table 4 shows that half of the participants did not have any problems with any part of the lesson during their lectures. In this context, the answers of the participants are as follows: PT2 "I didn't have any problems. Every part is very successful. The teacher also helps with a little difficulty... (PT2)", PT3 "I did not have any difficulties in my lesson. Of course, sometimes there are small problems, but they can be solved immediately... (PT3)", PT5 "Honestly, there was no part that I had difficulty with (PT5)", PT6 "I am very prepared for the classes I teach and this helps me a lot. Therefore, I haven't had many problems (PT6)." and PT10 "I cannot say that I have problems in this part when I teach. In general, there was no problem (PT10)".

Findings Regarding Teachers' Opinions on Teaching Practice Course

This subtitle discusses the findings related to the second sub-problem of the study, which is "What are the opinions of the mentor teachers about the Teaching Practice?". The

first question asked to the participants in order to determine the opinions of the teachers about the Teaching Practice course was "What are your opinions about the success or failure of the pre-service teachers in motivating the students for the lesson?". Table 5 shows the categories and codes arising from the analysis of the answers given by the participants to this question.

Table 5

Participants' Opinions on Preservice Teachers' Successes or Failures in Motivating Students for Lessons

Motivating students for the lesson	
Codes	f
Successful	M2, M3, M6, M10
Unsuccessful	M1, M7, M8
Variable	M4, M5, M9

The participants' answers to the question "What are your opinions about the success or failure of pre-service teachers in motivating students to the lesson?" revealed a category named "Motivating Students to the Lesson". In addition, there were the codes: "successful (f4)", "unsuccessful (f3)" and "variable (f3)" within the framework of this category. In the light of this information, we can say that while some of the teachers consider pre-service teachers successful in motivating students, some of them consider them unsuccessful and some of them consider the success of pre-service teachers on this issue as variable.

A review of Table 5 indicated that four teachers considered pre-service teachers successful in motivating students. M2 explained her opinion on this issue as follows: "I consider them successful. This year was the first time I had a trainee student. But as far as I observe, she is very good at motivating students, especially at the beginning of the lesson. Sometimes, even if the students behave indifferent, our intern quickly recovers the situation... (M2)". M3 stated that the pre-service teachers were successful in motivating the students as follows: "My trainee student already comes prepared for the lesson. When he has difficulties, I help him. When I look at it from this point of view, I find it successful. It makes students eager for the lesson. (M3)". Similarly, M6 said, "They are very successful. I think they get good teaching education at the faculty thanks to my intern students... (M6)" while M10 expressed her opinion as follows: "My current intern is very successful in motivating students

to the lesson and the subject. He also loves the profession. He is successful because he already loves it... (M10)".

As seen in Table 5, a part of the participants who are mentor teachers believe that pre-service teachers are unsuccessful in motivating students for the lesson. The participants explain the failure of pre-service teachers in this regard as follows: M1 "Students do not take pre-service teachers very seriously. They do not even take the courses they have taken seriously. For this reason, they cannot be very successful in motivating students towards the lesson. But this is not a situation related to them. This is the case because of the students... (M1)", M7 "I think my trainee is unsuccessful in this regard... (M7)" and M8 "Now students know that interns are students. Therefore, they do not take them as seriously as we do. The lesson is like any other activity for the students. As such, pre-service teachers cannot be very successful in this regard... (M8)".

Table 5 illustrates that three of the participants characterize the success of pre-service teachers in motivating students as a variable. The participants explain this situation as follows: M4 "Success in this subject actually varies. Namely, if the trainee comes prepared, he/she is more successful. But let's say he did not come prepared for the lesson that week or did not consult with me. In this case, he cannot be very successful. So it can vary from lesson to lesson... (M4)", M5 "... It is not the same in every lesson. Sometimes they can motivate students well and sometimes it can be the opposite... (M5)", M9 "... I cannot say anything general about this. It can vary from class to class and lesson to lesson... (M9)".

The second question asked to the participants in order to determine their opinions about the Teaching Practice course was "What are your opinions about the classroom management competence, content and pedagogical knowledge of pre-service teachers?". Table 6 shows the categories and codes arising from the analysis of the answers given by the participants to this question.

Table 6

Participants' Opinions on Preservice Teachers' Classroom Management Competence, Content and Pedagogical Knowledge

Theme	Categories	Codes	f
Competence of Teacher Candidate	Classroom Management	Adequate	M2, M3, M6, M9, M10
		Inadequate	M1, M4, M5, M7, M8
	Content Knowledge	Adequate	M2, M6, M10

	Inadequate	M1, M3, M4, M5, M7, M8, M9
Pedagogical Knowledge	Adequate	M2, M3, M6, M8, M9, M10
	Inadequate	M1, M4, M5, M7

As seen in Table 6, the answers given by the participants to the question "What are your opinions about the classroom management competence, content knowledge and pedagogical knowledge of pre-service teachers?" revealed three categories named "Classroom Management Competence", "Content Knowledge" and "Pedagogical Knowledge". In addition, there were the codes "adequate (f5)" and "inadequate (f5)" within the category "Classroom Management Competence". Likewise, there were the codes "adequate (f3)" and "inadequate (f7)" within the category "Content Knowledge". Finally, there were the codes "adequate (f6)" and "inadequate (f4)" within the category "Pedagogical Knowledge".

As seen in Table 6, half of the participants consider pre-service teachers to be competent in classroom management. Regarding this, M2 stated her opinion as follows: "... However, despite all these, I can say that they are successful in classroom management. They actually have theoretical knowledge about classroom management. I think they will not have problems in classroom management when they start their profession and practice a little (M2)" while M3 stated the following "... My trainee student is skilled in classroom management. Even if the students have small problems, she overcomes them... (M3)". Again, three other teachers who found pre-service teachers successful in classroom management expressed their opinions on the subject as follows: M6: "... Sometimes she has problems at the point of control, but in general she has classroom management skills... (M6)", M9: "... He has no problem with classroom management. However, he is too idealistic. That is to say, not everything happens as it is written in books. The real classroom atmosphere is completely different. But of course, these are things to be learned over time. In general, he is good... (M9)", M10 "... There are no problems in the classroom. I do my best in guidance... (M10)". An analysis of Table 6 shows that five of the participants think that pre-service teachers are not adequate in terms of classroom management. M1 expresses his opinions that pre-service teachers are not sufficient in classroom management as follows: "Even if incoming intern students do not have problems with theoretical knowledge, they may be insufficient in some aspects in practice. They only take a Teaching Practice course in their senior year. I think this is not enough. They are already dealing with the stress of KPSS in the last year. I think the internship should be at least two years. For these reasons, I honestly cannot say that they are competent in classroom management... (M1)". M4 expresses her thoughts of pre-service

teachers that they are inadequate in classroom management as follows: "... Trainee students cannot fully dominate the classroom. Some of them try to do a lot but cannot do anything. Some of them come unprepared. They can only come for a few weeks properly. For this reason, they do not get much practical training... (M4)". M5 expresses his negative thoughts on this issue as follows: "First of all, I do not see pre-service teachers as adequate in classroom management. They do their best, but they are inadequate in practice because they receive mostly theoretical education during undergraduate education... (M5)" while M7 said "... In my opinion, their skills in classroom management are not sufficient... (M7)" and M8 said "... Naturally, they have many deficiencies in classroom management. This is also very normal. Even I have been a teacher for ten years, but I still have new experiences... (M8)". In the light of this information, we can say that half of the participants see pre-service teachers as successful and the other half as unsuccessful in classroom management.

As seen in Table 6, the majority of the participants consider pre-service teachers inadequate in terms of content knowledge. Only three participants considered pre-service teachers sufficient in this regard. The three participants who considered pre-service teachers sufficient in terms of content knowledge explained their opinions with the following sentences: M2 "... However, I think their content knowledge is also sufficient. They are competent in explaining the necessary information to the students in line with the outcome of the lesson. This is what is important... (M2)", M6 "They did not have any problems while explaining the subjects in the lesson. I think their knowledge about the field is good... (M6)", M10 "... Their content knowledge is also good. The lessons do not require very detailed knowledge at the middle school level... (M10)". As stated above, the majority of the participants consider pre-service teachers inadequate in terms of content knowledge. M1 explained his negative opinion about the adequacy of pre-service teachers' content knowledge as follows: "... Compared to the past, the pre-service teachers graduating today are weaker in field knowledge. It seems like they are not very interested. I think it was good that the field exam was introduced in the Public Personnel Selection Exam (KPSS)... (M1)." M3 explained his thoughts in the same direction as follows: "... Sometimes when we chat in the teachers' room, I see that pre-service teachers are weak in field knowledge... (M3)". Regarding the inadequacy of pre-service teachers in this subject: M4 "... I think especially their knowledge of history is weak. When they explain the subjects, I see that they are very superficial. I even saw that they sometimes could not answer students' questions... (M4)", M5 "... I think their content knowledge is insufficient... (M5)", M7 "... They have deficiencies in both history and

geography knowledge. They can talk as if they have never studied a bachelor's degree when the subject of history comes up... (M7)", M8 "... I don't think that they are sufficient in content knowledge, because I think that in undergraduate education, teaching professional knowledge is emphasized more than content knowledge... (M8)" and M9 "... They actually have deficiencies in content knowledge. But I think this is partly due to the education they have received... (M9)".

As seen from Table 6, more than half of the participants consider pre-service teachers to be adequate in terms of pedagogical knowledge. The statements of the participants about this are as follows: M2 "... I think they provide good pedagogical education at the university. I think they have good theoretical knowledge about the teaching profession... (M2)", M3 "... Although I don't think their field knowledge is sufficient, I think their pedagogical knowledge is at a sufficient level. It means that they focus more on pedagogy at the university... (M3)", M6 "... However, I did not see that they had many problems in terms of teaching professional knowledge. They are theoretically good, they just need practice and practice... (M6)", M8 "... I consider the interns sufficient in this regard... (M8)", M9 "... Besides these, I think they are theoretically good at teaching, that is, the teaching profession... (M9)" and M10 "... On the other hand, I observed that their pedagogical competencies were good... (M10)". In contrast to these participants, four participants explain that they do not see pre-service teachers as pedagogically competent as follows: M1 "... Pedagogical knowledge is actually not just theory. It is necessary to have real experience. Naturally, since they have not yet practiced the profession and have not practiced it, it is not enough in my opinion... (M1)", M4 "... I think it is not enough... (M4)", M5 "... At the university, pre-service teachers learn a little bit of teaching profession courses in preparation for KPSS. But teaching does not consist of five options. The school environment is completely different. I think their knowledge on this subject is not enough. In fact, I observe that they are not fully adequate while they are teaching. This is natural... (M5)", M7 "... I believe their pedagogical competencies are not completely good... (M7)".

Findings Regarding Students' Opinions on Teaching Practice Course

This subtitle discusses the findings related to the third sub-problem of the study, which is "What are the opinions of the students in the practice schools about the Teaching Practice?". The question directed to the participants in order to determine the opinions of the students about the Teaching Practice course was "What are your opinions about the

classroom management, lecturing and the methods used by the candidate teachers who teach your course within the scope of the internship practice?”. Table 7 shows the categories and codes that emerged as a result of the analysis of the answers given by the participants to this question.

Table 7

Participants' Opinions on Classroom Management, Lecturing and Methods Used by Pre-Service Teachers

Theme	Categories	Codes	f
Competence of Prospective Teachers and the Methods and Techniques They Use	Classroom Management	Adequate	S1, S2, S3, S6, S8, S9, S10
		Inadequate	S4, S5, S7
	Lecturing	Adequate	S1, S2, S3, S5, S6, S8, S9, S10
		Inadequate	S4, S7
		Narration	S1, S2, S4, S7, S8, S9, S10
	Method	Question and Answer	S2, S4, S7, S8, S9, S10
		Discussion	S3, S5, S6, S9
		Brainstorming	S1, S6
		Six Hats	S3
		Station	S10

A review of Table 7 shows that there were three categories named "Classroom Management", "Lecturing" and "Methods as a result of the answers given by the participants to the question "What are your opinions about the classroom management, lecturing and the methods used by the pre-service teachers who taught your course within the scope of the internship practice?". In addition, the category "Classroom Management" included the codes "adequate (f7)" and "inadequate (f3)" and the category "Lecturing included the codes "adequate (f8)" and "inadequate (f2)". Finally, the category "Methods " included the codes " narration (f7)", "question and answer (f6)", "discussion (f4)", "brainstorming (f2)", "six hats (f1)" and "station (f1)".

An analysis of Table 7 reveals that most of the participants consider pre-service teachers to be successful in classroom management. In fact, seven participants considered pre-service teachers as competent in this regard. The participants stated the following in this regard: S1 "The teachers who come to our class are actually students like us. But they are interns. I mean, they will do an internship and then they will teach. But still, there is no problem in the lesson. The trainee teacher keeps order. There are no problems... (S1)". S2 "There are no problems in the class. Even if they do, the teacher intervenes. I mean, friends

cannot disrupt the lesson too much... (S2)", S3 "The trainee teacher who comes to our class is disciplined. Sometimes he laughs but generally he maintains discipline. I think the lesson would not go well if a few of our friends were not disciplined... (S3)", S6 "The trainee teacher gets a little excited in the classroom, but I think it is still good. Because sometimes there is a lack of discipline in the class and he immediately does what is necessary. I think it is good... (S6)", S8 "He manages the class well. Our teacher also helps us. For example, last week Hüseyin caused some trouble, our teacher came to the class and warned Hüseyin. I think the trainee teacher is good... (S8)", S9 "The class is organized. Sometimes the teacher gets excited and we laugh, but I think he is good... (S9)" and S10 "I think he manages the class well. Actually, he is not really our teacher. Think of him as taking lessons... (S10)" On the other hand, three of the participants think that pre-service teachers are not sufficient in classroom management. S4 stated this situation as "The teacher is actually a student like us. He is at the university. He gets very excited. Sometimes there is disorder in the classroom. It is as if he cannot manage very well. Maybe it is because he is new... (S4)". Likewise, S5 said "I think she is not very good at managing the class... (S5)" and S7 said "There can be problems in the class. I cannot fully focus on the lesson... (S7)".

It is understood from Table 7 that the majority of the participants (S1, S2, S3, S5, S6, S8, S9, S10) consider pre-service teachers to be competent in lecturing. In this context, the opinions of the participants are as follows: S1: "The trainee teacher explains the lesson well. He even tells a lot of stories about history. I never forget what the trainee teacher tells because he does not just tell... (S1)" and S2 "I think she explains the lesson very well. He tells it very enthusiastically and motivates us. We also do activities. For example... (S2)". Only two participants consider pre-service teachers inadequate in this regard like S4 "The teacher who comes to the internship gets excited as I just said. I think he cannot explain the lesson well... (S4)" and S7 "I think he cannot explain the lesson very well. Our teacher is better...(S7)".

Considering Table 7, we can see that pre-service teachers use different teaching methods and techniques during their lectures. In this context, the majority of the participants (S1, S2, S4, S7, S8, S9, S10) stated that pre-service teachers use the narration method. In this regard, S7 said "... But mostly she tells herself... (S7)". In addition, it was determined that more than half of the participants (S2, S4, S7, S8, S9, S10) thought that the pre-service teacher used the question and answer method including S2: "... She explains but she often asks questions and we answer them... (S2)". Four of the participants stated that the pre-service teachers also used the discussion method. S3 explained his thoughts in this context as follows:

"... In the lessons, the teacher sometimes makes two groups and makes them discuss, sometimes we have discussions without dividing them into groups. In this way, everyone defends an opinion and explains it. For example, we recently discussed the meaning of the word equality. It is good, it stays in our minds... (S3)". Two of the participants explained that the pre-service teacher used brainstorming as follows: S1 "... For example, he says a topic. We quickly say what we can think of and the teacher writes it on the board. We talk about what is written on the board last... (S1)", S6 "... He also makes us brainstorm in the lessons. It is very fun... (S6)". In addition, one participant stated that the pre-service teacher used six-hat thinking technique during the lecture. S3 "... But one of my favorite activities is the six hats that the trainee teacher does. I am always the white hat... (S3)". Finally, one participant stated that the pre-service teacher applied the station technique: S10: "... A few times, an activity is done at each table, we change places and do that... (S10)".

Discussion and Results

This study was conducted in order to reveal the opinions of pre-service Social Studies teachers, mentor teachers and students in the practice schools about the teaching practice course. The study consisted of three questions that were formed in line with this purpose.

Regarding the first question, we first determined the opinions of pre-service Social Studies teachers about the Teaching Practice. Accordingly, we found that the pre-service Social Studies teachers felt positive emotions such as excitement, happiness and pride while they were teaching at the practice schools. Considering that these lessons are the first experiences of the pre-service teachers, it is possible to think that the excitement they experience is normal. On the other hand, considering that they received their undergraduate education to become teachers, the fact that they were teaching in a real classroom environment made the pre-service teachers happy. Especially considering that they dream of becoming a teacher, we believe that the happiness they experience is quite appropriate. In addition, being placed in an undergraduate program, completing this undergraduate program, and attending classes, even as an intern, made the pre-service teachers proud of themselves. On the other hand, we concluded that some of the pre-service social studies teachers also felt negative emotions such as inadequacy, disappointment and fear. However, it can be considered normal for them to have feelings of inadequacy and fear because it was their first experience. However, the fact that they experienced disappointment is due to the difference

between their expectations formed by the education they received and the actual situation in secondary schools. The study conducted by Bektaş and Ayvaz (2013), too, yielded similar results and supported the results of this study. In addition, Paker (2008) also reached findings that support the results of this study.

We also examined the opinions of pre-service social studies teachers about the attitudes and behaviors of the students in the practice schools and found that half of the pre-service teachers expressed positive opinions while the other half expressed negative opinions. Some of the pre-service teachers thought that their communication with the students was good and that the students were respectful towards them. In addition, pre-service teachers who have this opinion state that students exhibit positive attitudes and behaviors towards the lesson. However, the other part of the pre-service teachers stated that there was no communication, that the students avoided them, and that they saw them as trainees and temporary. The pre-service teachers attribute this situation to the fact that they have been in the class for a short time and that they are temporary. They also think that this situation causes students not to take the lessons seriously and to be uninterested. Pre-service teachers state that they do not have the authority to give grades and take disciplinary actions and that this situation causes students not to take the lesson seriously. In the light of this information, we can say that students exhibit more positive attitudes and behaviors in the lessons of teachers who communicate effectively with students. Because the quality of communication between student-student and teacher-student in the classroom also affects the quality of education.

Students who can communicate positively with the teacher can also have positive attitudes and behaviors towards the course (Gülbahar & Aksungur, 2018). The fact that pre-service teachers take a teaching practice course only in their final year causes the time they spend in practice to be quite short. Pre-service teachers emphasized this situation in their interviews as well. The presence of pre-service teachers in practice schools for a short period of time attracts the attention of students and causes students to see pre-service teachers as temporary. This study concluded that the stakeholders encountered problems with each other in the teaching practise course and that the expectations were not fully met in the process of teaching the course. It was also stated in the study of Gümüş et al. (2018) that the contribution of the teaching practice course to pre-service teachers' acquisition of professional competence is low. In addition, the study conducted by Yanık, Bağdat, Gelici, and Taştepe (2016) with mathematics teachers concluded that the experiences gained during the Teaching Practice course did not contribute sufficiently to coping with the problems experienced during

teaching. In this context, as suggested by the pre-service teachers, planning a Teaching Practice that will cover the whole undergraduate education, not only in the last year, will both strengthen the student-teacher candidate communication and enable pre-service teachers to reinforce the theoretical education they have received by practicing more. Because the sine qua non of teacher education is practical education. Practical education is of great importance in the process of preparing pre-service teachers for the profession (Aksu & Demirtaş, 2006; Alaz & Konur, 2009; Bektaş & Ayvaz, 2013; Çetinkaya & Kılıç, 2017; Gültekin, 2005).

The pre-service social studies teachers were asked which part they had the most difficulty during a 40-minute lecture. The analysis of the obtained data revealed that half of the pre-service teachers did not experience any difficulty, while the other half had the most difficulty in the attention-grabbing, motivating and reviewing parts of the lesson. The fact that the pre-service teachers had difficulties in the attention and motivation sections may be related to the fact that the students do not take the pre-service teachers and the pre-service teachers' course very seriously, as stated by the pre-service teachers. It was concluded that another section that the pre-service teachers had difficulty with was reviewing. This is related to the lack of continuity in the time the pre-service teachers are in the classroom. In fact, pre-service teachers who cannot participate regularly every week will find it difficult to follow what was covered in the previous lessons and what kind of activities were done. In this context, the Teaching Practice course should be longer and more continuous. This will enable students to take both pre-service teachers and the courses given by pre-service teachers more seriously and adopt them. In this way, students will be more interested and more enthusiastic about the lessons. Motivation is one of the important factors that are effective in the learning process. It is known that students who are willing to learn and study have a more effective education and training process (Dilekmen & Ada, 2005). In this context, it is important to ensure student motivation in the courses that pre-service teachers take.

The second question was to determine the opinions of the mentor teachers about the Teaching Practise. Accordingly, it was concluded that some of the teachers found the pre-service teachers successful in motivating the students, some of them considered them unsuccessful and some of them considered the success of the pre-service teachers on this issue as variable. When the results of teachers' opinions on this issue are compared with the results of pre-service teachers' opinions, it is seen that there is consistency. As mentioned above, the main reason for this situation is that students establish short-term communication with interns and see them as temporary (Aksu & Demirtaş, 2006; Arı & Kiraz, 1998; Çetin & Bulut, 2002;

Çetintaş & Genç, 2005; Özkılıç et. al., 2008). The study concluded that approximately half of the teachers considered pre-service teachers inadequate in classroom management. However, this situation can be considered normal since it is the first practical experience of pre-service teachers who receive theoretical education during the first three years of their undergraduate education. On the other hand, the other half of the teachers consider pre-service teachers as competent in classroom management. On the other hand, it was concluded that most of the teachers considered pre-service teachers inadequate. While this result is in parallel with the research findings of Yaman, Cansüğü Koray, and Altunçekiç (2004); Akbulut (2006); Taşkın and Hacıömeroğlu (2010) in the related literature, it does not coincide with the research findings of Kahyaoğlu and Yangın (2007). In addition, most of the teachers consider pre-service teachers sufficient in terms of pedagogical knowledge. This can be seen as a result of the fact that pre-service teachers have taken theoretical teaching profession courses during their undergraduate education. This competence of pre-service teachers is considered as a positive situation.

Within the scope of the third question, we determined the opinions of the students about the Teaching Practise. Accordingly, it was concluded that most of the students considered pre-service teachers successful in classroom management and lecturing. At the same time, the study revealed that the pre-service teachers used different teaching methods and techniques during the course. The teaching practice course, which provides pre-service teachers with the opportunity to develop their professional skills, plays an important role in providing them with experience in classroom management. Therefore, examining the practices of pre-service social studies teachers in schools will help us understand their strengths and shortcomings in this regard. In this context, as a result of this study, we found that pre-service teachers were successful in classroom management. On the other hand, it is a positive situation for pre-service teachers that students see pre-service teachers as adequate in terms of classroom management and lecturing. The study conducted by Şahin Taşkın (2013) supports the findings of this study. In addition, the use of different teaching methods and techniques by pre-service teachers in their lessons is considered as a positive situation. Because examining different methods and techniques will enable both students to have a more effective learning process and pre-service teachers to experience these methods and techniques more.

Recommendations

In line with the findings of this study, we have put forward the following suggestions.

- As a result of the research, it was seen that the participants did not find the time allocated for the Teaching Practicum sufficient. Extending the internship period, assigning the teacher candidate to a practice school in the last year of his/her undergraduate education to gain real Teaching Practice or extending the internship period to previous years and making administrative arrangements in this direction can be recommended as a positive development for the teaching profession.
- In the research, it was concluded that there was no effective communication between the partners of the Teaching Practice (teacher candidate, teacher, student and lecturer). It is very important to identify the communication problems that stakeholders experience with each other and to increase the frequency of studies to find solutions to these problems. By taking necessary precautions, teacher-pre-service teacher, pre-service teacher-student communication can be rendered more effective.
- It was determined that pre-service teachers did not sufficiently recognise the students in the classes they attended in the practice schools. In order to get to know the students studying in the classrooms where the pre-service teachers are practicing and to learn about the rules applied in the classroom, they can be provided with information by meeting with the classroom teacher in advance.
- It was concluded that the activities of pre-service teachers during the Teaching Practicum process were not sufficiently monitored and supervised. Trainees' teaching activities can be adequately monitored and periodically evaluated by their mentor teachers. In addition, this issue can be monitored by the institutions as well.
- Pre-service teachers think that the courses they have taken in the undergraduate programme are mostly theory-oriented. It is stated by the participants that practical activities should be increased in the courses given during the undergraduate programme. The theoretical transfer of courses at the university can be oriented not only towards providing information but also towards practice, and educational contexts can be organized towards this goal.

Compliance with Ethical Standard

During this study, the rules outlined in the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were adhered to, and the actions outlined in the "Scientific Research and Activities Against Publication Ethics" directive were avoided.

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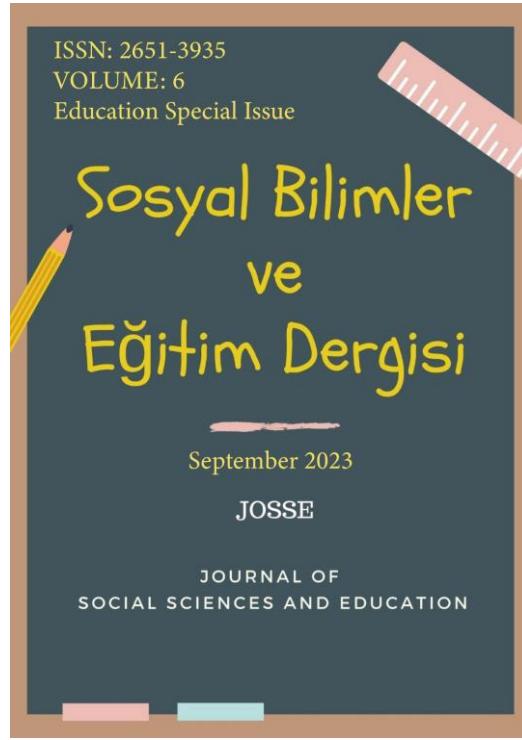
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Teaching Critical Thinking in the Ottoman Empire

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ABSTRACT

Research Article

Thinking is a distinctive action that distinguishes human beings from other living things with the faculty of reason and enables them to understand and make sense of what exists. In this respect, the act of thinking has been a regulator of behavior in the development of the individual and the formation of social structure in ancient societies. The act of thinking has been developed over time by philosophers such as Socrates, Plato and Aristotle within the framework of a certain discipline and accompanied by practices. In the Islamic tradition of thought, these practices were given a different meaning through madrasa education. In Ottoman educational institutions, it was aimed to improve the standard of thinking of individuals through courses such as philosophy and logic based on rational knowledge offered within the curricula with the act of critical thinking. In this study, an answer will be sought to the problematic of how the concept of critical thinking was handled in Ottoman educational institutions and how critical thinking competence was acquired by individuals. Critical thinking in the perspective of the act of thinking, critical thinking on the historical plane, the processes of imparting critical thinking to the individual in Ottoman educational institutions will be discussed, and it will be tried to understand how thinking practices were imparted to with a methodology in curricula and books. In the study, the data were evaluated by using historical analysis and document analysis method together.

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Introduction

Thinking is a natural phenomenon realized in individuals with reason. If thinking is an action, it can be said that reason is a tool that forms the dynamics of this action. In terms of the meaning of the word "intellect", it has meanings such as connection and linking (Bolay, 1989: 247). In this respect, the intellect works to make things related to other things in order to capture the awareness of priority and posteriority parallel to life on the plane of time. Information/data is necessary for the realization of all these functions. Data input feeds the mind to the extent of the orientation of the sense organs and the act of thinking forms a process with the faculty of reason. The logical outputs of the process can be formed at the end of the intellectual process (Gündüz, 2012: 230-234). The effective use of the intellect's ability to make sense by the individual was understood as rationalism, and the design of justice and virtue in social and political life in the light of knowledge and the most efficient use of the resources of the intellect were accepted as the basic principle of rationalism (Duran, 1999: 224). In this respect, critical thinking from the perspective of reason and rationality can be said to be the activity of transforming the act of thinking into a disciplinary structure (with verification criteria such as logic) through a certain educational process.

According to Robert Ennis, critical thinking is logical, reflective thinking focused on deciding what to believe or do. Matthew Lipman characterizes critical thinking as skillful and responsible thinking that leads to good judgment. Critical thinking is the ability to think one's own thoughts in order to improve the quality of thinking while thinking (Nosich, 2015: 1-2). In this framework, it can be said that critical thinking is thinking in a multidimensional and meaningful way by activating the mental faculties related to what is being thought. Today's critical thinking skills developers emphasize the importance of making the experience of doing in-depth thinking active and continuous, and think that by systematizing thinking similar to mathematical formulas, thinking skills will be automatized. In this context, one of the proposed thinking formulas can be presented as developing a perspective, supporting the perspective developed by considering other perspectives with various logical thinking tools, reaching a conclusion and considering different possible outcomes (Chaffee, 2016: 12-13).

Another suggestion for developing critical thinking skills can be expressed as expressing what is thought, elaborating, explaining what is expressed with examples, and finally depicting (Nosich, 2015: 36). Critical thinking should not only be perceived as qualifying thinking within the framework of certain criteria, but also includes the ability to

understand and make sense of the nature of external inputs to the mind. As a matter of fact, the process of quickly making sense of all kinds of data presented to the individual as arguments through certain filters is a part of critical thinking. Understanding and analyzing the ambiguity, uncertainty, rhetoric or clarity of verbal or written linguistic expressions presented to the individual is important for critical thinking skills. Thus, the construction and maintenance of the individual's relations with himself/herself and his/her environment with a healthy thinking structure is directly related to the effective use or non-use of critical thinking (Bowell & Kemp, 2018: 4-38).

The individual wants to know due to his/her nature, and with this desire aroused in the individual, he/she is interested in all kinds of formations that occur around him/her. For the satisfaction of his/her interest, he/she asks basic questions in order to know the essence of all kinds of formations that emerge in and around him/herself, starting with himself/herself. The answers sought to the questions emerge as a style of thinking based on consistency (Bingöl, 1999: 231). When the act of critical thinking is examined together with written texts on historical grounds, it is traced back to Socrates, Plato and Aristotle, but it is necessary to accept the fact that other ancient civilizations also consciously performed the act of critical thinking at the point of questioning existence and life (Chaffe, 2016:6). Plato, who can be considered as the ancestor of philosophy, based his teaching as a student of Socrates on the principle of "reaching behind the image, finding the essence". This teaching can be considered as a different approach to critical thinking in terms of obtaining the ability to be deep and qualified in the act of thinking. Plato's student Aristotle built his philosophy, which he characterized as making the individual virtuous, on mental and moral virtues. Mental virtue ethics can be seen as one of the basic dynamics of critical thinking (Sakaoğlu, 2018: 76). Although the quality of humanity as a thinking being is questionable at every moment of its life, it can be understood as a reality that it applies the act of thinking at a certain level within the framework of certain criteria. At this stage, the statements in sacred texts encourage people to interpret things that appear positive by qualifying the act of thinking. The sciences that discipline critical thinking have been shaped as philosophy and logic, and philosophers throughout history have criticized the act of thinking by using the tools of logic.

It can be said that the first developments in the science of logic in Islamic thought began with the translations of Aristotle's works. From these translations, al-Kindi introduced new insights into conceptual knowledge and knowing. Farabi, on the other hand, was the reconstructor of logic in the Islamic world after Aristotle. Farabi defined logic as an important

method that corrects the intellect and enables the evolution of plausibles that may be wrong to the truth in a certain disciplinary line. In this direction, logic can be said to be the knowledge of teaching and knowing. Ibn Sina, who defines the faculty of knowing as conception and assent, determines the purpose of logic in this respect. Logic is the process of applying the acts of learning, teaching and knowing in a conscious systematic way in life. Ibn Sina sees logic as a tool for the endeavor to know the truth of things in philosophy. Although al-Ghazali was critical of some aspects of philosophy and metaphysics, he respected logic and analytical thinking (Pattabanoğlu, 2014: 26-28). Al-Ghazali has brought a new depth to the concept of thinking and critical thinking by reconsidering the philosophical and logical approaches put forward in the name of making sense of what exists on the axis of reason-thinking from Aristotle to al-Kindi, from Farabi to Ibn Sina (Sarıoğlu, 1999, pp.218).

In this respect, al-Ghazali created a direction that enabled logic to be accepted in Islamic sciences with his statement "the knowledge of one who does not know logic cannot be trusted" (Çapak, 2005, pp. 13; cited in Pattabanoğlu, 2014, pp. 28). Political administrations that used Islamic sciences in their teaching processes contributed to the development of knowledge in general and critical thinking practices in with the opportunities they provided. In the curricula implemented in educational institutions, individuals were gradually taught speaking/writing skills, thinking skills and discussion skills in the process that started with teaching grammar, and the practices of philosophy and logic courses were effective especially for thinking skills (Şanal, 2003, pp. 153). Through the teaching process, individuals can acquire competencies specific to critical thinking (Şensekerçi & Bilgin, 2008, pp. 23) such as asking questions, concentrating on questions, analyzing questions and arguments, and evaluating the validity of information sources.

This study aims to understand the processes of teaching reason and thinking systematics to students under the supervision of a teacher in educational institutions in the historical process. In addition, the process of teaching critical thinking skills in the madrasah, the educational institution of the Ottoman Empire, was mentioned. The processes of teaching critical thinking skills in different educational institutions opened with the Tanzimat process were examined. Finally, examples of teaching materials that support critical thinking are presented. Thus, the teaching of critical thinking in the Ottoman State, which is the subject of the study, is presented holistically.

Method

Model

In this study, which aims to reveal the details of critical thinking teaching in the Ottoman Empire, document analysis method, one of the qualitative research techniques, was used. The document analysis method adopted as the method of the research is a scientific research method that involves obtaining, questioning and analyzing documents as the primary data source in the field of research (Sak, R., Sak, İ. T. Ş. et al. 2021, pp. 228). This method is used as a stand-alone method as well as in combination with different researches. In this study, the historical research method was used together with the document analysis method. Thus, with this method (Fraenkel & Wallen, 2012, pp. 535), data were collected and evaluated in a certain systematic way to understand and explain the events and phenomena that occurred in the past.

Data Collection Tools

In the research examining the teaching of critical thinking in the Ottoman Empire, the original copies of the teaching materials of the period were utilized as well as the works examined. The teaching materials were accessed from the Istanbul Metropolitan Municipality Libraries online data address.

Collection of Data and Analysis

Document analysis technique was used in the research. In the document analysis technique, documents that are data sources are analyzed in accordance with the purpose of the study. With the descriptive analysis method, the data obtained from the documents are interpreted and shared. Thus, it contributes to a better understanding of the findings obtained regarding the research problem (Yıldırım & Şimşek, 2004, pp. 71). In the study, document analysis was conducted together with descriptive analysis. The documents written in Ottoman Turkish were translated into contemporary Turkish and described.

Findings

Critical Thinking in Classical Period Madrasas

It is an acceptable assumption that the ilmiye class was active in the formation and formation of the Ottoman society mind. As a matter of fact, the shaping of the public structure at the social and institutional level may have been formed as a result of the activity of a higher intellect. Representatives of the ilmiye class provided individuals with the ability to use their rational faculties in madrasas. These gains were achieved through madrasa curricula, which were a continuation of the Islamic tradition of thought (Duran, 1999, pp. 225). The madrasa curriculum began to be established during the reign of Bayezid I and was implemented institutionally during the reign of Mehmet II. In madrasas, classes started after breakfast in the morning and lasted until noon, and the learning process continued in the afternoon in mosques or libraries. In the madrasa program, Tuesday was adopted as the weekly day off, and the annual holiday was implemented during Ramadan. Teaching activities were carried out by taking into account logic and philosophy courses that increase the memory and reasoning power of the mind, which makes critical thinking effective (Kazıcı, 2020, pp. 155-156).

Ottoman period madrasa practices were accepted and continued as a continuation of the Seljuk madrasa tradition. The book *al-Fawa'id al-Fanariyya* (*al-Fawa'id al-Fanariyya*), a commentary on the logic of Isaguci by Şemsettin Molla Fenari (1350-1431), one of the first period scholars who supported critical thinking, was taught as a course throughout the existence of Ottoman madrasas, and in fact, this book was published in print in Istanbul in 1868 (Öktem, 2004, pp. 275). After Fenari, who was accepted during the reigns of Bayezid I and Murat II, Hızır Bey, who was one of the muderrises of Bursa Sultaniye Madrasah, taught logic as well as procedural courses. Mehmet II appointed him as the qadi of Istanbul after the conquest of Istanbul (Bingöl, 1999, pp. 234). The curriculum of the Sahn-1 Seman madrasah included one hour of philosophy and logic courses per week, and the Süleymaniye madrasahs allocated a chair each for the History of Islamic Philosophy, History of General Philosophy and Logic courses due to the importance attached to critical thinking (Öktem, 2004, pp. 275, 279; Aydın, 2020, pp. 246).

As a result of the importance he attached to knowledge and thought, Sultan Mehmet the Conqueror asked Hocazade Muslihiddin Mustafa Efendi and Alaaddin Ali Tusi, important scholars of the period, to elaborate on the philosophical debates between Imam Ghazali and Ibn Rushd. Various works were published in this direction and the "tehafut tradition", which

aroused interest in madrasa circles, developed. Taşköprülüzade Ahmet states in his work Şakaik-i Numaniye that he read Hocazada's commentary and Mevlanazada's Sharh al-Hidayat al-Hikma during his education. Ishak b. el-Hasan al-Tokadi states in his work Nazmu'l-Ulum that courses such as divine wisdom, natural wisdom, and logic were taught in Ottoman madrasas, and Kátip Çelebi states in his work Mizanü'l-Hakk that Kadimir was taught in the name of wisdom between 1645-1650 (Öktem, 2004, pp. 274-277). Neseft's Akaid al-Nesefti, Adud al-Din Ici's al-Akaid al-Adudiyya and Abheri's Hidayat al-Hikma were among the main works taught in the philosophy and theology categories of madrasas. In Aqa'id al-Nasafi, the source of knowledge is stated as the intellect, while in Ici's work, the necessity of rational thought for the realization of Being is prioritized. The commentary of Meybedi, known as Kadimir in scholarly circles, on Abkheri's Hidayat al-Hikma was taught, and in this work, the relations between reason and being, reason and the universe were explained in detail under the main herdings of physics-theology-metaphysics (Sarioğlu, 1999, pp. 222).

Katip Çelebi states that until the end of the 16th century, the works of scholars such as Molla Fenari, Kadizade-i Rumi, Ibn- Kemal, Kinalizade Ali Efendi, Ali Kuşçu, Müeyyedzade Abdurrahman and Mirim Çelebi were taught in madrasas. Works such as Sharh-i Şemsiye, Sharh-i Isaguci, Sharh-i Metali were taught in logic courses (Kazıcı, 2020, pp. 116). In addition, the main sections of Aristotle's corpus of logic, namely "categories, propositions, syllogism and demonstration" constituted the weight of the program of logic courses taught in madrasas. The first two of these chapters were dealt with in the basic nature of logic as tasavvurat and the other as tasdikat. Within the framework of the topics covered in the teaching materials, the concepts of substance, quantity, quality, relativity, space, time, situation, possession, effect and passivity about the declaration of existence constitute the basis of the categories of thinking in logic (Emiroğlu, 2003, pp. 25).

It can be concluded that logic courses were offered to students in Ottoman educational institutions as the first stage of critical thinking. In this context, the logic courses in Ottoman madrasas included the Risalet al-Abhari's Risalet al-Abheriye, which interpreted and developed the philosopher Furfuriyus's Isaguci, Molla Fenari's Fenari commentary on Ebheri's work, and Kul Ahmet's Haşiyesi on Fenari's commentary, Mir Abu'l-Fath al-Saidi's commentary on al- Taftazani's Tehlib al-Logic and al-Kalam written by Asad al-Dawwani was also taught under the name of Mir and Hüsam Kati's commentary on Isaguci was also taught to students in its original form. In addition, the glosses written by Sayyid Sharif and Kara Dawud on Qazvini's al-Samsiyya fi al-Mantik were also taught in logic classes. In the

courses on Hikmat, the commentary on Ebheri's Hidayat al-Hikma by Kadı Mir, Najm al-Din al-Katibi's Hikmat al- Ayn, and the commentaries on Hikmat al-Ayn by Sayyid Sharif and Mirza-Jan were taught (Fazlıođlu, 2003b, pp. 202-205). Bay (2012), based on a report dated 1868, states that the main courses in madrasas were "Emsile, Bina, Maksud, Maksud, Izzi, Avamil, Izhar, Rhyme, Isaguci, Fenari, Tasavvurat, Tasdikat, Sharh-i Akaid, Kadı Mir and Jalal". He also states that on weekday afternoons "Avamil, Halebi, Mülteka, Muhtasar Maäni and Mutavva" and on weekends "Dürr-ü Muhtar or Dürer from tafsir, hadith and fiqh. Vaz'iyeye from ilm-i vaz, Hüseyniye and Veleđiye from ilm-i munazaradan, Feride and Alaka from ilm-i beyan, Heyet and Hendese from ulüm-1 riyazi-yeden and calculus, calligraphy and construction" (Bay, 2012, pp. 66). In madrasahs, books of etiquette called "adabu'l-bahs ve'l-munazara", which developed the discipline of thinking and transformed critical thinking into practice, were taught, aiming to teach individuals the method of discussing ideas (Kazıcı, 2020, pp. 157).

In addition to Aristotle's logic, different works were also taught in Ottoman madrasas new expansions in order to form the discipline of critical thinking. Fazlıođlu (2003a, pp.101-103) provides information about the taught in madrasas and the works based on critical thinking through the poetic expressions in the treatise "Manzume fi tertib al-kutub fi al-ulum" (Manzume fi tertib al-kutub fi al-ulum), the author of which is unknown: "Your logic would be a lot of clay and kali, Hüsam Kati writes sentence eşkali, Qutbuddin writes sentence eşkali, Qutbuddin writes ekvali to find, Seyyid haşiyesiesini, can't you find it?". In this framework, the teaching activity in Ottoman madrasas was presented according to a certain learning order and sequentially. It can be said that this order was harmonious and meaningful in terms of the hierarchy of teaching. Students took the following courses: sarf, nahiv, logic, maani, fiqh, kalam, hadith and tafsir. First, students were taught the basic grammatical rules called sarf and nahiv, and logic (the basic thinking skill and discipline) courses aimed to ground the activity of thinking. Then, with maani lessons, students were able to demonstrate the ability to speak fluently and logically in accordance with the rules of the spoken language. After successfully completing these basic courses, students then completed the courses of fiqh, kalam, hadith and tafsir. In this way, individuals who thought, spoke, understood and interpreted within a certain framework were brought into society and played a role in the construction of society. It can be stated that madrasa curricula provided individuals with the ability to learn critical thinking skills theoretically and to use them at every stage of their lives.

Critical Thinking in Educational Institutions in Tanzimat Period and After

Ottoman madrasas were involved in some new formations in the face of the teaching practices of different educational institutions established during the Tanzimat period. Thus, it was aimed to combine the ancient teaching traditions with the conditions of the era. Within this framework, "Medresetü'l-Kudat" was opened in 1854 in order to train kadis within the scope of specialized madrasas operating in the status of general madrasas. Initially operating under the name "Muallimhane-I Nuvvab", the madrasah continued its teaching activities under the name "Mekteb-i Nuvvab" in 1884 and "Mekteb-i Kudat" in 1910. In 1912, according to a regulation published in 1912, "Medresetü'l-Vaizin" was established with the aim of training preachers. In its structure, which was planned as three academic semesters, preacher candidate students took wisdom courses in addition to other courses in the second and third academic year.

In 1917, "Medresetü'l-Mütehassisin" was established in parallel with the madrasah organization planned during the 1908 Second Constitutional Monarchy period. In the curriculum of the theology, mysticism and philosophy department of the specialized madrasa, logic and philosophy, wisdom of Islam, history of philosophy of Islam, history of philosophy of Islam, and history of philosophy of generality were included alongside other courses (Kazıcı, 2020, pp. 125-141). In the 1909 regulation, the madrasa curriculum was organized on the basis of 12 academic years. Logic in the sixth grade and philosophy in the seventh grade were envisaged (Ergin, 1977(I-II), pp. 123).

In the curriculum for madrasas prepared by Eşrefzade Şevketi, madrasas were divided into two parts: the middle part and the upper part. In the 6th grade of the middle section, 2 hours of logic and debate, in the 7th grade, 2 hours of ilm-i ruh, and in the 8th grade, 2 hours of ethics were to be taught. In the theology section of the ulum-u shariyya branch of the upper section, and philosophy of religion courses were envisaged, and in the philosophy section of the wisdom introduction to philosophy, history of philosophy, logic and debate, ilm-i ruh, hikmet-i aliye, ahlak, terbiye-i etfal, hikmet-i bedayi courses were envisaged (Şevketi, 1913, pp. 25-27). In his new model, Şevketi (1913, pp. 30-31) set the number of students required in the classrooms of madrasas as thirty. According to this determination, it was planned that the teacher should repeat the information to the students for half an hour before each lesson, allocate at least two minutes to each student, and if this was not possible, it was planned to repeat the information to fifteen students on the first day and to repeat the information to the

other fifteen students on the second day, based on the fact that this situation could be eliminated in two days. It was agreed that the maximum number of students should be thirty. In case of excessive numbers, it was stated that the classes should be divided. From this point of view, philosophy and logic courses were planned according to the programs and levels of modern schools during the Tanzimat period. After the declaration of the Second Constitutional Monarchy, the madrasa programs also included philosophy and logic courses, aiming to develop individuals in the context of critical thinking. In addition to madrasas, curricula that prioritized critical thinking were also discussed in educational institutions operating in addition to madrasas. Especially in the upper grades, philosophy and logic courses were offered, and in the lower grades, courses that included basic moral knowledge, which could be considered important in terms of providing a basis for these sciences, were envisaged.

Table1

Courses on Critical Thinking in Tanzimat Era Educational Institutions

Lessons	1869	1874	1879	1893	1898	1915	1924	1934	1937
Darülfünun/ Faculty of Literature	Logic Maani Beyan				Wisdom Logic	Phil. Hist. of Phil. İslamic Phil. Logic Proced.			
Darülmuaallimin		Logic Wisdom	Logic		Wisdom		Wisdom		
Darülmuaallimat Beyrut American School				Phil.			Wisdom		
Mekteb-i Sultani					Logic Wisdom				
İstanbul Boys Sultani						Logic Phil.			
İstanbul Girls Sultani						Phil.			
Darülmaarif İdadi-Rüştiye Military Rüştiye		Logic			Moral				
High School			Logic					Phil.	Phil. Logic Sociology

In the light of the information given in the chart, different courses that would provide individuals with critical thinking skills were offered at different levels of education during and after the Tanzimat period. In this respect, the 1869 Maarif Regulation stipulated logic, maani and declaration courses in the Hikmet and Edebiyat branches of Darülfünun. In 1874, the Istanbul Darümuallimin Idadi branch of the Istanbul Darümuallimini offered logic courses, while Darümuallimin-i Rüşdi and the first three years of the Mülkiye School offered wisdom courses for each semester. In 1893, in a memorandum submitted to Sultan Abdülhamit by Minister of Education Zühtü Paşası, a philosophy course was included in the curriculum of the American School of Beirut, which had the status of university. In the 1915 curriculum, logic and philosophy courses were offered at the Istanbul Boys' Sultanate and philosophy at the Istanbul Girls' Sultanate. In the 3rd grade of the 1937-1938 High School program, the weekly philosophy, logic, sociology and sociology courses were planned as 3, 2 and 2 hours for the literature branch and 2 and 1 hour for the science branch, respectively (Akyüz, 2015, pp. 169-354). In the 5th year of Mekteb-i Sultaniye, the course on morality and logic was included with the phrase "ilm-i ahlaka is continued as in the previous year, but logic is also taught", while in the sixth year, the content of the Hikmet-i Nazariye course included the teachings of ilm-i ruh, ilm-i mantık and ilm-i ablak. In the high school section of the Darümuallim, the Hikmet-i Nazariye course was planned as two hours a week for the first and second grades and one hour a week for the third grade (Maarif Salnamesi, 1898, pp. 118, 126). In the unified program, which was structured as a seven-year program, the sixth grade of the rüştiye and idadis was to have a one-hour a week course in ethics; the definition and subject matter of the science of morality (morality of conscience, good and evil, the development of these feelings through education, morality of responsibility, the conditions, degrees and limits of responsibility, moral duties, the qualities and rules of morality, the determination of the rules of morality), charity and duty of kindness (the dignity of the individual human being).

The relationship between law and duties, types of duties, the purpose of morality and its fulfillment, virtue, happiness, the relationship between virtue and happiness, the conscience of pleasure, the conscience of torment, the conscience of reward, etc.), duties of the person (its basis, its varieties, fezail-i kişiseliye, restraint, good judgment, chivalry, sincerity, honor, life, sa'y, etc.), the relationship between persons (respect for the life of others, respect for actual murder, defense of the self and legitimacy of the commandment, respect for the life of others), the relationship between persons (respect for the life of others,

respect for actual murder, defense of the self and legitimacy of the commandment, defense of the self and legitimacy of the commandment, defense of the self, legitimacy of the commandment, etc.), the relations between individuals (respect for the life of the people, respect for actual murder, defense of the self and legitimate orders, not to interfere with the happiness and fame of the people, slander and false servitude, not to interfere with the property and possessions of the people, The condemnation of ukud and contracts, good deeds and duties, duties of the saints, duties of the saints towards their parents, feelings of the family), duties of the general public (obedience to the laws of the country, taxation, service, military service) (Maarif Salnamesi, 1898, pp. 201-202).

Professors from Germany and Austria were brought to Darülfünun-u Osmani in 1915 to give lectures, the program was improved and additional courses such as history, literature and philosophy were added (Sakaoğlu, 2018, pp. 207). In the early years of the Republic, the high school curriculum included 2 hours of philosophy for 2nd and 3rd grades, 2 hours of philosophy for 3rd grades in 1934, and 3 hours of philosophy and sociology for 3rd grades in 1937 (Sakaoğlu, 2018, pp. 302-303). In 1876, logic courses were included in the curriculum of Darülmualimin, which began to be opened in the provincial centers, in the 1872 curriculum of Darülmaarif, the first idadi in Istanbul, and in the 1879 curriculum of Military Rüştiye Schools (Sakaoğlu, 2018, pp. 117,129,135). In the 1898-1901 program of the Istanbul Darülmualimin-i Rüşdiye (Istanbul Darülmualimin-i Rüşdiye), the first grade 1 hour, the second grade 1 hour, and in the 1924 program, the second grade 2 hours, the third grade 1 hour (Ünal, U.&Birbudak T.S., 2013, pp. 43, 97). In the 1901 program, 2 hours of hikmet-i nazariye courses were planned for the first, second and third grades of the Literature Branch of the Istanbul Darülfünunu. In 1902, the education was re-planned as a two-year program, and logic and ethics courses were included as 2 hours each in the first and second years. In the 1908-1909 academic year, the first, second and third grades of the first, second and third years of the school were offered two hours of wisdom courses each.

In 1912, Istanbul Darülfünun was transformed into a faculty and the first, second and third year philosophy courses were offered for 3 hours each in the first, second and third years, and the history of philosophy course was also offered for 2 hours in the third year. In 1915, the Faculty of Literature was divided into the departments of Literature, Philosophy, History and Geography. In this context, according to the program of the Philosophy department, the logic and its methods course was planned to be 2 hours each in the second and third grades, and the Islamic philosophy and history of philosophy course was planned to

be 1 hour in the second grade and 4 hours per week in the third grade (Selçuk, 2012, pp. 29, 33, 61, 157). In 1919, the Çamlıca Inas Sultanisi program included two hours of wisdom courses per week in the fourth and fifth grades. In the 1922 Darülmüallimat-1 İbtidaiye program, the wisdom course was planned as 1 hour per week in the second grade, 1 hour in the third grade, 2 hours in the fourth grade and 1 hour in the fifth grade (Erdem. 2013, pp. 357, 471).

Critical Thinking in Teaching Books

It can be assumed that philosophy and logic courses were the courses in which methods that disciplined thinking were taught in Ottoman educational institutions. During and after the Tanzimat period, the members of the book inspection commissions, who were of madrasa origin, had a distant view of philosophy and logic books, which limited the variety of these books in educational institutions for a period (Ergin, 1977, pp. 846). The curriculum program of Ottoman madrasas, prepared by order of the nineteenth-century Şeyhülislam Akşehirli Hasan Fehmi Efendi, included logic and wisdom (philosophy) courses, and the logic book written by Şemseddin Molla Fenari was taught as a textbook until the last periods of madrasas and was printed in Istanbul in 1886 (Öktem, 2004: 274). The lecturers of the schools where the courses were taught mostly produced some printed works on philosophy and logic in the form of lecture notes. In addition, translations of well-known logic and philosophy books were printed with the of the Ministry of Education.

Within this framework, we will try to understand how critical thinking was approached in some textbooks. In Ahmet Muhtar Pasha's translation of "Hulasa-i Mantık" (1312), practices of understanding, making sense of and using knowledge are presented in the form of questions and answers. The first step of critical thinking is to define knowledge, followed by the content of knowledge and finally the purpose for which this knowledge is intended. Details about the process of using the knowledge obtained gradually were also presented. Rıza Tevfik (Ergin, 1977, pp. 1246), one of the late Ottoman educators and thinkers, characterized philosophy as "neither the science of truth nor the science of the absolute, but only the means of temporary satisfaction consisting of a number of hypotheses that open before our intelligence, which is anxious to comprehend the sincere meaning of any event". According to Tevfik, philosophy is a tool to be used to unravel the secrets of creation or to resolve complex and abundant issues concerning individuals. Therefore, the knowledge

of philosophy and logic, which utilizes the ability to think in a qualified manner, can be considered one of the most important elements of the concept of critical thinking today.

Thirteen teaching materials were selected and analyzed from among many teaching materials within the study population, and an opinion on the teaching of critical thinking was tried to be obtained. In this direction, in the book "Hikmet-i Hukuk" (1302, pp. 10-11), which was compiled from Münif Pasha's lectures at Darülfunun, Münif Pasha defines reason as a mechanism that wants to know the cause and purpose of what exists, and wisdom as the activity of becoming informed/enlightened to the extent of the reason that is revealed in the individual by the desire to know. The sense of knowing in the individual makes the individual happy when he/she realizes the act of knowing and unhappy to the extent that he/she does not know or cannot make sense of it. Thus, the enlightenment of the questions sought by the mind with meaningful and convincing answers is through critical thinking. In the field of logic, the work "Şerhü'l-manzümeti'z-zahira fi kavanini'l-bahs ve'l-münâzara" (Sharhü'l-manzümeti'z-zahira fi kavanini'l-bahs ve'l-münâzara) by Mehmet Celalettin Efendi, a lecturer at Hagia Sophia in Istanbul, was published as a textbook with the permission of the Ministry of Education in 1319/1913. Hüseyin Hıfzının's Zübde-i Mantık (Isaguci with Questions and Answers) was published with the permission of the Ministry of Education. The book includes answers to many questions such as; what is ilm-i logic, what is the subject of ilm-i logic, what is the aim of ilm- i logic, how many parts does ilm-i logic have, what are mebadi-i tasavvurat and makasid-1 tasavvurat, what is delalet, how many types of delalet are there for a word that is subject to meaning, what is called lafz-t müfred, what is called lafz-1 mürekkebe, and so on (Hüseyin Hıfzı, 1322, pp. 2-3).

In the first phase of the Republic, the logic book by Mustafa Namık Çankı, which was prepared to be taught to 11th graders in 1926-1927, also included philosophy topics. In his work Fenn-i Terbiye (1328), Mustafa Satı Bey categorized education as physical, moral and intellectual. He transformed the activation of the ability to think in learning processes into a cycle starting with sense organs and intuition, internal perception and understanding, memory and recall, continuity and interconnectedness in ideas. He also revealed the stages of the thinking faculty, which starts with imagination, abstraction and generalization, judgment and reasoning, reason and logic, language and speech, and continues human life in a healthy way. In this respect, he believes that critical thinking awareness, which is formed in individuals who make their thinking processes conscious and in-depth, can be gained to individuals through education.

Muallim Naci, who wrote a commentary to Ali Sedat's "Mizanu'l-Ukul fi Mantiku'l-Usul" (1303), expresses the importance of critical thinking with the following words: "the value of a human being is proportional to the idea he possesses. The honor of the idea is determined according to its degree of direction. The idea in man is like man in the universe. The idea of man is the only adornment of the universe. Direction in the idea is like the idea in man. Idea is the balance-value of man and direction is the balance-value of idea. Human beings are different from other animals in that ideas and ideas are different from each other through direction. An idea without direction is like a man without an idea. It can be said that man is 'idea-intact. Education of ideas is the most important task for man. The goal of education is direction. The greatest happiness in the world is to engage in the study of the works of great minds, away from the acquisition of direction.

Therefore, it is ruled by the idea that the works written in this way should be the most valuable." In the introduction of his work "Medhal-i Mantik" (1313, pp. 3), Ali Irfan considers the individual as human in species, animal in genus, and speech as a determinant in distinction between species and genus. He considers the superior characteristic of the human being as substance and the inferior characteristic as animal. He states that the individual's reality is a praised, luminous being, and his physical being is an animal like a dog. Mustafa Fazıl makes valuable observations on critical thinking in his work "Ilm-i Mantik". According to Fazıl (1328: 36-39, 49), the discipline of thought can only be achieved through knowledge. In order to adopt a task, knowledge is needed to define that task in detail and make sense of it, and in this respect, the act of adoption can be realized to the extent of definition and meaning. All thinkers agree that in order to make the right decisions, the ability to think must go through certain stages of education. Knowledge is a light, the supreme Creator's greatest gift to humanity and humanity's greatest means of gratitude to the one and only. Knowledge is man's spiritual capital. Just as the sun destroys germs with its light, knowledge purifies the conscience of the individual. Every truth is revealed when compared to its opposite. In this way, knowledge is the greatest educator for the individual. To think is to connect known facts to other facts in order to reach new truths.

In the logic book of Süleyman Sırrı Bey (1310, pp. 20-30), the teacher of Mekteb-i Numune-i Şahane and Mekteb-i Idadi, the definitions of words and concepts are given through object-subject and the characteristics that make human beings valuable are presented. The two faculties in the individual are stated as perception and will. The elements that perception reveals in the individual are stated as the product of the intellect, and the elements

that will reveals in the individual are stated as actions. According to Süleyman Sim, the concept of wisdom that develops in the individual is the knowledge of understanding the visible and invisible structure of existence. The knowledge of logic is a science that has the task of protecting thought from possible errors. Logic is the science that includes the rules of understanding and making sense of knowledge and the healthy operation of the mechanism of syllogism and evidence. The knowledge revealed in the mind is divided into two parts. The intellect defines knowledge as general or partial. The knowledge of a stone or a tree appears in the intellect as general knowledge, but it turns into partial knowledge when the stone or tree exhibits certain characteristics. Knowledge that appears in the intellect as a conception can then turn into words, writing or action. Knowledge of logic serves to organize the knowledge that begins in the individual's mind and is revealed. In this respect, knowledge of logic was taught as one of the basic dynamics of critical thinking in Ottoman educational institutions.

In the book of logic published by the Ministry of Education to be taught in formal education institutions (1289, pp. 9), the knowledge of philosophy is defined as "whatever sciences and arts there are in the world, all of them have come into existence only through the power of perception, that is, cognition, and will, that is, willing, which is in the human soul. For if man had not been unable to know and will anything, none of the sciences and arts that are seen and known would have come into existence Since what we call perception and will are all matters of the mind, i.e. the ideas that take place in the mind, the sum total of them is called "makulat" with a general expression. Just as every matter must have its own laws and principles, the science that deals with the laws pertaining to the maqulat is referred to as "wisdom".

Translated books promoting critical thinking were also taught in schools. Emile Boirac's work was translated as "ilm-i mantık" by Reşat Nuri, a teacher at Mekteb-i Sultani. According to Boirac, logic (1330, pp. 2-4) is "fenn-i tefekkür", the art of thinking. It is the knowledge of understanding and making sense of the reality with a purpose and its conditions instead of the known reality. It can be said that the critical thinking that occurs in the individual is the process of qualifying words and deeds by developing the discipline of thinking, not the revelation of the words and deeds revealed by the act of thinking. In his book "Felsefe Dersleri" (1329, pp. 3). Babanzade Ahmet Naim, who gave lectures at the Islamic Philosophy branch of Darülfüman, defines philosophical knowledge as the freedom to think and examine in detail, and a philosopher as an individual who "tries to understand the nature

of everything he sees, hardly believes the ordinary explanations given in public, tries to weigh everything he sees and hears with his mind, in short, does not hesitate to make a long examination before making a judgment about a matter, is curious and thoughtful". In his book "Felsefe Dersleri" (Philosophy Lessons) (1330, pp. 4), Ismail Hakkı Bey, the director of the Faculty of Ulum-u Şer'iye and Literature at Darülfünun and a philosophy lecturer, explains what is known about human beings in terms of science, knowledge and philosophy. According to Ismail Hakkı, in order to know, the act of thinking must take place in order to ask "why, by whom, in what manner and why" the thing to be explained is done.

The purpose of teaching philosophy and logic courses, which are courses that nurture critical thinking, should be for individuals to gain the discipline of thinking and to exhibit behaviors in accordance with the nature of the individual's creation. Accordingly, in ethics courses at the primary education level, individuals were not provided with theoretical of philosophy and logic, but rather with basic knowledg, that enabled them to acquire the right behavior. The book "İlm-i Ahlak" (1314) prepared by Abdurrahman Şeref Bey, one of the teachers of Mekteb-i Sultani, for the students of Mekteb-i Mülkiye is important within the framework of the mentioned point. In the book, the definition, purpose and parts of morality are mentioned. Information such as manners, wisdom, psychology, principles and virtues of morality are presented in a clear manner.

According to Abdurrahman Şeref (1314, pp. 14), moral knowledge is a part of wisdom knowledge. The individual desires to know by nature, and "what remains hidden gives our minds anxiety and anguish". With the desire to know, knowledge is revealed. In the book "Miyarü'l-Efkar" (1316, pp. 4) by Mekteb-i Idadi teachers Raif and Mehmet Emin Bey, logic is characterized as a method that leads to "knowledge, description and confirmation of knowledge, since it has the benefit opening the mind to the unknown" and a science that protects the individual's mind from erroneous ideas and perspectives. Salih Zeki later published the algebraic logic lectures he gave in the mathematics department of Darülfünunun under the title "Mizan-1 Tefekkür" (1332). He used the algebraic logic of George Boole and John Venn, famous mathematicians in England in the 19th century, in his lectures. This field can also be defined as the mathematics of thinking. It can be considered as transforming the process of perceiving and defining existing things in the plane from mind to mathematics. Today, the logic of the studies on software is built on algebraic logic, and in this respect, it can be said that different fractions of critical thinking in the processing of information were used in Ottoman teaching.

Discussion and Results

The ability to think is one of the important elements that emerges in the individual with the faculty of reason and distinguishes human beings from other living things. Thinking is an activity that begins in the mind with the faculty of reason. The force that activates thought is the internal dynamics within the individual and the external dynamics outside the individual. As a result of the stimulation of the individual's senses, the act of thinking takes place in the mind, and the thought is shaped positively or negatively through imagination. The act of thinking creates a kind of construction process in the mind. The quality of the thoughts constructed in the mind is stabilized through reason. The faculty of reason is an important basis for the mind that disciplines thought and balances positive or negative thought with awareness. The positive or negative characteristic of thought is determined according to the individual's nature, which takes place in the mind codes at birth. The pure nature of individuals, which can be clearly observed in infancy and childhood, loses its purity over time with the influence of the environment and ego, and may exhibit behaviors outside of universal values. It can be said that the source of the acts that are revealed as speech and behavior in the individual are essentially thoughts. As a matter of fact, in the findings section, there is a systematic transfer through the teaching materials in which critical thinking skills are transferred to students.

The training of thought enables the scales of reason in the individual to balance feelings and thoughts. In this way, the individual is able to develop conscious acts of understanding and interpretation against internal and external stimuli, and to produce action by being aware in speech and behavior. In ancient societies, there were philosophers who recognized and applied the ability to think and the methods to discipline thinking. In schools of thought, these teachings have survived to the present day through educational institutions. Thinking disciplines have been systematized by disciplines such as philosophy and logic and their application has been facilitated. In this study, information about the meaning of critical thinking, its development in the historical process and its transfer to individuals in Ottoman educational institutions was mentioned, and in this direction, it was tried to understand how philosophy and logic knowledge was handled in curricula and materials. It has been concluded that although the concept of critical thinking is conceptually new, it is an ancient practice in terms of practice, and even if it was not called critical thinking education in Ottoman educational institutions, it was aimed to provide individuals with critical thinking

skills within the framework of philosophy, logic and basic moral knowledge teachings in practice. It is believed that the critical thinking skills that are revealed in individuals in parallel with the fact that matter and creation are constantly renewed depending on the flow of time will continue to renew itself in the future.

Recommendations

Based on the fact that in the curricula adopted in the Turkish-Islamic tradition and the Ottoman Empire, reading, writing and speaking practices were developed in order to ensure that the individual speaks correctly and properly before disciplining the individual's thinking, critical thinking teaching should be handled holistically in educational institutions. In today's curricula, in order for an individual to acquire the ability to think critically in curricula, it should be prioritized to reach a certain level of language skills in order to express oneself. An individual who can use spoken language with its rules will be able to bring the act of thinking to a certain stage with the contributions of philosophy and logic knowledge, and will be able to apply the systematic of critical thinking more easily. The methods of teaching critical thinking applied in the Ottoman Empire can be a guide for the development of today's Thinking Education course curriculum and textbooks.

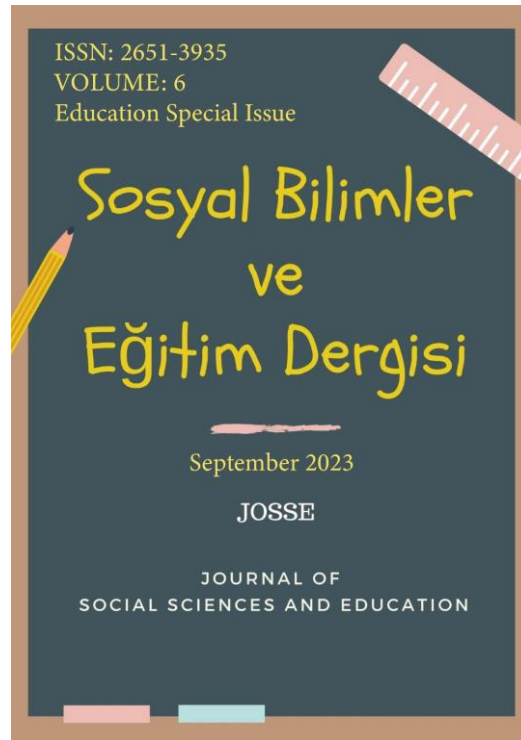
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The Relationship Between Academic Procrastination, General Procrastination and Patience: A Study on University Students*

*Article derived from the report.

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The Relationship Between Academic Procrastination, General Procrastination and Patience: A Study on University Students*

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ABSTRACT

Research Article

This research aims to reveal the nature of the relationship among university students' general procrastination, academic procrastination, and patience behaviors. In the study, the Academic Procrastination Scale (APS) and General Procrastination Scale (GPS) developed by Çakıcı (2003), the University Students' Patience Tendency Scale (USPTS) developed by Çeliköz and Gül (2018), and the "Personal Information Form" developed by the researcher were used. The data obtained were analyzed using SPSS 27.0 software. First, a normality analysis was applied, followed by the t-Test and One-Way Analysis of Variance (ANOVA). A correlational design was used in the research to determine the relationship among university students' general procrastination, academic procrastination, and patience behaviors; for the purpose of determining the effect of the patience variable on general and academic procrastination, a multiple regression analysis was used. A moderate ($r=0.616$), significant, and strong relationship was found between university students' general procrastination behaviors and academic procrastination behaviors. A negative relationship was identified between patience behaviors and both general and academic procrastination behaviors. The multiple linear regression analysis showed that academic procrastination behavior ($\beta= -.227$) had a more pronounced effect in predicting patience behavior than general procrastination behavior ($\beta= -.155$). The research found significant differences in general procrastination, academic procrastination, and patience behaviors based on the participants' gender, the university they attend, family income level, and their field of study; while similarities were identified based on age and class level.

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Introduction

All individuals exhibit tendencies to procrastinate at certain times. While some are inherently prone to constant procrastination, others show this propensity only under specific circumstances. Although procrastination is often perceived as a personality trait, a myriad of external and internal factors can contribute to this behavior (Klingsieck, 2013; Steel & Klingsieck, 2016; Van Eerde, 2003). Procrastination is defined as the deliberate delay of a task or action by an individual (Solomon & Rothblum, 1984; Steel, 2007). This can particularly result from an individual's inability to efficiently manage their activities and performance (Tuckman & Sexton, 1989). Overall, procrastination behaviors detrimentally affect an individual's work productivity and performance (Balkis & Duru, 2009). The term captures an individual's tendency to delay responsibilities, decision-making processes, or tasks they ought to fulfill (Haycock, McCarthy, & Skay, 1998). Individuals engaged in procrastination often fail to materialize the thought of performing a task, leading to the task's completion remaining theoretical. Consequently, there exists a misalignment between planned and executed behaviors (Yaraş, 2021). Characteristics of procrastination include delaying tasks perceived as significant, holding tasks off until the last moment when they ought to be completed on time, not investing enough effort into tasks, and feeling overwhelmed by these situations (Milgram, 1991). Procrastination can occasionally offer short-term benefits to individuals. The pressure from simple and mundane tasks can trigger a desire in individuals to swiftly complete the task (Van Eerde, 2003). A study by Tice and Baumeister (1997) highlighted the short-term stress-relieving effects of procrastination. However, individuals who procrastinate often make excuses for their delays, leading them to believe they control the task. Yet, these short-term benefits tend to transform into long-term detrimental effects (Akbay, 2010).

Throughout various life stages, individuals frequently delay certain responsibilities that are expected of them. Whether this procrastination behavior occurs within or outside of the educational process, it exhibits similar characteristics (Ekşi & Dilmaç, 2010). Academic procrastination is an act where students postpone their academic duties for various reasons (Akdemir, 2013). This act has two phases: the continuous postponement of tasks and the absence of anxiety as a result of this delay (Solomon & Rothblum, 1984). Essentially, this behavior stems from a lack of motivation; individuals with low motivation tend to shift their focus from primary tasks to other activities. Particularly, students often choose to utilize their

free time rather than enhance their academic performances (Franziska, Manfred, & Stefan, 2007). The university phase represents a pivotal period in which individuals prepare for their roles in the professional and societal domains. At this stage, there are numerous duties and responsibilities that fall upon students. However, many students either delay or do not completely fulfill these tasks for a variety of reasons (Güngör & Koçak, 2020). It is evident that more than 70% of university students consistently exhibit procrastination tendencies (Klingsieck, Grund, Schmid, & Fries, 2013). Academic procrastination, frequently encountered among students, can adversely influence their academic outcomes (Onwuegbuzie, 2004). This phenomenon is characterized by a student consciously delaying a task, even while aware of the potential negative repercussions (Steel, 2007). Such behavior manifests as students postponing their learning activities, which can yield detrimental effects, especially for those frequently facing deadlines (Dietz, Hofer & Fries, 2007; Tuckman, 2002). Numerous studies have identified academic procrastination as a factor that negatively impacts a student's academic success (Akpur, 2020; Daryani et al., 2021; Hayat et al., 2020; Nayak, 2019; Öztürk Başpınar, 2020; Sula Ataş & Kumcağız, 2020; Yaraş, 2021). Zacks and Hen (2018) have outlined various causes for procrastination, including negative thoughts, fear of not reaching goals, low self-esteem, and a lack of awareness. Additionally, habitual procrastination in school can lead to adverse outcomes such as stress, anxiety, poor grades, and alienation from peers. In this context, procrastination tendencies manifest in diverse forms, including deferring study sessions, leaving tasks until the last moment, neglecting critical project deadlines, and postponing administrative responsibilities related to academic life, such as failing to return library books on time or registering late for exams (Rothblum, Solomon, & Murakami, 1986; Scher & Ferrari, 2000). Academic procrastination negatively affects the learning process and its quality, resulting in delays in education. Consequently, students do not complete tasks timely and fail to meet expected performance levels in exams, thereby hindering their academic progress (Yang et al., 2019; Balkıs, 2013; Nayak, 2019; Steel, 2007).

Throughout their lives, individuals may encounter various adversities. In such instances, patience has been found to play a crucial role in alleviating negative emotional responses and overcoming potential conflicts or challenges (Kıral, 2019). The concept of patience encompasses a cognitive aspect that shapes individuals' reactions to events and people. In a psychological context, patience is categorized into two distinct sub-categories: as an internal emotion and as an outward response to adverse events (Doğan & Gülmez, 2014).

Patience denotes the act of waiting without exhibiting anxiety or anger in the face of difficulties and challenges. It is synonymous with values such as tolerance, forbearance, and anger control, often possessing an emotional dimension (Gül & Çeliköz, 2018). Patience is associated with an individual's ability to cope with life's challenges and display resilience. This trait contributes to a person's personal growth, equipping them with the strength to overcome obstacles (Peker, 2013). The challenges and barriers encountered throughout life affect an individual's life based on their perspective. The ability to overcome these challenges enhances an individual's resilience level and aids in the development of coping strategies (Tokur, 2017). Curry, Price, and Price (2008) suggest in their research that patient individuals demonstrate a more positive approach to the challenges they face compared to others. These individuals generally possess a positive perspective, with relatively reduced levels of negative thinking and anxiety. Patience is not only essential for dealing with adversities but is also crucial in achieving desired positive outcomes. It stands as a foundational factor influencing success and happiness in an individual's life (Doğan, 2017). Patience is instrumental in managing feelings of anxiety and navigating uncertain situations. In times of stress, it fosters a balance between adverse emotional responses and feelings of contentment, ensuring one remains centered and focused. Additionally, research has indicated its pivotal role in augmenting life contentment and overall well-being (Diener, Sapyta, & Suh, 1998).

Examining the relationship between university students' general and academic procrastination, as well as their patience behaviors, within the context of demographic variables, represents a significant research topic in the field of educational sciences. Such behavioral characteristics hold substantial influence over students' academic performance, motivation, and overall well-being. In particular, the potential impact of demographic variables on these behaviors aids in a deeper understanding of how individuals respond to educational processes and learning strategies. Therefore, a thorough analysis of these relationships is of critical importance to the literature, promising to contribute to the design of more effective pedagogical approaches and interventions.

Objective

The aim of this research is to examine the relationship between university students' general procrastination, academic procrastination, and patience behaviors concerning various demographic variables. With this objective in mind, the study seeks answers to the following questions:

- What is the level of relationship between university students' general procrastination, academic procrastination, and patience behaviors?
- To what extent does the patience behavior of university students affect their general procrastination and academic procrastination behaviors?
- Are there significant differences in the general procrastination, academic procrastination, and patience behaviors of university students based on demographic characteristics?

Method

This research aims to examine the relationship between university students' general procrastination, academic procrastination, and patience behaviors under various variables and to identify the current situation. Consequently, it is structured using the relational screening model from the quantitative research methods. The screening model describes precisely how we perceive a situation and includes processes about how desired behaviors will be developed in individuals. In general screening, either a whole or a subset of a large group is examined to reach a general conclusion. The relational screening model seeks to determine if there is a connection between two or more variables. In this model, how variables co-vary is investigated (Karasar, 2023). A relational (correlational) design has been used to determine the relationship between university students' general procrastination, academic procrastination, and patience behaviors. Correlation studies aim to clarify specific human behaviors by examining the simultaneous variability of multiple variables and to predict potential outcomes (Cohen, Manion & Morrison, 2000; Fraenkel & Wallen, 2009). In the research, multiple regression analysis has been employed to determine the effect of the patience variable on general procrastination and academic procrastination. Regression analysis is a comprehensive statistical method used in measuring relationships between multiple variables. This analysis examines the relationship between a dependent variable and one or more independent variables. If there is only one dependent variable in the analysis and its relationship with two or more independent variables is being examined, this situation is termed as multiple regression analysis (Büyüköztürk, 2018).

Population & Sample

The sample of this research consists of students studying in state and foundation universities in Turkey during the spring term of the 2022-2023 academic year. The sample is determined by the maximum diversity method, consisting of 345 university students. Maximum diversity sampling is used to ensure a wide range of individuals related to a problem is represented, thus capturing all possible situations even in a small sample (Yıldırım & Şimşek, 2018).

Data Collection Tools

A personal information form developed by the researcher has been used in the study to determine the demographic characteristics of the university students (gender, age, type and foundation year of the university attended, grade level, family income level). In the research, the Academic Procrastination Scale (APS) and General Procrastination Scale (GPS) developed by Çakıcı (2003) and the University Students Patience Tendency Scale (USPTS) developed by Çeliköz and Gül (2018) have been used. The General Procrastination Scale consists of 18 items from the "Procrastination" and "Effective Time Management" factors; the Academic Development Scale consists of 19 items from the "Procrastination" and "Regular Study Habit" factors; while the University Students Patience Tendency Scale comprises 21 items from the "Patience Against Intolerance", "Patience Against Hastiness", and "Patience Against Anger" factors.

Analysis of Data

In this study, during the 2022-2023 academic year spring semester, due to an earthquake in Turkey that affected 11 provinces and resulted in significant destruction, universities transitioned to remote teaching. Consequently, data were collected online adhering to the principle of voluntary participation. Participants were informed about the research through an online form and their consent was secured. During pilot applications, it was determined that the average time to complete the form was between 15-20 minutes. For data analysis, the SPSS 27 statistical software was utilized. To determine which statistical method would be used for analyzing the data, the normality of the data obtained from the data collection tools used in the research was examined. A correlational (correlation) design was employed to determine the relationship between university students' general procrastination, academic procrastination, and patience behaviors. Furthermore, multiple regression analysis

was used to determine the effect of the patience variable on general procrastination and academic procrastination. To determine the significance of differences based on data from the personal information form, independent sample t-tests, ANOVA, and Post-Hoc (LSD) tests were utilized.

Compliance with Ethical Standard

In this study, all rules were complied with within the scope of the "Higher Education Institutions Scientific Research and Publication Ethics Directive". In addition, for this study, Kırşehir Ahi Evran University Social Sciences Research and Publication Ethics Committee numbered 2023/08/08 ethics committee approval was obtained.

Findings

In this section, the results obtained from the analysis of the research data are shared.

Normality Distribution

Before proceeding to the data analysis stage of the research, analyses concerning the normality distribution of the General Procrastination Scale, Academic Procrastination Scale, and Patience Scale were conducted. The related analysis results are detailed in Table 1 below.

Table 1

Normality Distribution of the General Procrastination, Academic Procrastination, and Patience Scales

	N	\bar{X}	Median	Skewness	Kurtosis	P
General Procrastination Scale	345	2,83	2,77	,204	-,518	.00
Academic Procrastination Scale	345	2,87	2,78	,376	-,660	.00
Patience Scale	345	3,33	3,28	-,029	-,231	.03

Table 1 presents the kurtosis and skewness values for the General Procrastination Scale, Academic Procrastination Scale, and Patience Scale for university students. As Büyüköztürk (2007) pointed out, when the mode, median, and arithmetic mean have similar values, it indicates that the data follows a normal distribution. The median value for the General Procrastination Scale was found to be 2.83, with an arithmetic mean of $\bar{X} = 2.77$. For

the Academic Procrastination Scale, the median was 2.87, with $\bar{X} = 2.78$; for the Patience Scale, the median was 3.33, and $\bar{X} = 3.28$. It is noteworthy in these scales that the median and arithmetic mean values are closely aligned, suggesting that the assumption of normality is met. Büyüköztürk (2007) emphasized that for data to be considered normally distributed, the values for kurtosis and skewness should be between +1 and -1. Guided by this information, the data set was subjected to analysis, and statistical methods appropriate for normal distribution were employed in the research.

Table 2*Demographic Information of the Participants*

	Variable	Frequency (f)	Percentage (%)
Gender	Female	180	52.2
	Male	165	47.8
	Total	345	100.0
Grade Level	1st year	84	24.3
	2nd year	123	35.7
	3rd year	69	20.0
	4th year	69	20.0
	Total	345	100.0
Age	20 and below	55	15.9
	21 years old	128	37.1
	22 years old	61	17.7
	23 years old	53	15.4
	24 and above	48	13.9
	Total	345	100.0
University Attending	Public university	289	83.8
	Private university	56	16.2
	Total	345	100.0
University Establishment Year	Established 2006 and after	183	53.0
	Established before 2006	162	47.0
	Total	345	100.0
Family Income Level	1 minimum wage and below	141	40.9
	2 minimum wages	167	48.4
	3 minimum wages and above	37	10.7
	Total	345	100.0
Field of Study	Health sciences	59	17.1
	Social sciences	107	31.0
	Natural sciences	55	15.9
	Educational sciences	124	35.9
	Total	345	100.0

Table 2 provides demographic information about the participants. Accordingly, 180 of the participants (52.2%) are female and 165 (47.8%) are male. 84 participants (24.3%) are in their 1st year, 123 (35.7%) in their 2nd year, and 69 (20.0%) each in their 3rd and 4th years. In terms of age distribution, 55 participants (15.9%) are 20 or younger, 128 (34.1%) are 21

years old, 61 (17.7%) are 22 years old, 53 (15.4%) are 23 years old, and 48 (13.9%) are 24 or older. 289 participants (83.3%) are studying at public universities, while 56 (16.2%) are at private universities. When participants were analyzed based on the establishment year of the university they attend, 183 (53.0%) study at universities established in 2006 or after, while 162 (47.0%) are at universities established before 2006. As for family income distribution: 141 participants (40.9%) have family incomes of 1 minimum wage or below, 167 (48.4%) have family incomes equivalent to 2 minimum wages, and 37 (10.7%) have family incomes of 3 minimum wages or more. In terms of their fields of study, 59 participants (17.1%) are in health sciences, 107 (31.0%) in social sciences, 55 (15.9%) in natural sciences, and 124 (35.9%) in educational sciences. Upon reviewing the table, it's evident that various characteristics of the participants and their distributions based on these characteristics are clearly presented.

Pearson Correlation Analysis Findings on the Relationship Among University Students' General Procrastination, Academic Procrastination, and Patience Behaviors

To determine the relationship between university students' general procrastination behavior, academic procrastination behavior, and patience behaviors, a Pearson Correlation Analysis was employed. The findings obtained are presented in Table 3.

Table 3

Pearson Correlation Analysis on the Relationship Among University Students' General Procrastination, Academic Procrastination, and Patience Behaviors

		General Procrastination Behavior	Academic Procrastination Behavior	Patience Behavior
General Procrastination Behavior	Pearson r	1.000	.616	-.305
	p-value		.000	.000
	n		345	345
Academic Procrastination Behavior	Pearson r		1.000	-.333
	p-value			.000
	n			345
Patience Behavior	Pearson r			1.000

* Correlation is significant at $p < .05$ level.

A moderate ($r=0.616$) and significant ($p<0.05$) relationship was determined between the university students' general procrastination behaviors and academic procrastination behaviors. That is, participants' general procrastination behaviors and academic procrastination behaviors are positively correlated and increase significantly together. The variables explain 38% of the variance with each other. Hence, 38% of the academic procrastination behavior could potentially stem from the general procrastination behavior.

There is a moderate ($r=-0.305$; $r=-.333$) and significant ($p<0.05$) relationship between the university students' general procrastination behaviors and academic procrastination behaviors with their patience behaviors. Based on this finding, the patience behaviors of university students impact both general procrastination and academic procrastination behaviors in a moderate and significantly inverse manner. The variance explained between these variables is 9% and 11% respectively. That is, 9% of the General Procrastination Behavior and 11% of the Academic Procrastination Behavior may be attributable to patience behavior. There's a negative relationship between university students' patience behaviors and both general procrastination and academic procrastination behaviors.

Multiple Linear Regression Analysis Findings on the Relationship Between University Students' General Procrastination, Academic Procrastination, and Patience Behaviors

A multiple linear regression analysis was conducted to determine how patience behaviors, which are believed to influence the general procrastination and academic procrastination behaviors of university students, act as predictors. The findings are presented in Table 4.

Table 4

Multiple Linear Regression Analysis on the Relationship Among University Students' General Procrastination, Academic Procrastination, and Patience Behaviors

Variable	B	Standard Error	β	t-value	p	Bivariate r	Partial r
Intercept	5.117	.273		18.774	.000		
Academic Procrastination Behavior	-.341	.099		-3.428	.001	-.326	-.182
General Procrastination Behavior	-.284	.121		-2.345	.020	-.300	-.126
				.155			

R = .347 R² = .115 F_(2,342) = 23.403 p = 0.00

From the multiple linear regression analysis performed to determine how patience behaviors predict the influence on university students' general and academic procrastination

behaviors, a significant relationship ($R = .347$, $R^2 = .115$) has been identified between academic procrastination and general procrastination behaviors ($F_{(2,342)} = 23.403$, $p = 0.00$). The mentioned variables account for 11% of the variance in patience behaviors. Based on standardized regression coefficients, the relative importance order of predictor variables on patience behaviors is academic procrastination behavior ($\beta = -.227$) followed by general procrastination behavior ($\beta = -.155$). Considering the significance tests of the regression coefficients, both variables ($p < 0.01$) and ($p < 0.05$) are significant predictors of patience behaviors. Observing the relationship between the predictor variables and patience behaviors, correlations appear at the level of academic procrastination behavior ($r = -.326$) and general procrastination behavior ($r = -.300$).

Findings on the Differentiation of University Students' General Procrastination, Academic Procrastination, and Patience Behaviors Based on Gender

To determine whether the general procrastination, academic procrastination, and patience behaviors of university students vary according to gender, scores obtained from general procrastination, academic procrastination, and patience scales were analyzed using an independent samples t-test. The results related to this analysis are presented in Table 5.

Table 5

T-Test Results For The Differentiation of General Procrastination, Academic Procrastination, And Patience Behaviors Based On Gender

Scale	Gender	n	\bar{X}	ss	t	sd	p
General Procrastination	Male	180	2.78	.20	-4.71	343	.00*
	Female	165	2.89	.21			
Academic Procrastination	Erkek	180	2.84	.25	-2.85	343	.00*
	Kadın	165	2.92	.25			
Patience	Erkek	180	3.43	.38	5.16	343	.00*
	Kadın	165	3.22	.37			

* $p < 0.05$

It has been determined that there is a significant difference in the general procrastination, academic procrastination, and patience behaviors of the participant university students based on gender ($p < 0.05$). According to the results, female students exhibited higher general procrastination ($\bar{X} = 2.89$) and academic procrastination ($\bar{X} = 2.92$) behaviors compared to male students' general procrastination ($\bar{X} = 2.78$) and academic procrastination

(\bar{X} = 2.84) behaviors. Conversely, male students (\bar{X} = 3.43) demonstrated more patience compared to female students (\bar{X} = 3.22).

Findings on the Differentiation of University Students' General Procrastination, Academic Procrastination, and Patience Behaviors Based on Academic Year

To determine if the general procrastination, academic procrastination, and patience behaviors of university students vary according to academic year, scores obtained from the general procrastination, academic procrastination, and patience scales were analyzed using a one-way ANOVA. The results of this analysis are presented in Table 6.

Table 6

ANOVA Test Results For The Differentiation of General Procrastination, Academic Procrastination, And Patience Behaviors Based On Academic Year

Scale	Year	n	\bar{X}	SD	F	p	Source of Difference
General Procrastination	1st year	84	2.78	.24	2.52	.05	
	2nd year	123	2.85	.20			
	3rd year	69	2.82	.17			
	4th year	69	2.87	.22			
	Total	345	2.83	.21			
Academic Procrastination	1st year	84	2.85	.29	.337	.79	
	2nd year	123	2.88	.23			
	3rd year	69	2.87	.24			
	4th year	69	2.89	.28			
	Total	345	2.87	.26			
Patience	1st year	84	3.35	.41	1.02	.38	
	2nd year	123	3.28	.37			
	3rd year	69	3.37	.38			
	4th year	69	3.34	.40			
	Total	345	3.33	.39			

* $p < 0.05$

Upon examining Table 6, it has been determined that the views of student participants on general procrastination, academic procrastination, and patience behaviors do not show a significant difference based on academic year ($p > .05$). Similarly, the examination of the scales also reveals no significant difference based on academic year. These results indicate that the behaviors of general procrastination, academic procrastination, and patience among participating students are distributed homogeneously, regardless of their academic year.

Findings on the Differentiation of University Students' General Procrastination, Academic Procrastination, and Patience Behaviors Based on Age

To determine if the general procrastination, academic procrastination, and patience behaviors of university students vary according to age, scores obtained from the general procrastination, academic procrastination, and patience scales were analyzed using a one-way ANOVA. The results of this analysis are presented in Table 7.

Table 7

ANOVA Test Results For The Differentiation of General Procrastination, Academic Procrastination, And Patience Behaviors Based on Age

Scale	Age Group	n	\bar{X}	SD	F	p	Source of Difference
General Procrastination	20 and below	55	2.79	.24	1.042	.38	
	21 years old	128	2.83	.20			
	22 years old	61	2.82	.17			
	23 years old	53	2.86	.22			
	24 and above	48	2.86				
	Total	345	2.83	.21			
Academic Procrastination	20 and below	55	2.90	.29	.300	.87	
	21 years old	128	2.86	.23			
	22 years old	61	2.88	.24			
	23 years old	53	2.89	.28			
	24 and above	48	2.86				
	Total	345	2.87	.26			
Patience	20 and below	55	3.24	.41	.880	.47	
	21 years old	128	3.34	.37			
	22 years old	61	3.32	.38			
	23 years old	53	3.33	.40			
	24 and above	48	3.38				
	Total	345	3.33	.39			

* $p < 0.05$

Upon examining Table 7, it has been determined that the perspectives of student participants regarding general procrastination, academic procrastination, and patience behaviors do not show a significant difference based on age ($p > .05$). Similarly, the examination of the scales also reveals no significant variance due to age. These results indicate that the behaviors of general procrastination, academic procrastination, and patience among participating students are distributed homogeneously and are not influenced by age.

Findings on the Differentiation of University Students' General Procrastination, Academic Procrastination, and Patience Behaviors According to the University They Attend

In order to determine if the general procrastination, academic procrastination, and patience behaviors of university students vary based on the university they attend, scores

obtained from the general procrastination, academic procrastination, and patience scales were analyzed using an independent samples t-test. The results of this analysis are presented in Table 8.

Table 8

T-test Results for the Differentiation of General Procrastination, Academic Procrastination, and Patience Behaviors Based on the Attended University

Scale	Attended University	<i>n</i>	\bar{X}	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
General Procrastination	State	289	2.84	.21	-4.71	343	.03*
	Foundation	56	2.78	.19			
Academic Procrastination	State	289	2.89	.26	-2.85	343	.00*
	Foundation	56	2.77	.21			
Patience	State	289	3.32	.39	5.16	343	.92
	Foundation	56	3.33	.36			

* $p < 0.05$

It has been determined that the participating university students' general procrastination and academic procrastination behaviors show significant differences based on the university they attend ($p < 0.05$), whereas their patience behavior does not show a difference ($p > 0.05$). According to these findings, students attending state universities exhibited greater general procrastination ($\bar{X} = 2.84$) and academic procrastination ($\bar{X} = 2.89$) behaviors than students attending foundation universities, who demonstrated general procrastination ($\bar{X} = 2.78$) and academic procrastination ($\bar{X} = 2.77$) behaviors. Along with these results, it can be observed that the patience behaviors of the participating students are distributed homogeneously regardless of the university they attend.

Findings on the Differentiation of University Students' General Procrastination, Academic Procrastination, and Patience Behaviors Based on the Year of Establishment of the University They Attend

In order to ascertain whether the general procrastination, academic procrastination, and patience behaviors of university students vary depending on the year of establishment of the university they attend, scores derived from the general procrastination, academic procrastination, and patience scales were analyzed using an independent samples t-test. The outcomes of this analysis are presented in Table 9.

Table 9

T-test Results Regarding the Differentiation of General Procrastination, Academic Procrastination, and Patience Behaviors Based on the Year of Establishment of the Attended University

Scale	Year of University Establishment	n	\bar{X}	SD	t	df	p
General Procrastination	2006 and later	183	2.82	.22	-.63	343	.52
	Before 2006	162	2.84	.20			
Academic Procrastination	2006 and later	183	2.86	.26	-.82	343	.41
	Before 2006	162	2.89	.25			
Patience	2006 and later	183	3.32	.37	-.40	343	.68
	Before 2006	162	3.33	.40			

* $p < 0.05$

It has been determined that the participating university students' general procrastination, academic procrastination, and patience behaviors do not show significant differentiation based on the year of establishment of the university they attend ($p > 0.05$). These results indicate that the behaviors related to general procrastination, academic procrastination, and patience among the participants are distributed homogeneously irrespective of the year of establishment of the university they attend.

Findings on the Differentiation of University Students' General Procrastination, Academic Procrastination, and Patience Behaviors Based on Family Income Level

In order to determine whether university students' general procrastination, academic procrastination, and patience behaviors vary according to their family's income level, scores obtained from the general procrastination, academic procrastination, and patience scales were analyzed using an independent groups ANOVA. The results of this analysis are presented in Table 10.

Table 10

ANOVA Test Results Regarding the Differentiation of General Procrastination, Academic Procrastination, and Patience Behaviors Based on Family Income Level

Scale	Family Income Level	n	\bar{X}	SD	F	p	Source of Difference
General Procrastination	1 minimum wage and below	141	2.87	.20	6.77	.00*	1 minimum wage and below > 2 minimum wages
	2 minimum wages	167	2.82	.21			

	3 minimum wages and above	37	2.73	.22			wages and above
	Total	345	2.83	.21			1 minimum wage and below > 3 minimum wages and above
	1 minimum wage and below	141	2.89	.25			
Academic Procrastination	2 minimum wages	167	2.87	.26	.629	.53	
	3 minimum wages and above	37	2.84	.29			
	Total	345	2.87	.26			
	1 minimum wage and below	141	3.33	.35			
Patience	2 minimum wages	167	3.34	.40	.823	.44	
	3 minimum wages and above	37	3.25	.46			
	Total	345	3.33	.39			

* $p < 0.05$

Upon examining Table 10, it is determined that, according to the participating students' views, there is a significant difference in the general procrastination behavior based on family income level ($p < .05$). However, there was no significant difference observed regarding academic procrastination and patience behaviors based on income level ($p > .05$). LSD tests conducted to determine between which groups the general procrastination behavior varied revealed that students whose families earn 1 minimum wage and below ($\bar{X} = 2.87$) displayed more general procrastination behavior compared to those earning 2 minimum wages ($\bar{X} = 2.82$) and 3 minimum wages and above ($\bar{X} = 2.73$). Moreover, students with families earning 2 minimum wages ($\bar{X} = 2.82$) displayed more general procrastination behavior than those with incomes of 3 minimum wages and above ($\bar{X} = 2.73$). Contrarily, it was determined that participating students' academic procrastination and patience behaviors were homogeneously exhibited, irrespective of their family's income level.

Findings on the Differentiation of University Students' General Procrastination, Academic Procrastination, and Patience Behaviors Based on Their Field of Study

To determine whether university students' general procrastination, academic procrastination, and patience behaviors vary according to their field of study, scores obtained from the general procrastination, academic procrastination, and patience scales were analyzed using an independent groups ANOVA. The results of this analysis are presented in Table 11.

Table 11

ANOVA Test Results Concerning the Differentiation of General Procrastination, Academic Procrastination, and Patience Behaviors by Field of Study

Scale	Field of Study	n	\bar{X}	SD	F	p	Source of Difference
General Procrastination	Health Sciences	59	2.81	.21	1.665	.17	
	Social Sciences	107	2.85	.21			
	Natural Sciences	55	2.78	.23			
	Educational Sciences	124	2.85	.20			
	Total	345	2.83	.21			
Academic Procrastination	Health Sciences	59	2.88	.27	.305	.82	
	Social Sciences	107	2.88	.25			
	Natural Sciences	55	2.89	.26			
	Educational Sciences	124	2.86	.26			
	Total	345	2.87	.26			
Patience	Health Sciences	59	3.39	.34	3.206	.02*	Health Sciences > Natural Sciences Educational Sciences > Natural Sciences
	Social Sciences	107	3.30	.36			
	Natural Sciences	55	3.20	.43			
	Educational Sciences	124	3.37	.40			
	Total	345	3.33	.39			

* $p < 0.05$

Upon examining Table 11, it was determined that, according to the views of the participating students, there's a significant difference in patience behaviors based on their field of study ($p < .05$). However, no significant difference was observed in general procrastination and academic procrastination behaviors based on their field of study ($p > .05$). LSD tests conducted to ascertain the groups between which the patience behavior varied showed that students studying in the Health Sciences ($\bar{X} = 3.39$) exhibited more patience than those in Natural Sciences ($\bar{X} = 3.20$). Additionally, students in the Educational Sciences ($\bar{X} = 3.37$) displayed more patience compared to those in Natural Sciences ($\bar{X} = 3.20$). Conversely, it was observed that students' general procrastination and academic procrastination behaviors were consistently exhibited, regardless of their field of study.

Discussion and Results

The findings of this study indicate a significant and robust correlation between university students' general procrastination behaviors and academic procrastination behaviors. A determined correlation coefficient ($r = 0.616$) suggests a moderate and positive relationship

between these two variables. This signifies that a student's tendency to procrastinate in general life strongly aligns with their tendency to procrastinate in an academic context. The 38% shared variance between the two variables suggests that general procrastination behavior is a significant predictor of academic procrastination behavior. Moreover, there is a negative relationship between patience behaviors and both general and academic procrastination behaviors. This negative correlation implies that an increase in patient behaviors could reduce both general and academic procrastination tendencies. Patience could potentially reduce procrastination behaviors by enhancing students' resilience against present challenges and bolstering their persistence in reaching rewards. Multiple linear regression analysis indicates that academic procrastination behavior ($\beta = -.227$) has a more pronounced effect on patience than general procrastination behavior ($\beta = -.155$). This suggests that procrastination in an academic context might influence individuals' levels of patience more powerfully.

When research data is evaluated based on gender, it was found that female students exhibited more general and academic procrastination behaviors compared to male students. Additionally, male students were found to display more patient behaviors than females. These results highlight the significant influence of gender on procrastination and patience behaviors. Procrastination in academic settings is commonly observed across different educational levels and between genders (Klassen, Krawchuk, & Rajani, 2008; Klassen, 2010; Ozer & Ferrari, 2011). While Eliüşük (2014) and Karabıyık Çeri, Çavuşoğlu, and Gürol (2015) found no effect of gender on patience, Bettinger and Slonim (2007) determined that female students were more patient than males. It is observed that the foundation year of the university does not have a determinative effect on students' general procrastination, academic procrastination, and patience behaviors. This suggests that universities established at different times are homogeneous in terms of educational quality, institutional culture, and student profile with respect to these behaviors.

Neither grade level nor age had a significant impact on procrastination or patience behaviors. This suggests that university students display these behaviors similarly, regardless of their year of study or age. This could imply that individual procrastination behaviors and patience levels might be more tied to factors such as university environment, academic pressures, or social circles, rather than individual differences. Kim & Seo (2015) determined that younger university students tended to procrastinate more than their older counterparts. These findings might reflect the maturity levels of younger students and their inability to fully take responsibility for their learning processes. Such results might indicate that students are

on their path to becoming fully independent adults, but still need some support in self-managing their learning (Ferrari, 2001).

There were significant differences in procrastination behaviors among students based on the type of university they attended. Students from public universities exhibited more general and academic procrastination behaviors than those from foundation universities. This could point to potential differences in teaching methods, academic pressures, or social environments between public and foundation universities. Significant differences were also found in patience behaviors of students based on their field of study. Students studying in the fields of health sciences and educational sciences were more patient than those in the natural sciences. This suggests that specific academic disciplines might play a determining role in student behaviors, a result consistent with Kaya's (2020) findings. Ercan Gül and Çeliköz (2018) identified variations in patience behaviors among students depending on their field of study.

Income level created a significant difference in students' general procrastination behaviors. Children from families with lower income levels exhibited more general procrastination behaviors compared to those from higher income families, highlighting the potential impacts of economic challenges on student behaviors.

Recommendations

In conclusion, this study reveals a significant relationship between university students' general and academic procrastination tendencies, and that these tendencies have a distinct impact on their levels of patience. The obtained findings suggest variability in these behaviors based on demographic factors and that patience training could have a positive effect on students' procrastination behaviors. However, it is emphasized that there's a need for more comprehensive future studies to understand these findings in depth and to determine the actual impact of patience training.

Compliance with Ethical Standard

In this study, all rules were complied with within the scope of the "Higher Education Institutions Scientific Research and Publication Ethics Directive". In addition, for this study, Kırşehir Ahi Evran University Social Sciences Research and Publication Ethics Committee numbered 2023/08/08 ethics committee approval was obtained

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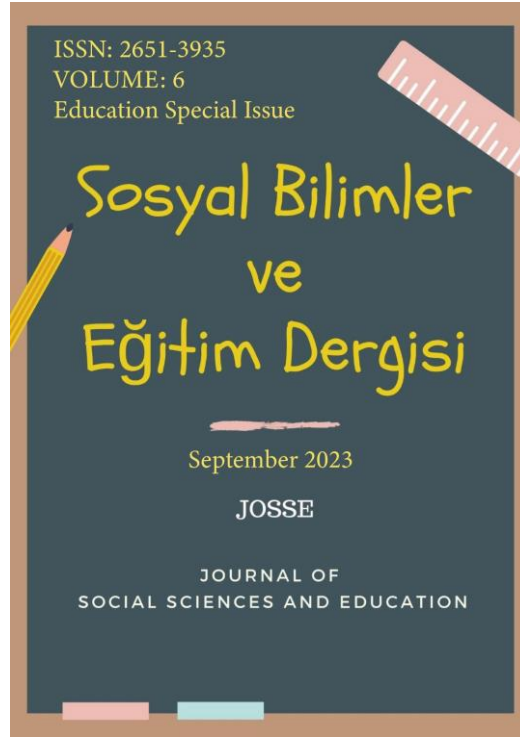
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The Effect of Fear of Missing Out and Organizational Indifference on Cyberloafing Behavior: A Study on Pre-Service Social Studies Teachers

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The Effect of Fear of Missing Out and Organizational Indifference on Cyberloafing Behavior: A Study on Pre-Service Social Studies Teachers

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ABSTRACT

Research Article

The purpose of this study is to determine the effect of fear of missing out and organizational indifference on cyberloafing behavior. For this purpose, data were collected from 167 students of Çanakkale Onsekiz Mart University, Faculty of Education, Department of Social Studies Education by convenience sampling method in the period covering February-March 2023. In the questionnaire used in the research, the fear of missing out scale developed by Przybylski (2013) and consisting of 10 statements; the organizational indifference scale developed by Fard et al. (2011) and consisting of 13 statements; and the cyberloafing scale developed by Blanchard and Henle (2008) and consisting of 20 statements were used. In the study, quantitative research correlational survey model, one of the designs, was used. T-test, ANOVA, reliability analysis, factor analysis, correlation and regression analyses were performed on the collected data. According to the results of the analysis, both fear of missing out and indifference behaviors affect cyberloafing behaviors. In addition, fear of missing out, organizational indifference and cyberloafing behaviors differ according to the gender and grade of the students. With this study, it was tried to explain from a scientific perspective the cyberloafing, fear of missing out and organizational indifference behaviors observed by academics and lecturers during teaching.

Keywords: Fear of missing out, organizational indifference, cyberloafing behavior, pre-service social studies teacher, social studies candidates

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Introduction

Since human beings are social beings, they feel the necessity to interact and communicate with others. This is a requirement of human nature. Communication has gone through various stages throughout human history. Communication environments and communication tools have been constantly updated and developed in coordination with the developing technology. With the introduction of the Internet into human life in the 1990s, there has been a great leap in communication technologies. With the use of the Internet, this technology causes behavioral changes in communication. While innovations brought to communication trigger positive effects in some areas, they cause problematic behaviors in others. Especially in the field of education and dissemination of information, developments in communication technologies have extremely important effects (Sadi et al. 2008; Göksun Orhan, 2019).

For the concept of knowledge is extremely important for human life, it is necessary to explain this concept. In Turkish Language Society Dictionary, knowledge is defined as "the truth obtained through learning, research or observation; news, information, understanding". According to another definition, knowledge is beliefs that are proven to be true (Nonaka & Takeuchi, 1995, pp. 58 as cited in Aktan & Vural, 2016). It is one of the most important facts for people to adapt to the environment they are in and to survive. Information, which is an indispensable part of life, cannot always be obtained easily. It takes many years of research, observation and experimentation to reach some information. However, considering that we are in the information age, it is only through the sharing of information that other people can use the information that other people can obtain by spending long years, labor and financial burden. At this point, the introduction of the internet into human life and the portable and easily accessible windows to the world through cell phones provide a very important convenience in terms of sharing information. Especially social media tools seem to play a very important role in the distribution of information. This situation, of course, brings along some problems. Internet addiction, social media addiction, cyberbullying, technology addiction and similar behaviors are considered problematic behaviors (Li, 2006).

Internet addiction, social media addiction, cyberbullying, technology addiction, virtual gambling, phone addiction, cyberloafing, cybercrimes and similar behaviors are described as problematic internet behaviors (Li, 2006; Tsai & Lin, 2001). The widespread use of social media applications and easy access to these applications on mobile phones have led young

people to continuously monitor and update their behavior. This behavior is called the fear of missing out (Prybylski et al. 2013).

Cyberloafing behavior is also a misuse of technology. Today, the benefits and harms of technology are still debated. While technological advances make human life easier, they also bring some harms into human life. When evaluated from an organizational point of view, while technology causes an increase in production, employees spend the time they should spend on work outside of business purposes by surfing unrelated internet pages or using social media applications during business hours. The use of the internet by employees outside of business purposes in the business means cyberloafing (Jandaghi et al. 2015). These issues mentioned for businesses have the same meanings for students at universities.

It is generally accepted that valuable resource of businesses and educational institutions is human resources. Therefore, the efficient and effective use of human resources is directly related to not wasting time. However, when employees or students spend their valuable time on social media applications, it causes loss of efficiency for the business or educational institution. Indifference is defined as a decrease in people's interest and excitement towards their environment, a decrease in their motivation, and an attempt to get rid of this feeling by those who fear that they cannot achieve their goals (Abusharbeh, 2013, pp. Esfahani et al. 2013). Indifference behavior is one of the highly inefficient behaviors and is one of the important obstacles to achieving organizational goals (Bell, 2018).

This study was conducted to examine the relationships between fear of missing out, organizational indifference and cyberloafing behavior. In the 1st part of the study consisting of 3 sections, the conceptual framework of the variables is drawn, the methodology applied in the study is given in the 2nd part of the study and in the 3rd part, the sub-problems formed regarding the collected data are tested using statistical analysis methods.

Theoretical Framework

In this section of the study, it is attempted to draw a conceptual framework for the variables of Fear of Missing out, Organizational Indifference and Cyberloafing Behavior.

Fear of Missing Out

Communication is one of the basic needs of human beings. Human beings have to communicate with other living beings in order to continue and shape their lives. In classical times, communication was realized through remote signaling, face-to-face and

correspondence, but in modern times it has been transformed through telephone, telegraph, radio and television. As a result of the development of technology and the rapid upward acceleration of modernity, today smartphones, tablets, advanced computers and the internet that connects them on a virtual network have also shaped the nature of communication. The internet, which used to be a medium for watching videos, listening to music, and visiting news sites for leisure time, has become a daily routine of all of our lives, especially with the widespread use of smartphones and social media platforms (Tanhan, Özok, & Tayiz, 2022).

Today, with almost everyone having an account on a social media platform and the increase in the time spent on these channels, the desire to deliver the content they produce to their followers and to provide instant access to the content of the people they follow has been strongly reinforced. There are many scientific studies that reveal that if the emotional need arising from this desire, which is defined as addiction, cannot be satisfied for any reason, withdrawal symptoms develop in the person (Sarıca-Keçeci, Özyirmidokuz, Özbakır, 2021; Russel, 2020; Modzeleweski, 2020...).

Modern human, who fulfills his need for communication through virtual means, has started to wonder what others share on social media platforms. The ability to satisfy curiosity with instant controls has moved people to a continuous "online" position independent of time and space. The fact that human relations have moved to virtual environments at such a high level has brought along some negativities. One of these negativities, which negatively affects people emotionally and psychologically, is the "Fear of Missing Out" (FoMO), which is known as "Fear of Missing Out" in the world literature. Briefly defined, FoMO is the negative and persistent feeling that the lives of others are better than one's own. This situation negatively affects human life. Many problems such as depression, restlessness, anxiety, stress and technology addiction can be observed in individuals who experience FoMO. (Tanhan, Özok, & Tayiz, 2022).

FoMO is defined in the Oxford English Dictionary (2023) as the anxiety of missing an exciting or interesting event shared on social media platforms. In Cambridge Dictionary (2023), FoMO is defined as the anxiety of not being informed in time about exciting events that other people participate in through social media. In Kartol and Peker (2023), FoMO is defined as the feeling of severe deprivation that individuals experience against positive experiences that occur in environments where they are not present. Finally, Pamuk (2021) defines FoMO as the state of intense anxiety caused by the enjoyable and fun experiences of other individuals in environments where the individual is not present and the

state of anxiety experienced when a person is not aware of opportunities, experiences or other satisfying experiences in social life. Thus, FoMO triggers the individual's desire to stay online in order not to miss out on what other people are doing. This can be considered as the source of our desire to browse social media platforms like Twitter, Instagram, Facebook and the others.

LinkedIn in 2003, followed by Facebook in 2004, and then social media applications such as Instagram and Tiktok, have redefined the use of the internet. Through social media applications, information has found the opportunity to be produced very quickly and distributed at the same speed. This situation leads to an increase in information density. Such a rapid distribution of information, especially among young people, causes them to exhibit the behavior of constantly monitoring and updating social media tools. This is referred to as the fear of missing out (Hato, 2013). At the same time, it brings along the sharing of information that may have false or negative effects.

The concept of fear of missing out was first used by Morford in 2010. It is defined as the fear of missing out on these posts based on the fact that people meet their need to communicate with each other through social media posts (Orhan Göksun, 2019). In cases of deterioration in relationships or lack of trust, people's anxiety increases and they turn to social media. In this period, the fear that other people are having a great time in environments that they are not involved in can be defined as the fear of missing out (Blackwell et al., 2017). This state of fear can lead to feelings of envy of other people, envying their lifestyle or feeling excluded (Hetz et al. 2015).

Organizational Indifference

Indifference is defined as "apathy" in Turkish Language Society Dictionary (TDK). Organizational indifference, on the other hand, can be expressed as a decrease in the commitment of an organizational member to both the organization and his/her duty in the organization, and showing indifference towards organizational activities (Keefe, 2003; Arda, 2022). Indifference can be defined as people's indifferent attitude towards other people or events and phenomena. Organizational indifference is a situation that manifests itself as a result of organizational members not being sufficiently satisfied with material or non-material elements (Aydoğdu, 2016). Abusharbeh (2013) defined indifference as individuals who have lost hope in achieving their goals and try to get rid of their disappointment. Esfahani et al.

(2013) defined apathy as the decrease in people's commitment, self-confidence and interest in their environment.

It is seen that the concept of indifference is examined in relation to the value theory developed by Schwartz and Abraham Maslow's hierarchy of needs theories (Arda, 2022). In the dimension of trust in the hierarchy of needs, it causes people to exhibit more timid, cautious and indecisive behaviors in situations where they do not feel safe (Aydoğdu, 2016). In the context of value theory, it is accepted that people complete their personal development within the framework of the values they have acquired from the outside world and shape their social life accordingly. Concepts such as peace, trust and loyalty should take place in people's relations with the external environment. In this context, if the level of trust is low, organizational indifference will emerge. If there is a decrease in the sense of trust that a person feels towards both himself/herself and other people, he/she may show indifference behavior (Schwartz, 1994).

It is argued that there are many organizational factors that cause indifference behavior. Some of these factors such as miscommunication, mistrust of managers and colleagues, ignorance of employees, insufficient performance-reward relationship, lack of fair wage policy, lack of importance to their opinions, authoritarian management, fear of exclusion are listed among the factors that may cause indifference (Abusharbeh, 2013). Organizational indifference is one of the unproductive work behaviors (Beheshtifar et al., 2012; Keefe, 2003) and is often explained in relation to organizational silence behavior (Beheshtifar et al., 2012). Organizational indifference causes many negative situations such as not taking responsibility, avoiding work, not showing organizational citizenship behavior, showing organizational silence behavior, increase in employee turnover, decrease in productivity, decrease in organizational commitment.

Cyberloafing Behavior

Cyberloafing behavior means that individuals spend time using the internet or mobile phones in their workplaces and educational institutions, using social media tools in a way that is not related to work (Blanchard & Henle, 2008; Vitak et al., 2011; Kim & Byrne, 2011). Although it has been possible to prevent employees from spending time on various sites that are not related to their work by using some limitation programs on access to the internet in business environments, this opportunity has disappeared for employers since it is now possible to access the internet from smart mobile phones. This applies not only to employees

but also to every individual who must act within certain rules. In schools, students or teachers are subject to the same situation. Employees watching movies or music on various websites during working hours, students' watching movies or music during class hours, or exchanging messages with their friends through social media tools cause inefficient consumption of the time they should spend on their jobs or tasks (Lim, 2002; Varoğlu and Sıgır 2013). Cyberloafing behavior can be described as accessing the internet with the tools owned by both the organization and individuals and spending time in this environment (Kaplan & Öğüt, 2012). When the literature is examined, it is seen that there are studies examining cyberloafing behaviors in two dimensions as important and unimportant (Robinson & Bennett, 1995; Blanchard & Henle, 2008); examining cyberloafing behavior in two dimensions as e-mail activities and web activities (Lim, 2002) and examining cyberloafing behavior in three dimensions as damaging, leisure-filling and instructive (Anandarajan et al. 2004).

Based on the studies on cyberloafing, it is seen that some of the researchers think that cyberloafing behavior is an extremely negative and productivity-reducing behavior (Jandaghi et al., 2015; Kim et al., 2015; O'Neill et al., 2014; Ugrin & Pearson, 2013; Vitak et al., 2011). On the other hand, some researchers think that cyberloafing behavior is a behavior that can increase productivity and have positive results if used appropriately (Köse et al., 2012; Blanchard & Henle, 2008; Anandarajan et al., 2004; Greenfield & Davis, 2002). In addition, there are also scholars who do not fully adopt both views (Fathonah & Hartijasti, 2014; Lim & Chen, 2012).

Literature on Variables

When the related literature is examined according to the age of employees, it is found that young employees show more cyberloafing behavior than older employees (O'Neil et al. 2014); when examined according to gender, it is found that men show more cyberloafing behavior than women (Fallows, 2005; Teo & Lim, 2000; Vitak et al. 2011; O'Neil et al. 2014). In studies examining cyberloafing behavior according to education level, it is seen that employees with higher education level show more cyberloafing behavior than those with lower education level; however, individuals with higher income level and status in the workplace show more cyberloafing behavior than those with low income and low status (Garret & Danziger, 2008).

Andersan et al. (2014) found that in terms of marital status; singles exhibit more cyberloafing behavior than married people, according to gender; men exhibit more cyberloafing behavior than women, according to education level; those with higher education level exhibit more cyberloafing behavior than those with lower education level. Özkalp et al. (2012) found that more cyberloafing behavior is exhibited in the public sector than in the private sector. Köse et al. (2012) found that in a business environment such as a university, the internet is generally used by academic staff for social media. Örücü and Yıldız (2014) found in their study that single people show more cyberloafing behavior than married people, those with higher education level than those with lower education level, younger people than older people, and those with higher income level than those with lower income level.

There are not enough studies in the literature examining the relationship between fear of missing out and demographic characteristics. Gezgin et al. (2017), in their study on teachers, found that teachers have a moderate level of fear of missing out, male teachers feel more fear of missing out than female teachers, and young teachers feel more fear of missing out than older teachers. Hoşgör et al. (2017) conducted a study on university students and found that students who do not keep their cell phone chargers with them and are constantly busy with their phones experience more fear of missing out. Aydoğdu and Çakıcı (2018) examined the indifference status of employees according to their gender, sector of employment and educational attainment and found that there was no difference. When the related literature is examined, there are many studies that have found a positive relationship between cyberloafing behavior and fear of missing out (Tozkoparan & Kuzu, 2019; Özcan, 2019; Gezgin et al., 2017; Hoşgör et al., 2017; Blackwell et al., 2017; Przybylski et al., 2013).

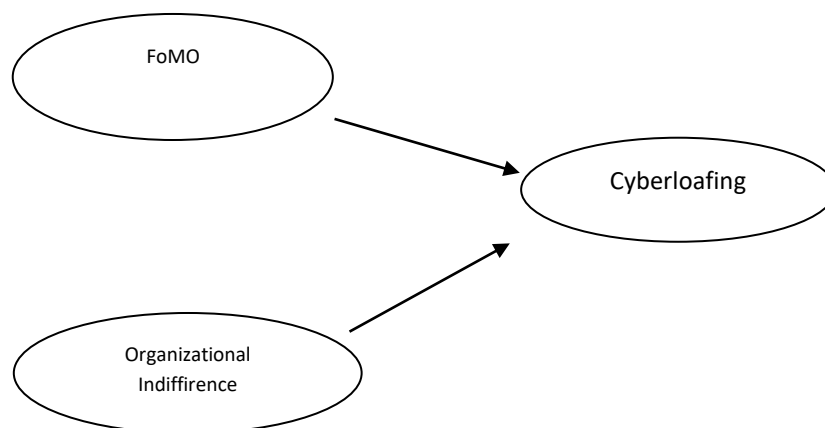
With this study, it was tried to explain from a scientific perspective the cyberloafing, fear of missing out and organizational indifference behaviors observed by academics during teachingment. The main purpose of the study is to make such negative behaviors visible academically in the process of teachers education, to take measures to reduce these behaviors and to make various suggestions.

Method

Model

Figure I

Research Model



The purpose of this study is to examine the effect of fear of missing out and organizational indifference on cyberloafing behavior. For this purpose, data were collected from Çanakkale Onsekiz Mart University, Faculty of Education, Social Studies Education students through questionnaire method. In the research, quantitative research correlational survey model, one of the designs, was used. The survey model is based on quantitatively analyze the universe through research conducted on a sample selected from the universe description. Correlational research is the study of it tries to find out to what extent there is a type or types. In this approach the application of the tools necessary for the researcher to collect the desired data other than the process. In studies using the relational survey model, the relationship between two or more variables relationship is aimed to be determined Yetgin, 2020). It is assumed that the participants answered the statements in the questionnaire sincerely. It is assumed that the scales in the questionnaire are sufficient for the variables to be measured.

Limitations of This Study

The number of participants was 167. The research is limited to the scales used. Time and cost factors are also limitations of this study as in every study.

Data Collection Techniques

Based on the literature review, the fear of missing out scale consisting of 10 statements developed by Przybylski (2013) and adapted to Turkish by Gökler et al. (2016), the organizational apathy scale consisting of 13 statements developed by Fard et al. (2011) and adapted to Turkish by Şencan (2020), and the cyberloafing scale consisting of 20 statements developed by Blanchard and Henle (2008) were used.

The scales used in the study are 5-point Likert-type scales and are graded as "strongly disagree 1; disagree 2; neutral 3; agree 4; strongly agree 5".

Sub-Problems of the Research

Based on the literature review, the following sub-problems were formulated.

SP1: Does cyberloafing behavior differ according to the gender of the students?

SP2: Does organizational indifference behavior differ according to the gender of the students?

SP3: Does fear of missing out differ according to the gender of the students?

SP4: Does cyberloafing behavior differ according to the class of the students?

SP5: Does organizational indifference behavior differ according to the class of the students?

SP6: Does fear of missing out differs according to the class of the students?

SP7: Fear of missing out affects cyberloafing behaviors.

SP8: Organizational indifference behavior affects cyberloafing behaviors.

The research model used in this study was constructed as shown in Figure I.

Compliance with Ethical Standard

The study was ethically approved by the decision of Çanakkale Onsekiz Mart University School of Graduate Studies Scientific Research Ethics Committee dated 30.03.2023 and numbered 04/72.

Findings

Demographic Findings

Table 1 presents the demographic characteristics of the participants.

Table 1

Demographic Characteristics

		N	%			N	%
Gender	Male	47	28,1	Classroom	Class 1	40	24,0
	Woman	120	71,9		Grade 2	45	26,9
					Grade 3	52	31,1
					Grade 4	30	18,0
Total	167	100	Total	167	100		

Source: (Prepared by the researchers)

According to Table 1, 28.1% of the participants were male and 71.9% were female. 24% of the participants were 1st grade students, 26.9% were 2nd grade students, 31.1% were 3rd grade students and 18% were 4th grade students.

Table 2

Gender and Class Comparison (crosstabulation)

		Classroom				Total
		1st grd	2nd grd	3rd grd	4th grd	
Gender	Male	15	10	8	14	47
	%	31,9	21,3	17,0	29,8	100,
	Woman	25	35	44	16	120
	%	20,8	29,2	36,7	13,3	100
	Total	40	45	52	30	167
	Total %	24,0	26,9	31,1	18,0	100

The comparison table shows the grades of the participants according to their gender.

Normality Tests

It is desirable for statistical tests to be parametric tests in terms of the reliability and generalizability of the research data, and in parametric tests, the data must be at least interval (can also be ratio) and normally distributed (Can, 2018). Whether the normal distribution condition is met can be tested with several different methods, and in this study, the normal distribution condition was examined within the scope of the Kolmogorov-Smirnov test, skewness and kurtosis values and the central limit theorem.

Table 3

Normal Distribution

	Kolmogorov-Smirnov^a				
	a. Lilliefors Significance Correction				
	Statistics	df	P	Skewness	Kurtosis
Cyberloafing	,064	167	,097	-,117	1,043
Indifference Behavior	,064	167	,092	,379	,416
Fear of Missing Out	,096	167	,001	,046	,769

Normal distribution condition is a prerequisite for all parametric tests (Altunışık et al., 2012). According to the results of the analysis, it is seen that the variables meet the normal distribution condition. In addition, "According to the central limit theorem, regardless of the main mass distributions, if the sample volume is large enough ($n \geq 30$), the sampling distribution of sample averages conforms to the normal distribution" (Ak, 2004). In this respect, it is seen that the data conform to the normal distribution condition and parametric tests can be performed.

Reliability Analysis

If the Cronbach's Alpha coefficient calculated to determine the reliability level of the scales is between 0.60 and 0.80, the scale used is quite reliable (Kalaycı, 2014, pp. 405).

Table 4

Reliability Analysis

Scales	Number of Articles	Cronbach's Alpha Coefficient
Cyberloafing	20	,803
Indifference Behavior	13	,758
Fear of missing out	10	,798

The results of the reliability analysis are shown in Table 4. According to the results given in Table 4, the reliability of all scales used in the study is high.

Validity Analyses

Table 5

Validity Analyses

		Cyberloafing Behaviors	Indifference Behaviors	FoMO
Kaiser-Meyer Olkin Test		,718	,856	,743
Bartlett's Test of Sphericity	Chi- Square	1146,861	916,972	587,886
	df	190	78	45
	P	,000	,000	,000

The results of the sample size validity analysis for the variables are shown in Table 5. According to the table, the sample size of the scales used in the study is sufficient. The KMO value for the Cyberloafing Behaviors scale was found to be ,718 ($p < ,05$); the KMO value for the Indifference Behavior scale was found to be ,856 ($p < ,05$) and the KMO value for the Fear of Missing out scale was found to be ,743 ($p < ,05$).

Factor Analysis

Factor analysis is "a multivariate analysis technique used to understand the underlying relationship structure of a data matrix" (Hair, Anderson, Tatham, & Black, 1998 as cited in

Yücekaya 2017, pp. 101). In order to understand whether the data set is suitable for factor analysis, three different methods are used: creating the correlation matrix, Kaiser-Meyer-Olkin (KMO) test and Barlett test. The first process is to create the correlation matrix (Işık, 2013). The second process is the Barlett test and the last process for determining factor analysis suitability is the KMO adequacy test (Kalaycı, 2014). KMO value $>.70$ means good; KMO value $>.80$ means very good (Sharma, 1996, pp. 116).

Factor Analysis of the Cyberloafing Scale

Table 6

Factor Analysis of Cyberloafing Behavior

Factors	Statements	Self-value	Factor loading	% variance
Factor 1	CB 12	22,447	,795	22,447
	CB 8		,784	
	CB 6		,560	
	CB 3		,490	
Factor 2	CB 15	13,646	,818	36,093
	CB 16		,772	
	CB 14		,723	
Factor 3	CB 7	9,073	,878	45,165
	CB 4		,763	
	CB 5		,567	
Factor 4	CB 19	6,659	,839	51,824
	CB 9		,617	
	CB 13		,609	
Factor 5	CB 2	6,427	,808	58,251
	CB 1		,755	
	CB 20		,536	
Factor 6	CB 10	5,870	,842	64,121
	CB 11		,653	
	Factor 7	CB 17	5,345	

As a result of the factor analysis, CB was obtained as 7 factors. Factor loadings are shown in Table 6. CB consists of 7 factors and the total variance explained was 69,466.

Organizational Indiffirence Factor Analysis

Table 7

Organizational Indiffirence Factor Analysis

Factors	Statements	Self-value	Factor loading	% variance
Factor 1	OI 9	41,353	,810	41,353
	OI 12		,767	
	OI 10		,737	
	OI 11		,734	
Factor 2	OI 5	11,042	-,725	52,394
	OI 2		,693	
	OI 8		,632	
	OI 1		,591	
	OI 13		-,488	
Factor 3	OI 6	8,592	,744	60,986
	OI 7		,741	
	OI 4		,652	
	OI 3		,610	

As a result of the factor analysis, 3 factors were obtained. Factor loadings are shown in Table 7. OI consists of 3 factors and the total variance explained was 60,986.

Fear of Missing out Factor Analysis

Table 8

Factor Analysis of Fear of Missing Out

Factors	Statements	Self-value	Factor loading	% variance
Factor 1	FoMO 5	35,779	,750	35,779
	FoMO 3		,695	
	FoMO 6		,601	
	FoMO 4		,590	
	FoMO 9		,493	
Factor 2	FoMO 2	18,833	,902	54,612
	FoMO 1		,897	
Factor 3	FoMO 10	10,136	,820	64,748
	FoMO 8		,729	
	FoMO 7		,663	

As a result of the factor analysis, 3 factors were obtained. Factor loadings are shown in Table 8. FoMO consists of 3 factors and the total variance explained was 60,748.

Sub-Problems Tests

Table 9

T-Test

Groups	N	□	SS	sd	t	p
Male	47	3,47	,606	165	,614	0,0001
Woman	120	3,13	,508			

Table 9 shows the results of the analysis conducted to test whether the cyberloafing behaviors differ according to gender. According to the results of the analysis, there is a

statistically significant difference in cyberloafing behaviors according to the gender of the students. It was found that male students showed higher cyberloafing behavior than female students ($\square=3,47$ and $p<0,01$). Based on these findings, the sub-problem "SP1: Does cyberloafing behavior differ according to the gender of the students?" is accepted.

Table 10

T-Test

Groups	N	\square	SS	sd	t	p
Male	47	2,90	,605	165	3,385	0,0001
Woman	120	2,58	,516			

The results of the analysis conducted to test whether indifference behaviors differ according to gender are shown in Table 10. According to the results of the analysis, there is a statistically significant difference in indifference behaviors of students according to their gender. It was found that male gender students showed higher indifference behavior than female gender students ($\square=2,90$ and $p<0,01$). Based on these findings, the sub-problem "SP2: Does organizational indifference behavior differ according to students' gender?" is accepted.

Table 11

T-Test

Groups	N	\square	SS	sd	t	p
Male	47	2,82	,751	165	-1,468	,144
Woman	120	2,99	,651			

Table 11 shows the results of the analysis conducted to test whether the fear of missing out behaviors differ according to gender. According to the results of the analysis, there is a statistically significant difference in students' fear of missing out behaviors according to their gender. It was found that female gender students showed higher fear of missing out behavior than male gender students ($\square=2,99$ and $p<0,01$). Based on these

findings, the sub-problem "SP3: Does fear of missing out differ according to the gender of the students?" is accepted.

ANOVA Findings

Table 12

ANOVA Test

ANOVA							
Cyberloafing							
		Sum of Squares	df	Mean Square	F	P	
	Between groups	2,878	3	,959	3,228	,024	
	Within groups	48,445	163	,297			
	Total	51,324	166				
Multiple Comparison							
Dependent Variable Cyberloafing							
	(I) Class	(J) Class	Mean Difference (I-J)	Std. Error	P	95% Confidence Interval Lower Limit Upper limit	
Tukey HSD	1 st grade	2nd grade	,188	,118	,390	-,12	,50
		3rd grade	-,122	,115	,711	-,42	,18
		4th grade	-,134	,132	,740	-,48	,21
	2nd grade	1st grade	-,188	,118	,390	-,50	,12
		3rd grade	-,310*	,111	,030	-,60	-,02
		4th grade	-,322	,128	,063	-,66	,01
	3rd grade	1st grade	,122	,115	,711	-,18	,42
		2nd grade	,310*	,111	,030	,02	,60
		4th grade	-,012	,125	1,000	-,34	,31
	4th grade	1st grade	,134	,132	,740	-,21	,48
		2nd grade	,322	,128	,063	-,01	,66
		3rd grade	,012	,125	1,000	-,31	,34

*. P< 0.05

As a result of the ANOVA analysis conducted to understand whether there is a difference between the cyberloafing behaviors of the 167 students who participated in the survey and collected data from different 4 classes of Çanakkale 18 Mart University according to their classes, it was determined that there was a statistically significant difference between the average of 2-year students (\bar{X} 2nd grade=3.03) and 3-year students (\bar{X} 3rd grade=3.34) ($F(3-163) = 3.228, p < 0.05$). The effect size calculated as a result of the test ($\eta^2 = (2,82/51,324) = 0,054$) shows that this difference is at a moderate level. As a result of the Tukey multiple comparison test, it was seen that the significant difference was between 2nd and 3rd grade students. Based on these findings, the sub-problem "SP4: Does cyberloafing behavior differ according to the class of the students?" is accepted.

Table 13

ANOVA Test

ANOVA						
Organization Indifference						
	Sum of Squares	df	Mean Square	F	P	
Between groups	2,440	3	,813	2,685	,048	
Within groups	49,380	163	,303			
Total	51,819	166				
Multiple Comparison						
Dependent Variable OI						
Tukey HSD						
(I) Class	(J) Class	Mean Difference (I-J)	Std. Error	P	95% Confidence Interval	
					Lower limit	Upper limit
1st grade	2nd grade	-,142	,120	,635	-,45	,17
	3rd grade	-,299	,116	,050	-,60	,00
	4th grade	-,287	,133	,140	-,63	,06
2nd grade	1st grade	,142	,120	,635	-,17	,45
	3rd grade	-,157	,112	,499	-,45	,13
	4th grade	-,144	,130	,682	-,48	,19
3rd grade	1st grade	,299	,116	,050	,00	,60
	2nd grade	,157	,112	,499	-,13	,45
	4th grade	,013	,126	1,000	-,31	,34
4th grade	1st grade	,287	,133	,140	-,06	,63
	2nd grade	,144	,130	,682	-,19	,48
	3rd grade	-,013	,126	1,000	-,34	,31

*. $P < 0.05$

As a result of the ANOVA analysis conducted to understand whether there is a difference between the indifference behaviors of the 167 students who participated in the survey and collected data from different 4 classes of Çanakkale 18 Mart University according to their classes, it was determined that there was a statistically significant difference between the average of 1st year students (\bar{x} 1st grade=2.49) and the average of 3rd year students (\bar{x} 3rd grade=2.79) ($F(3-163) = 2.685, p < 0.05$). The effect size calculated as a result of the test ($\eta^2 = (2,44/51,819) = 0,047$) shows that this difference is at a moderate level. As a result of the Tukey multiple comparison test, it was seen that the significant difference was between 1st and 3rd grade students. Based on these findings, the sub-problem "SP5: Does organizational indifference behavior differ according to the class of the students?" is accepted.

Table 14

ANOVA Test

ANOVA					
FoMO					
	Sum of Squares	df	Mean Square	F	P
Between groups	5,087	3	1,696	3,820	,011
Within groups	72,339	163	,444		
Total	77,425	166			

Multiple Comparison

Dependent Variable: FoMO

Tukey HSD

(I) Class	(J) Class	Mean Difference			95% Confidence Interval	
		(I-J)	Std. Error	P	Lower limit	Upper limit
1st grade	2nd grade	,393*	,145	,037	,02	,77
	3rd grade	,063	,140	,970	-,30	,43
	4th grade	,368	,161	,106	-,05	,79
2nd grade	1st grade	-,393*	,145	,037	-,77	-,02
	3rd grade	-,330	,136	,074	-,68	,02
	4th grade	-,025	,157	,998	-,43	,38
3rd grade	1st grade	-,063	,140	,970	-,43	,30
	2nd grade	,330	,136	,074	-,02	,68
	4th grade	,305	,153	,193	-,09	,70
4th grade	1st grade	-,368	,161	,106	-,79	,05

2nd grade	,025	,157	,998	-,38	,43
3rd grade	-,305	,153	,193	-,70	,09

*. P< 0.05

As a result of the ANOVA analysis conducted to understand whether there is a difference between the fear of missing the developments according to the classes of the 167 students who participated in the survey and collected data from different 4 classes of Çanakkale 18 Mart University, it was determined that there was a statistically significant difference between the average of 1st year students (\square 1st grade=3,14) and the average of 2nd year students (\square 2nd grade=2,74) ($F(3-163) = 3,82, p < 0,05$). The effect size calculated as a result of the test ($\eta^2 = (5,87/77,425) = 0,075$) shows that this difference is at a moderate level. As a result of the Tukey multiple comparison test, it was seen that the significant difference was between 1st and 3rd grade students. Based on these findings, the sub-problem "SP6: Does fear of missing out on developments differ according to the grade of the students?" is accepted.

Correlation Analysis

Correlation analysis is a statistical method that reveals the direction, degree and importance of the relationship between variables. The coefficient that determines the direction and degree of the relationship is called the correlation coefficient and is denoted by r (Kalaycı, 2014, pp.115). This coefficient takes values between -1 and +1. If the correlation coefficient takes values close to -1, it is determined that there is a negative relationship between variables; if it takes values close to plus 1, it is determined that there is a positive relationship between variables (Tutar and Erdem 2020, pp. 510). The closer the correlation coefficient is to plus minus 1, the more or stronger the relationship between the variables (Can 2018, pp.367).

Table 15

Correlation Analysis

		Cyberloafing	Organization Indifference	FoMO
Cyberloafing	Pearson Correlation	1	,162*	,231**
	P (2-tailed)		,037	,003
	N	167	167	167

Organization Indiffirence	Pearson Correlation	,162*	1	,099
	P (2-tailed)	,037		,205
	N	167	167	167
FoMO	Pearson Correlation	,231**	,099	1
	P (2-tailed)	,003	,205	
	N	167	167	167

*. P< 0.05 **. P<.01

According to the results of the correlation analysis given in Table 15, a very weak relationship of ,162 was observed between CB and OI and a weak relationship of ,231 was observed between CB and FoMO. However, there is no statistically significant relationship between FoMO and OI.

Regression Analysis

Regression analysis is defined as "the process of explaining the relationships between a dependent variable and an independent (simple regression) or more than one independent (multiple regression) variable with a mathematical equation" (Küçüksille, 2014).

Table 17

Regression Analysis Table For Fear of Missing Out and Cyberloafing

Independent Variable	Dependent Variable	Adj.R²	B	Std.Error	t	P	β	F
FoMO	CB	,048	,188	,062	3,049	,003	,231	9,295

As a result of the simple linear regression analysis conducted to reveal the effect of fear of missing out on cyberloafing behaviors, a significant relationship was observed between fear of missing out and cyberloafing behaviors (R=.231 and R²=0.048), and fear of missing out was found to be a significant predictor of cyberloafing behavior (F(1-166) =9.295, p< 0.05). Fear of missing out explains 18.8% of the change in cyberloafing behavior. The significance test of the coefficient of the main predictor variable of the regression equation B=0.231 also shows that fear of missing out is a significant predictor (p<.005).

According to the results of the regression analysis, the regression equation predicting virtual logging behavior is as follows: $VDR = 0.188 \times FoMO + 2,674$. Based on these findings, the sub-problem "SP7: Fear of missing out affects cyberloafing behaviors" is accepted.

Discussion and Results

The purpose of this study is to examine the relationships between fear of missing out, cyberloafing behavior and organizational indifference. The research was conducted due to the fact that technology is taking more and more place in human life. As a result of the positive impact of technological advances on production activities, the amount of production has increased and human labor has been replaced by advanced technological machines. Although the importance of technological advances is undeniable, the most important factor of production is still human. This is because the capacities of machinery, vehicles, tools and equipment are limited due to the fact that they are manufactured. However, human capacity can be continuously increased through training, and in parallel, it is possible to increase their efficiency and productivity by increasing their motivation. Technological innovations have caused a great change, especially in terms of communication with other people.

With the use of the Internet, the concept of distance has disappeared from human life and the world has turned into a global village. However, the fact that the internet has become much more easily accessible through mobile phones has both facilitated access to information and made it a medium through which people carry out leisure activities. Especially with social media tools, people have had the opportunity to constantly interact with other people. At this point, it is seen that people spend the time they need to spend for production activities in schools, factories or businesses for social media, virtual gambling and similar activities due to their easy access to the internet, which can lead to both a decrease in production and a decrease in productivity. Therefore, cyberloafing behaviors are extremely important in terms of productivity and efficiency.

Fear of missing out and indifference behaviors are related concepts with cyberloafing behavior. Whether these variables differ according to people's demographic characteristics is important for business owners, managers and educational institutions. In addition, it is also important to reveal the relationships between cyberloafing behavior, fear of missing out and indifference behaviors through statistical analysis.

The sub-problems tested within the scope of the research and the sub-problems test results are shown in Table 19.

Table 19

Sub-Problems Results

Sub-Problems	Acceptance	Reject
SP1: Does cyberloafing behavior differs according to gender?	Acceptance	
SP2: Does organizational indifference behavior differ according to gender?	Acceptance	
SP3: Does fear of missing out differ by gender?	Acceptance	
SP4: Does cyberloafing behavior differ according to the class of the students?	Acceptance	
SP5: Does organizational indifference behavior differ according to the class of the students?	Acceptance	
SP6: Does fear of missing out differ according to the class of the students?	Acceptance	
SP7: Fear of missing out affects cyberloafing behaviors.	Acceptance	
SP8: Organizational indifference behavior affects cyberloafing behaviors.	Acceptance	

In this study, as a result of the analysis conducted to test whether cyberloafing behaviors differ according to gender, it was found that there was a statistically significant difference in cyberloafing behaviors according to the gender of the students and that male students showed higher cyberloafing behaviors than female students ($\square=3.47$ and $p<0.01$). This result is consistent with previous studies (Fallows, 2005; Teo & Lim, 2000; Vitak et al. 2011; O'Neil et al. 2014).

As a result of the analysis conducted to test whether indifference behaviors differ according to gender, it was found that there was a statistically significant difference in indifference behaviors according to the gender of the students and that male students showed higher indifference behaviors than female students ($\square=2.90$ and $p<0.01$). This result differs from the study of Aydođdu and Çakıcı (2018).

Another outcome conducted to test whether the fear of missing out behaviors differed according to gender, it was found that there was a statistically significant difference in the fear of missing out behaviors according to the gender of the students and that female students

showed higher fear of missing out behaviors than male students ($\eta^2=2.99$ and $p<0.01$). This result is a contrasting finding with Gezgin et al. (2017).

As a result of the ANOVA analysis conducted to test whether the cyberloafing behaviors differed according to the class of the students, it was determined that there was a statistically significant difference between the mean of 2 class students (η^2 2nd grade=3,03) and the mean of 3 class students (η^2 3rd grade=3,34) ($F(3-163) =3.228$, $p<0,05$). The effect size calculated as a result of the test ($\eta^2 = (2,82/51,324)=0,054$) shows that this difference is at a moderate level. It was found that 3rd grade students exhibited more cyberloafing behaviors than 2nd grade students.

Another consequence of the ANOVA analysis conducted to test whether indifference behaviors differed according to the grade of the students, it was determined that there was a statistically significant difference between the mean of 1st grade students (η^2 1st grade=2.49) and the mean of 3rd grade students (η^2 3rd grade=2.79) ($F(3-163) =2,685$, $p<0,05$). The effect size calculated as a result of the test ($\eta^2 = (2,44/51,819)=0,047$) shows that this difference is at a moderate level. It was found that 3rd grade students exhibited more indifference behavior than 1st grade students.

The last result of the ANOVA analysis conducted to test whether the fear of missing out on developments differed according to the grade of the students, it was determined that there was a statistically significant difference between the mean of the 1st grade students (η^2 1st grade=3,14) and the mean of the 2nd grade students (η^2 2nd grade=2,74) ($F(3-163)=3,82$, $p<0,05$). The effect size calculated as a result of the test ($\eta^2 = (5,87/77,425)=0,075$) shows that this difference is at a moderate level. It was found that 1st grade students exhibited more fear of missing the developments behavior than 2nd grade students.

According to the results of the correlation analysis conducted to determine the relationship between the variables used in this study, it was concluded that there is a relationship between cyberloafing behavior and both fear of missing out ($R=,231$; $P<0.05$) and indifference behavior ($R=,162$; $P<0.05$). This result is consistent with previous studies (Tozkoparan & Kuzu, 2019; Özcan, 2019; Gezgin et al., 2017; Hoşgör et al., 2017; Blackwell et al., 2017; Przybylski et al., 2013).

As a result of the simple linear regression analysis conducted to reveal the effect of fear of missing out on cyberloafing behaviors, a significant relationship was observed between fear of missing out and cyberloafing behaviors ($R=,231$ and $R^2=0.048$), and fear of missing out was found to be a significant predictor of cyberloafing behavior ($F(1-166)=9.295$,

$p < 0.05$). Fear of missing out explains 18.8% of the change in cyberloafing behavior. The significance test of the coefficient of the main predictor variable of the regression equation $B = 0.231$ also shows that fear of missing out is a significant predictor ($p < 0.003$).

Consequence of the simple linear regression analysis conducted to reveal the effect of indifference behavior on cyberloafing behaviors, a significant relationship was observed between indifference behavior and cyberloafing behaviors ($R = .162$ and $R^2 = 0.02$), and fear of missing out was found to be a significant predictor of cyberloafing behavior ($F(1-166) = 4,422$, $p < 0.05$). Fear of missing out explains 16.2% of the change in cyberloafing behavior. The significance test of the coefficient of the main predictor variable of the regression equation $B = 0.161$ also shows that the fear of missing out is a significant predictor ($p < 0.05$).

Recommendations

Our suggestion for the future researches is to conduct studies in which concepts such as organizational justice and organizational commitment, which may be antecedents of cyberloafing behavior, can be examined together in order to prevent cyberloafing behavior.

Measures should be taken to strengthen the institutional belonging of pre-service teachers. For this purpose, universities, faculties of education, departments and academics can implement theoretical and practical applications that will attract the interest of pre-service teachers. Since this is also a form of behavior that requires sacrifice, those involved should not hesitate to make sacrifices.

Awareness trainings, technology trainings and addiction trainings, especially focusing on social media addiction, can be provided to increase the level of awareness of pre-service teachers who are fear of missing out and engage in cyberloafing behaviors and to support them to ensure self-control.

Considering the disruptive effect of the Internet and social media on concentration and focus, guidance services and psychological support units can be put into operation to help pre-service teachers regulate their behaviors or lifestyles that negatively affect their focus.

Compliance with Ethical Standard

The study was ethically approved by the decision of Çanakkale Onsekiz Mart University School of Graduate Studies Scientific Research Ethics Committee dated 30.03.2023 and numbered 04/72.

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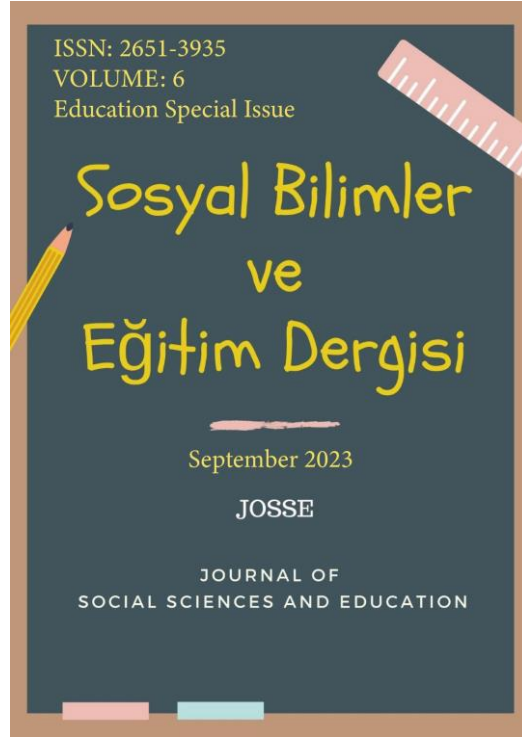
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Evaluation of II. Abdulhamid and his Period in Terms of Political Geography

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Evaluation of II. Abdulhamid and his Period in Terms of Political Geography

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ABSTRACT

Research Article

Political Geography is a branch of science that has started to make a name for itself, especially in the last years of the 19th century all over the world. Ottoman Sultan II. Abdulhamid Khan was the leading actor of the world political scene in those years. He was an important personage influencing world politics in the years when such a science emerged. Examining the II. Abdulhamid period will certainly attract attention. Socio-cultural power, which has an important place in political geography, the characteristics of the human who make up a nation are the power formed by educated people equipped with technical knowledge. In a sense, it means that the citizens of the state are well educated from the lowest level to the person who governs the state. From this point of view, Sultan II. Abdulhamid Han was a very perfect carpenter. He also used this carpentry profession in state administration. Because the job of the carpenter is to create perfect furniture sets from raw wood. While governing his state, he showed the whole world that the Ottoman Empire was not destroyed by correcting the unsound parts of the state. After he was dethroned, the collapse of the state accelerated, and those who dethroned him desired for him to come back to power.

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Introduction

The word of “political” is of Arabic origin and it means political, statesmanship. This can be explained as a unique perspective and mentality of the art of regulating and conducting the wheels of government.

Geography, it is a science that investigates the distribution of natural, human and economic affairs on the whole or a part of the earth, the relations between them, their reasons and consequences. From this line of vision, Political Geography is a science that determines a distinctive perspective or mentality about the art of regulating and conducting state affairs by investigating the distribution of natural, human and economic affairs, their relations, causes and results in the whole world or in a region or country (Özey & Kocalar, 2019).

If an affair or issue is to be discussed from in terms of Political Geography, definitely the geographical factors affecting this affair or issue should be evaluated. Geographical factors are generally examined in three parts as physical, human and economic. The physical factors among them are those that are not very variable and the effect is more permanent and effective. These factors, which are effective on political geography; may be the location, area, shape-semblance or borders of a place or a country. In addition, features such as landforms, climate, territorial waters, soils and natural vegetation of that geographical place can be listed as effective factors.

The human and economic factors, which are more variable according to time and space, can undoubtedly be more effective, especially with the effect of technology developed as a result of scientific discoveries and inventions. Among these factors, geographically, population and settlement characteristics have a separate place. Because, economic factors such as agriculture and livestock, mining, forestry, fisheries, industry, tourism, transportation, communication and trade, which are related to population and settlement, are more effective than other factors today.

It is possible to divide the reign of Sultan II. Abdulhamid into two periods. The first period includes the years 1876-1878. During this period II. Abdulhamid ascended the throne by praising Mithat Pasha and his team, and his words were always valid in the administration until February 1878, when the Parliamentary Assembly was closed. This period ended with the end of the First Constitutional Era. The second period (1878-1909) lasted about 30 years. In this period, he ruled the state with his superior genius and handled authority and power. However, internal and external enemies did not remain idle. From time to time, there were

uprisings, Sultan They attempted to overthrow II. Abdulhamid Han and destroy the Ottoman Empire.

In this research, Sultan II. Abdulhamid Han's personality and the discipline of political geography in his period, who was the sultan between 1876-1909 were tried to be analyzed. When the problem statement of this study is investigated in terms of Political Geography, "What effect did it have during the reign of Sultan II. Abdulhamid Khan?" as a question form. The study also sought answers to the following questions;

- How is the political geography of the II. Abdulhamid Khan Era?
- How is the political geography of the Ottoman Empire after the dethronement of II. Abdulhamid Khan?

Method

Model

Qualitative research method was used in this study. Because in qualitative research, the investigated occurrence, person or phenomenon is analyzed in detail and the problem is tried to be revealed with questions such as "how and why" (Denzin & Lincoln, 1998). In qualitative research, data is collected through observation, interviews and documents (Berg & Lune, 2015).

Data Collection Tools

In this study, the data was tried to be obtained by document analysis. The reason of this, all kinds of documents can help the researcher to understand and explore the subject, to develop comprehension and to eliminate the uncertainties about the research problem.

Types of documents that can be used in research; invitation cards, official report of meetings, regulations, annotations, books and brochures, diaries, journals, letters, memorandums, maps, charts, newspapers, artwork, program details, survey data, various public records, notebooks, photo albums, etc. is; they provide datas to researchers for use in the researchs (Labuschagne, 2003). Balcı (2006) classified documents as primary and secondary sources. While primary documents are written by the person himself, secondary documents are written by others. In this study we will use secondary sources as documents.

Miles & Huberman (1994) adverted steps such as data collection, data reduction, demonstrate of data, inference and corroboration.

Data Analysis

Document analysis technique was used in the analysis of the obtained data. Document analysis is a qualitative research method used to meticulously and systematically analyze the content of written documents (Wach, 2003). Document analysis requires investigating and interpreting data in order to make sense of it, to form an understanding of the related subject, and to develop empirical knowledge (Corbin & Strauss, 2008).

Researchers generally revise previous research, review the literature, and incorporate this information into their research. In this process, it is necessary to find, select, interpret, evaluate and synthesize the data in the documents. From this point, in order to classify the data in the sources obtained in the study and to reach a meaningful result and were created subheadings such as the political geography of Abdulhamid Han period, the dethronement of Abdulhamid Han and the political geography of the Ottoman Empire.

Findings

How is the Political Geography of the II. Abdulhamid Khan Era?

II. Abdulhamid Han imagined grand dreams for his major target in his childhood years and thought of restoring the Ottoman state to its former magnificence in the future and endeavored to train himself in this scope. He closely follows the superpowers of that era, learned their policies, their insidious complots on the Ottoman Empire and their denunciators in the country. His surroundings were far from even understanding his dreams. Those who think small cannot understand those who think big, even his elders and teachers were incapable of understanding his thoughts.

While his peers were playing games, he dreamed anticipatory for the peace and tranquility of humanity. "Since childhood, I had a serious nature. I didn't like to play games. When I was very young ages, I began to think about serious issues of the existence of humanity. I was a dreamer. Because of my demeanor, my teachers used to scold me and complain to my father." (Vehbi, 1974).

In line with these informations, II. Abdulhamid Khan's character is one of the greatest qualities of leadership; described as serious, tactful and imaginative.

Even when he was a prince, Abdulhamid Han often met and exchanged of ideas with erudite people and governors in important status of the state. He kept in touch not only local personalities but also foreign statesmen and obtained many informations about Europe from

them. He knew that the courses taught in the schools of the era were not sufficient and that new courses had to be added to them. Especially he followed the improvements in science and technology closely and wanted these developments to be taught in schools. His interest in science and his life away from plays and entertainment did not overlooked. He read books whenever he had the chance and followed the local and foreign press closely. He regularly bought newspapers such as Ceride-i Havadis, Tasvir-i Efkar, Basiret, and observed the effects of humor magazines such as Çaylak, Çingirak and Tatar on the public. He had European newspapers brought, read, or followed up by having them translated, through the famous coffee house owner Sarafim Efendi and the bookstore Elnino. He didn't neglect the conversation with some intellectual authors. Abdulhamid Efendi was analyzing the power of knowledge and the cause of that created public opinion very well. His mindful and discipline skills, and the ability to use the results and information in time and place were also excellent (Koloğlu, 1987). Another feature of being a leader is to be aware of the scientific and technological developments around and in the world.

Abdulhamid Han had a qualified education. Arabic from Ferid and Şerif Efendi, Persian from Kazasker Ali Mahvi Efendi and grand vizier Safvet Pasha, commentary, hadith and canon law sciences from Gümüşhanevi Ömer Hulusi Efendi, French from Gardet, Edhem and Kemal Pasha and he had taken Ottoman history lessons from the historian Lütü Efendi. He had learned sports and horse riding from Lala Mehmet Sadık Agha and Mabeynci Osman Efendi, and learned arms drill training and other military service information from various officers, the sultan's aide, and had learned the sciences of the time. He wasn't satisfied only with the education in the school. He worked without cease improve himself. He was educated and ultimately multicultural, he laid the foundation of his fine politics that he would follow in the future by comprehending the world politics, the conditions of the country, the superpowers of the time and the purposes of their inner infiltrators. Abdulhamid knew the ways to earn money, but he didn't like to waste, he was a frugal person. He spent of the salary sparingly during his principedom. Since other princes lived luxurious lives, their salaries were not sufficient and they were constantly in debt. Abdulhamid, on the other hand, had earned money as well as make a living with the salary given by the state. He was be occupied with doing in trade and invested (Engin, 2007).

II. Abdulhamid grew up with dreams of returning the Ottoman Empire to the epochs of his grandfathers, Fatih Sultan Mehmet and Yavuz Sultan Selim Khan, and became a sultan

within these dreams. However, the times have changed and the internal and external enemies of the state have become very strong.

Sultan II. Abdulhamid Khan knew world politics very well and used the best ways to keep the state alive throughout his reign. Sultan II. Abdulhamid Khan became the sultan on August 31, 1876, at a time when the state was weak, depressed and the enemies were strong. After the emergence of the 1877-1878 Ottoman-Russian war, known as the 93 war, which cornered the state, II. Abdulhamid Han wasn't responsible of this situation. This war broke out as a result of the bad policies of Midhat Pasha and the constitutional governance. As a result of the war, the Russians defeated the Ottoman Empire and had to sign the Treaty of San Stefano.

The Ottoman delegation that came to Berlin did not even have a map and they wanted to borrow the maps from the British. The Ottoman delegation did not bring the maps with which they would negotiate the border. When the maps could not be found, Colonel Mr Şahap said to Mr Sadullah, who was in a hurry: "Efendi, what are you worried about? These maps were either made by the Germans, the British, the French or the Russians. All of them attended the congress. Whichever state is closest to us, we ask them appropriately and receive them. They have already the originals; we get the map from them. If not, we will buy it again" (Kutay, 1975).

The maps which represent best way and explain geographical features. The narratives made without a map have always tremble in the balance and have been imaginary. Maps are of great importance especially in terms of the past, present and future of the state. Because maps are a two-dimensional representation of the surface of the world.

Preparing the map is as important as knowing how to read a map. Cartography was very advanced during the advancement and expansion of the Ottoman Empire. However, during the decadence period, cartography was transferred to Western countries.

The human factor is important in political geography. First of all, people should be educated and equipped, love their homeland and protect their own identity. For this, one must be educated. It is not solely enough for a leader to be educated. His assistants and people must also be educated. Sultan II. Abdulhamid Khan knew this and gave great importance to education during his reign. Throughout the reign of Abdulhamid, developments regarding to education and training were more regular than in the past. The modern education system has been established and the state has realized its significant role in education. Financial assistance was supported to schools by the state, and taxes were sought to provide resources

for the financing of education. II. Abdulhamid gave special importance to education in the provinces. II. Abdulhamid period is an epoch in which education awareness was ingrained and all efforts were made. II. Abdulhamid was a sultan who knew that education was the only way out for the salvation of the Ottoman Empire (Karataşer, 2017).

At the beginning of the Sultan II. Abdulkhamid's era, reform actions in the field of education, primary and secondary education in general had gone so far as to make it impossible to return. Being aware of this fact, the educators of the period continued their reform endeavours to modernize and extend primary and secondary education (Vurgun, 2022) even if it was rapid or slow, complete or incomplete.

During the reign of II. Abdulhamid, he achieved many things after great efforts. As a matter of fact, middle schools were increased from 250 to 600, high schools from 5 to 104, and dar'ul teachers trade school were increased from 4 to 32 (İnce & Sağdıç, 2020). In addition to that, around 4-5 thousand new ones were added to the 200 primary schools in 1876, and nearly 10 thousand primary schools were converted to the new method. Abdulhamid, he achieved many things after great efforts. All these developments, with their deficiencies, formed the basis of subsequent educational reforms. In addition to these, the first central and provincial education organization in the modern sense was established in this period and has preserved its essence until today. İptidai school (primary school), Rüştiye school (Junior secondary school) and İdadi (administrative high school) directorates were established under the Ministry of National Education. Through the agency of this organization, primary and secondary education institutions and teacher schools were brought to the province during this period (Kodaman, 1991). During the reign of Sultan Abdulhamid (1876-1909), both textbooks and scientific works continued to be published in the field of geography (Türkay, 1999). Dârülmualimin-i Âliye, which is one of the many modern educational institutions that existed during the reign of Abdulhamid. This school, which trains teachers for high schools, has an extraordinary importance in terms of education and teachers training (Altın, 2018).

It is seen that high school, including high school, spread over a wide area in the Ottoman Empire between 1882-1890. These were high schools that gave education and training for 7 years with secondary schools in provincial centers and for 5 years with high schools in sanjak headquarters. At the end of the Abdulhamid period, there were 619 secondary school (74 of them girls) and 109 high schools in the Ottoman Empire. A total of 60 thousand students were getting education and training, 40 thousand in secondary schools

and 20 thousand in high schools. When the curriculum of the high schools and junior high schools in the 1898-1899 academic year is examined in the Education Yearbook, it was seen that the number and hours of geography lessons have increased. Accordingly, geography lessons were included in the curriculum for an hour in the 7th year of high school and secondary school, and two hours a week in the other 6 years (Özey, 1996).

At the end of the 19th century (during the reign of Abdulhamid II), major geographical dictionaries and military maps were prepared. The Dictionary of History and Geography (7 tomes) prepared by Yaglikçızade Ahmed Rifat Efendi in 1883, Kamusü'l-â'lâm (6 tomes) prepared by Şemseddin Sami between 1889-1899, Memalik-Dictionary prepared by Kolağası Ali Cevad in 1900. Osmaniyye's Dictionary of History and Geography (4 tomes) are important dictionaries containing many items related to geography of the period (Özey, 1999).

The most lively educational advance in Ottoman history, it actualizes with the reign of II. Abdulhamid. According to Sevan Nişanyan's calculations, Turkey, it was only in the 1950s that it was able to reach a schooling level comparable to the Abdulhamid's period. For example, while there were nearly a thousand (835) secondary schools and high schools in the region corresponding to the borders of the Republic of Turkey in 1895, this number decreased to 95 in 1923. The number of students close to one hundred thousand in 1895 (97,837) remained at roughly the same level in the 1950-51 season (90,356).

When we compare it with the previous one, the advance of education in the Abdulhamid period became more visible. The number of Junior high schools, which was 250 in the year he ascended the throne, increased to 900 in 1909, and the number of high schools, which was 6, to 109. While there were only 200 modern primary schools in Istanbul in 1877, it increased to 9 thousand in 1905. An average of 400 primary schools were established every year, which is a record that could not be broken even in the Republican era (Armağan, 2006).

Sultan II. Abdulhamid Han's biggest dream was to take off his state to the advancement of his grandfathers. For this, he kept going his career as a carpenter throughout his life. He worked personally while making the furniture sets to use in the palace. While hosting the emperors of the period in his palace, he demonstrated that his state was not collapsed and still keep up, he used his diplomatic and keen intelligence. Sultan II. Abdulhamid Han also used the profession of carpentry in the state administration. Because the job of the carpenter is to create perfect furniture sets from raw woods. While he was managing his state, he was contended with the whole world that the Ottoman Empire was not destroyed by correcting the unhealthy parts of the state. After he was dethroned, the collapse

of the state accelerated and those who dethroned him wished for him to ascend to the throne again. However, the reversal of the time wheel is no longer possible.

Being a manager is easy but being a leader is very difficult. A leader is someone who is the most superior to those around them. Must be gifted with intelligence. Must have insight, intuition and the ability to instantly analyze and synthesize events. He must also have the ability to predict the outcome of events. Considering this aspect, Sultan II. Abdulhamid Han is literally leader.

In the days when the Western imperialist powers used Armenians as pawns and provoked chaos in Anatolia, the British Ambassador came to Sultan Abdulhamid and arrogantly said: "How many more Armenians will you kill?" Upon daring to ask, the great khan fixed his sharp gaze on the ambassador: "How many guns per Turk were on board the British ship, which approached such and such a point of the Black Sea on such and such a day and at such and such an hour, took out so many crates to arm the Armenians against the Turks, and delivered them to the commanders? If there are any, we will kill just as many Armenians." gave the answer. The British ambassador was horrified and to be gravelled of this enormous intelligence power of Sultan Abdulhamid (Kısakürek, 1988).

Sultan II. Abdulhamid, following a brilliant policy, kept the Hejaz notables of Arabia in Istanbul as a member of the Council of State in order to prevent any revolt. Despite Sharif Hussein's refusal to be an Emir of Mecca many times, the Union and Progress administration, following the dethronement of the Great Hakan, fulfilled this request of the Union and Progress and appointed Sharif Hussein as an Emir. Unfurled the flag of rebellion. Much later, British Prime Minister Lloyd George said in the House of Commons: "After Sheriff Hussein became Emir of Mecca, we agreed with him on Arab nationalism and rebellion. We gave 40 thousand gold coins a month against this rebellion" (Bardakçı, 1985).

Prince Bismark, who founded the German Union; "If there is 100 grams of intelligence in the world, 90 grams of it belongs to Abdulhamid Han, 5 grams to me, and the remaining 5 grams to other world politicians." The Great Khan of the Ottoman Empire, II. Abdulhamid Han is the best practitioner of Central Turkish Domination. During his 33-year reign, he managed to protect the lands owned by the State very well, despite the difficult years of the state. Sultan Abdulhamid Han, to Theodor Herzl, who wanted land in Palestine in return for paying all the foreign debts of the Ottoman Empire; "I do not sell a single inch of land in Palestine, because this land does not belong to me, but to my nation. My nation, on the other hand, won it by shedding their blood and made it productive with its blood. A piece of

homeland bought with the blood of martyrs cannot be sold with money! You should know that I will never allow the treacherous operation you plan to perform on a living body!..”

The Ottoman people knew the land, a mother, a beloved, and put their blood and soul to meet it (Özey & Kocalar, 2019).

Ahmet Vefik Pasha sold the land of the missionary home called "Robert College" established on the upper side of Rumelihisarı to American Protestant missionaries. This person wanted to be buried in Eyüp Sultan as he had willed when he died; However, the Sultan of the time, Abdulhamid Han, did not allow this at all and ordered that the man who sold land to the Protestants listen to their bells until the end of the day, and ordered him to be buried in the Rumeli cemetery right in front of the land he sold, not Eyüp Sultan (Müftüoğlu, 1993). Sultan II. Abdulhamid Han never sold land and property in his life, and he did not forgive those who sold it.

Sultan II. The philosophy of Abdulhamid Han was not "The debt is the whip of the brave", but "The debtor spends from his own pocket". He did not like the fact that he and his state were in debt, and he took great steps to pay off all debts.

During the reign of Abdulhamid, 16 million lira kaime (paper money) came into effect due to the 93 War. But the value of this paper money fell very quickly and foreign borrowing started again and some more debt was borrowed. During the Berlin Treaty, the creditor states increased their anxieties and pressures. Thereupon, with an agreement reached in November 1879, 6 direct taxes started to be allocated to these debts as of 1880. Thus, a step was taken towards the establishment of the Düyun-u Umumiye Administration (Ünlü, 1994).

The state made an agreement with the creditors by abandoning fish, salt, silk, liquor, tobacco and stamp taxes and formalized this with the name of Muharrem Decree. The debt and interest of the state at this time amounted to 252,800,000 Ottoman liras. The taxes of Cyprus and Eastern Rumelia provinces were paid and 146,364,650 liras were deducted from the total debt, and the debt was reduced to 106,437,650 liras (Karal, 2007; Danişmend, 1971).

This decree was a memorandum of understanding between the Ottoman State and a financial group that did not represent any state and acted only on behalf of the creditors. With this decree, the creditors guaranteed the payment of their receivables. The Ottoman government also obtained a reduction of up to 54% from the debts. In addition, interest rates were reduced from 9% to 1%. Most importantly, the Sublime Porte was able to prevent the possible intervention of European states with this decree (Küçük & Ertüzün, 1994).

In the memoirs of Tahsin Pasha (1931), "Sultan Hamid's greatest goal was to pay the debts of the state. Once upon a time, European states tried to intervene in our finances due to the debt issue. Sultan Hamid had formed the Düyün-u Umumiye Administration to prevent this and to be a remedy for the creditors. Due to the fact that the State's actual intervention was partially prevented at that time, it meant a service to the country perseverance and thought."

Those who attacked Abdulhamid for having Düyün-u Umumiye founded, claimed that on November 5, 1901, France, who claimed to be from their own people, occupied the entire island of Lesbos, as Lorando and Tubini could not get back the money they lent to the state during the reign of Sultan Abdulaziz they ignore it (Tahsin Pasha, 1931; Danişmend, 1971).

The leader thinks about his people and works for the peace and well-being of his people. The people also support their leader. Sultan II. Abdulhamid Khan is a sultan who values his people. He always thought about the peace and welfare of his people and took the necessary measures. However, the public could not show the same sensitivity.

The benevolent Sultan Abdulhamid Han, who called the bakers who wanted to increase the price of the bread that was sold for 30 lira, he said: "You continue to sell the bread for 30 money again. For every bread you sell, I will give you the 10 money you want. Because if the price of bread is increased in a country, it will be followed by a move like all the essential needs will become more expensive, and our people will suffer greatly from this," he said, displaying an example of statesmanship that genuinely cares about its people (Banarlı, 1984).

Sultan II. Abdulhamid Han's greatest misfortune is that he lived during the collapse of the state. In this period, the state has strong internal and external enemies. It would be wrong to talk about Constitutional Monarchy at a time like this. As a matter of fact, those who wanted to bring Constitutional Monarchy regretted their demands. In the period of expansion and rise of the state, constitutionalism and democracy are good. It is extremely inconvenient in periods of decline and collapse. Particularly separatist and divisive ideas develop faster in constitutionalism and democracy environments.

Sultan II. Abdulhamid fifteen days after the declaration of the Constitutional Monarchy, a banquet was given to the members of the Assembly. The Europeans who met Abdulhamid in the Memoirs of the Constitutional Monarchy of Hüseyin Cahit (Yalçın), the famous clerk of the Unionists, who were the enemies of Abdulhamid, who attended the banquet given that night, tell about this important event that Abdulhamid lived. "The

Europeans who met Abdulhamid talked about his very attractive and binding kindness and personality. We would not believe this, considering it to be flattery and self-interested. But tonight, I saw the great attraction in Abdulhamid up close. At the end of the feast, he won the hearts of almost all the deputies” (Müftüoğlu, 1993).

A leader is a person who sees the future and acts accordingly. Sultan II. Abdulhamid undersigned ingenious projects. He thought of the unthinkable at that moment. He established the world's first serious intelligence agency (Yıldız Intelligence Agency). The purpose of this organization, which consists of many spies, is to gather information about Abdulhamid's political rivals and to prevent coup or uprising attempts against Abdulhamid. The spies not only collected information on their own, but also created a large intelligence network by tying large numbers of people on a salary. Intelligence reported early on activities that could be against the Abdulhamid administration. Sultan II. Abdulhamid said, "If the Russian navy has extra oars in the Black Sea, I will know about it, they cannot do anything." he said, and indeed, during the First World War, Tsarist Russia could not do anything dangerous (Refik, 2005).

The idea of connecting Asia and Europe was first introduced a century ago. It was put forward and designed by Abdulhamid. Thinking of connecting the railways in the south, southwest and center of Europe to the Baghdad railway with this Bosphorus Bridge, II. The project of this giant bridge, commissioned by a Frenchman named F. Arnodin by Abdulhamid Han, included minarets, domes, towers and cannons to provide military defense. Again, in connection with this bridge, Abdulhamid Han had a ring road project drawn with a far-sighted perspective (Document 1).

One of the qualities sought in a leader is to be sensitive to the environment. Sultan II. Abdulhamid Han is a leader who is very sensitive to the environment. During the reign of Abdulhamid, a village was exiled en masse because they damaged and destroyed the Belgrade forests (Sevinç, 1978). With this behaviour, Sultan Abdulhamid Han was able to take more radical decisions than today's environmentalists.

II. Abdulhamid Han had extensive and detailed research done on energy resources (especially oil) and mines within the borders of the Ottoman Empire. During this period, oil research was commissioned by the German mining engineer Paul Groskoph within the borders of the Ottoman Empire. In addition to the oil fields shown in Mosul, Kirkuk, Baghdad and Erbil, oil fields within the borders of Southeastern Anatolia today such as Diyarbakır, Mardin, Bismil, Siirt and Hakkari have also been identified. Sultan II. Abdulhamid gave an

order to start a comprehensive oil reserve study by extracting funds from the Treasury-i Hassa, that is, from the personal property of the sultan.

Foreign and local engineers took part in the works that the sultan had done with his own money. Oil dredging was carried out in the basin of the Tigris and Euphrates rivers, around Mosul and Baghdad. The research team, led by German mining engineer Paul Groskoph and Habip Necip Efendi, carried out their studies on October 22, 1901 to Sultan II. He presented this to Abdulhamid in a report. Accordingly, they found significant oil reserves on the banks of the creek called "Bitlis Water". Groskoph noted that there are rich oil deposits around Hakkari, Bingöl, Siirt and on the banks of the Tigris River. Groskoph noted that apart from the banks of the river, oil was also found in the high mountains on the banks of the Tigris. On the oil map covering all of Southeastern Anatolia and a part of Eastern Anatolia; Diyarbakir, Mardin, Bismil, around Hazro Stream, Sinan, Botan Stream, Batman Stream, Tigris region, Midyat, Bedran, Tulan, Siirt, Habur, Fındık, Cizre, Habur Stream, Bitlis Stream and Hakkari are important oil resources (Tozduman Terzi, 2014).

After 1878, the world powers' view of the Ottoman Empire changed. He did not want an Ottoman that had stood strong against Russia until that day. From that date on, they sought to break up the Ottoman Empire and get the best share. Oil had come to the fore as a factor. Oil was also largely in Ottoman territory. II. Abdulhamid had a special policy in this regard. The Ottomans resisted this in the Balkans and the Middle East and fought tooth and nail. During the reign of Abdulhamid, the importance of oil became evident. Britain also started attacks to dominate the Persian Gulf. He made an agreement with some Arab sheikhs in the region and used military force. II. Abdulhamid created a rivalry against this by putting the Germans into action. Thinking that oil regions could be lost after some wars, he made the treasury the property of the owner, that is, his personal property (Engin, 2009).

Leader gives importance to agriculture, industry and trade. Because the economy of the state should be strong. Economic depressions lead to political crises. Political crises lead the state to collapse. Therefore, the economy is very important. Sultan II. Abdulhamid Khan tried to improve and develop the economy of the state. Chambers of commerce, agriculture and industry all over the country again and it was opened during the reign of Sultan Abdulhamid. For the first time, the "Tahrir-i nüfûs" organization was established and it was tried to determine the manpower and wealth in the country in a statistical way every year on a regular basis. In addition, zoning and public works activities were accelerated. As most of the Anatolian and Rumelian railways were completed, a road network was created in Anatolia,

where there was no road. Horse-drawn and electric trams and regular docks were built in various cities. Telegraph lines were drawn up to Hejaz and Basra. During the reign of Abdulaziz, some credit institutions were established under the name of "Memleket and Benefit Funds". These were renamed Benefit Funds in 1883 and Ziraat Bankası on 15 August 1888. During the reign of Abdulhamid, the organization of this bank was expanded, branches were opened in various places and farmers were supported. Feshâne and Hereke factories were expanded; Yıldız Tile Factory was opened. While experts were brought from Germany for military reform, Turkish officers were sent to Germany for training. Military secondary schools and high schools were increased. The Turkish army was equipped with new weapons. Important steps have also been taken in the field of law. Criminal procedure and commercial procedure laws were enacted. For the first time, the institution of müdde-i umumi (prosecutor) was established in the courts. The police organization was reorganized according to western examples. Pension fund was established for civil servants (Küçük, 1988).

Sultan II. Abdulhamid Han dominates the foreign policy as well as the domestic policy. The Sultan would follow the policy of Europe and take measures accordingly. He would benefit from the interstate balances and thus take remedies for the continuation of the state. Sultan Abdulhamid Han was not a disregarded sultan. Because it is certain that in his time there was no diplomat in all of Europe as familiar with foreign policy as he was. Being a diplomat with great insight, he handled politics by avoiding dangerous places. Some local and foreign writers who wrote about Abdulhamid said that "if Abdulhamid had been on the throne, a world war would not have broken out, and he would have prevented the Balkan states from uniting and starting the Balkan war and their unification." Day and night, he would examine the incoming documents about state affairs and give his opinion (İnal, 1965).

During the reign of Sultan Abdulhamid, the total population of the state; It reached 17.134.000 in 1884, 17.381.670 in 1893, 19.050.000 in 1897 and 28.652.000 in 1910. However, as of this date, a population of 5.5 million, including the lands lost in the Rumelia region, and then 8.5 million as a result of the ruptures in the Middle East and North Africa as a result of the occupations left the Ottoman Empire and 15.254.000 people living on the Anatolian lands, which included an area of 757,340 km² inhabitants remained. Later, after the establishment of the Turkish Republic, the population of the new state was determined as 13,649 million in 1927 (Özey & Kocalar, 2022a).

II. After Abdulhamid, the area of the Ottoman Empire in 1913; It had a total area of 4,980,000 km², of which 180,000 km² was in Europe-i Osmaniye, 1,800,000 km² was in Asia-

i Osmaniye, and 3,000,000 km² was in Africa-i Osmaniye. It seems that more than 4 million km² of land was lost in just 10 years, from 1913 to 1923. In this respect, it is seen that the Ottoman Empire, which had the dominance of the World, preserved its grandeur and splendor until the years when it collapsed (Özey & Kocalar, 2022b).

How is the Political Geography of the Ottoman Empire After the Dethronement of II. Abdulhamid Khan?

Despite the so-called western wannabe intellectuals who slandered Abdulhamid Han, who governed the Ottoman Empire, which he took over in the most depressed period of his era, by following ingenious policies for 33 years, and even nicknamed him the “Red Sultan”, he said the following about the British Foreign Minister Sir Edward Gray of that period, when he learned of Sultan Abdulhamih Khan’ death, "What a loss! He’s my adversary, but with his death, diplomacy lost its enthusiasm for the profession" (Refik, 1992).

The poet and philosopher Rıza Tevfik, who was among the organizers of the March 31 case, avouched that the British were behind this bad incident, and when he visited to the British consulate after the insurrection, he was greeted very unfriendly. He asked to reason of that so much later Lord Nicholson who was back then the British Ambassador to Turkey. This Englishman answered very exemplary: “Rıza Tevfik Bey, we have spent billions of gold to keep Islamic countries under our rule, especially in India, but unfortunately we were not successful. However, Sultan Abdulhamid sends a 'Greetings' and a 'Hafiz Osman calligraphy Quran' every year and keeps the lettering Islamic Ummah at his disposal with a sense of unlimited respect. We expected the removal of the caliphate from you Young Turks with this revolution, and we were deceived. That's why you got a cold welcome?” (Kabaklı, 1993).

While the wounds of the Balkan War disaster were not healed yet, the unprepared involvement The unprepared participation of the Ottoman Empire in the First World War just to ease the burden of the Germans was the most terrible reason for the collapse. When the end of the war was beginning to appear, the leaders of the Union and Progress, Enver and Talat Pashas, who finally realized that they had made a mistake by overthrowing Sultan Abdulhamid, visited the dethroned Sultan, who was residing in the Beylerbeyi Palace, and asked his opinion. That great Sultan brought an atlas to show them the British colonies. He had calculated their population, then asked about the German colonies. Of course, it emerged that the Germans hadn’t a colony. The Sultan was full of sorrow: “Couldn't you make that take into account too?! Did it ever make sense to go to war on the side of the Germans against

England? I used the Germans to balance British avidity. I didn't think of anything beyond that. Now you're asking my opinion! This was previously necessary; It's too late now!" said.

During the Dardanelles War, it was decided to transfer the sultan and the government to Eskişehir as a precaution, with the fear that the enemy fleet might cross the Sea of Marmara. When Abdulhamid Han became aware of the situation, he rejected it with great courage and bravery: I am the grandson of Fatih Sultan Mehmet Han. I can never be inferior to the Byzantine emperor Constantine! While my grandfather Fatih was conquering Istanbul, he died fighting alongside the soldiers of Constantine. Brother, wherever they go. But it should be known that if he and his government leave Istanbul, they cannot return. For my part; I will not step out of Beylerbeyi Palace! he said.

As a matter of fact, the sultan and the government remained in Istanbul against his determination. Thus, the collapse of the state that day was prevented. Abdulhamid Han passed away on February 10, 1918, at the age of 77, after an extremely intensive, weary and difficult life (Topbaş, 1999).

He followed the world politics closely from his childhood until his death and always keep the "World Atlas" by his side.

Discussion and Results

The number of pieces describing II. Abdulhamid Han in literally are quite insufficient and few. Even, the most of the local authors have unflattering writing about Sultan II. Abdulhamid Khan in their works, this is not seen in most of the conscientious Western writers.

In remembrance of British Admiral Henry F. Woods, who was in charge of the melioration of the Ottoman Navy says: "I have not come across any written document describing Sultan Abdulhamid as he deserves. In particular, any idea close to factual has been put forward about his sentiments and character. In my opinion, Abdulhamid is one of the most exceptional personalities among the Ottoman sultans who have ever lived."

While the British Ambassador O'Connor said "the man who kept the peace in Europe", the British Mediterranean Fleet Commander Admiral Fisher said "Abduülhamid is one of the most adept and serial succession diplomats in all of Europe" (Kocabaş, 1995).

British Prime Minister Disraeli said "Abdulhamid is neither a rascal, a tyrant, a bigoted, nor a sinister man; He is a just man who loves his country and nation." An excellent

diplomat, Abdulhamid knew very well how to utilize the most of the competitive and jealousy between the Great Powers ambitious to expand. His aim was to prevent the danger of war by maintaining the Ottoman Empire's friendship with the Great Powers (Woods, 1976).

II. Abdulhamid Han is a truly political genius. Remaining in his reign of 32 years, 7 months and 27 days, and as a matter of course, many nations and people were hostile to II. Abdulhamid. Because while the Ottoman Empire was on the verge of collapse, he prolonged the life of the state for another 33 years. The Jews were hostile to him because they weren't acquired land in Palestine. They demanded to rent a specific region in Palestine, the sultan had it superintend to see if there was oil there, he had learned that there was not, but he insisted not to give landmass to the Jews. Armenians captured all of Eastern Anatolia and dreamed of Greater Armenia. II. Abdulhamid opposed the reforms, which in favor of the Armenians, and instantly suppressed the rebellions through the Hamidiye regiments. Therefore, they were endeavoured to eliminate and were hostile to him. The so-called intellectuals of the Ottoman Empire, who were wannabe of the west, were also hostile to him. Because he did not give them the freedom they desired and expatriated them from Istanbul.

Consequently, Sultan II. Abdulhamid Khan is a great leader who has shown the whole world how the state will be governed and how the world politics and sovereignty will be provided even during the decadence of the government.

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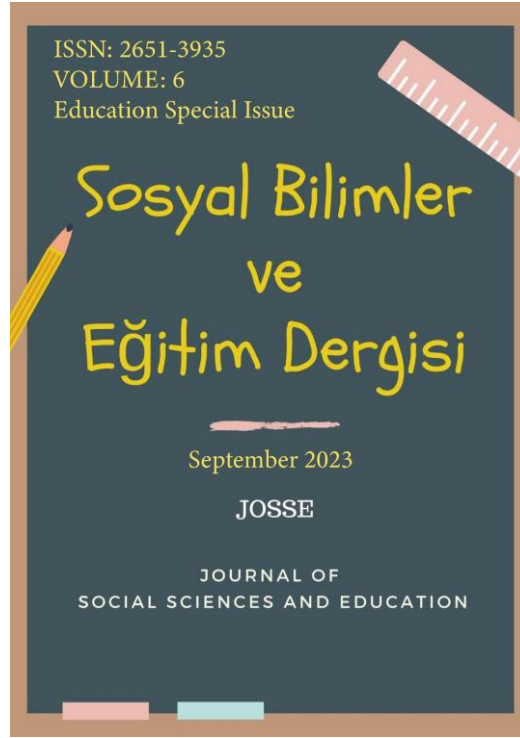
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Evaluation of The Texts in the Fifth Grade Turkish Textbook in Terms of Root Values

**This study is an extended version of the oral presentation presented at the IXth International TURKCESS Education and Social Sciences Congress held between May 18-20, 2023.*

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Evaluation of The Texts in the Fifth Grade Turkish Textbook in Terms of Root Values*

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ABSTRACT

Research Article

The aim of this study is to examine the texts in the fifth grade Turkish textbook in terms of root values in the 2019 Turkish Language Teaching Program. Basic qualitative design, one of the qualitative research methods, was used in the study. The object of the study is the fifth grade Turkish textbook of the Secondary School and Imam Hatip Secondary School prepared by Anıttepe Publishing, which was used as a Turkish textbook at the fifth grade level of secondary school in the 2022-2023 academic year. Research data were obtained through document analysis. Within the scope of the research, 40 reading, listening and free reading texts under 8 units in the fifth grade Turkish textbook were analyzed in terms of ten root values. In these evaluations, the sub-values related to the ten root values were taken as criteria. As a result of the research, the texts in the fifth grade Turkish textbook were related to the ten root values in 173 places in total. It was concluded that the most used values in the textbook are responsibility, self-control, patriotism and love, while the least used values are justice and honesty. When the units in the textbook were examined in relation to the values, it was found that the root values were mostly used in the units of Our National Culture, Virtues, Individual and Society; and least in the units of Health and Sports, Science and Technology, Nature and the Universe. As a result of the research, it was determined that the root values were not homogeneously distributed in the units and texts in the fifth grade Turkish textbook.

Keywords: Value, root values, fifth grade, Turkish textbook, secondary school

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Introduction

In social life, the values that affect the thoughts and behaviors of the individual directly or indirectly, and that constitute the source of many behaviors, are the most important factors. Throughout his/her life, the individual creates his/her own value judgments by feeding from many sources and makes analyzes, interpretations and evaluations about the functioning of life based on these value judgments. The individual creates values as a form of social behavior. Values are important criteria in many elements such as the individual's thought structure, behaviors, attitudes, productions, etc. Values, which have individual and social dimensions, are an inseparable element of life.

Many definitions have been made on the concept of value, which has a very important impact on the individual's thought structure and actions. However, the meaning of the concept of value is a very broad concept that differs according to the context in which it is used and the paradigm taken as reference (Topal, 2019). TDK Current Turkish Dictionary (2023) defines the concept of value as "1. An abstract measure used to determine the importance of something, the value of something, value. 2. The totality of material and immaterial elements that cover the social, cultural, economic and scientific values of a nation." Value is the common name given to each of the beliefs that affect people's thought system and behaviors, determine evaluation criteria and guide people in many issues (Beşer Yıldırım, 2022). Values are the basic principles and beliefs that guide human behavior and the basic standards by which actions are judged as desirable or good (Halstead & Taylor, 2000). Value is an abstract concept that defines the goals expected to be realized for the individual or society and the means used to achieve these goals (Bakırcıoğlu, 2016). Values are the products of the thought system that guide and shape the behavior of individuals (Tezcan, 2018). Value is a set of beliefs that guide people's actions, which includes the qualities that distinguish the individual from other living things and the existence characteristics that reveal the existence of the individual (Ulusoy & Dilmaç, 2020).

Values are either lost over time as a result of the protection or disregard of individuals in society, or they can be passed down from generation to generation and maintained for years. When the general (universal) values accepted by many societies and sustained for years are examined, we come across values such as leadership, truthfulness, morality, morality, justice, responsibility and benevolence that direct the individual to the line of being an ideal human being (Topal, 2019, p. 246). Values can be passed down from generation to generation and

maintained for years, or they can lose their importance over time or even disappear completely. People are not born with values; they acquire them through social means and different interactions (Bostrom, 1999; as cited in Demirel, 2022).

In order to fully understand values, their basic characteristics should be known. Fichter (2019) stated the characteristics of values as follows:

- Measures that give meaning to society.
- Values are agreed upon by the majority of society rather than on the initiative of any one person.
- Values can be conceptually abstracted from other valuable objects because they require interpersonal reconciliation.
- Values are taken seriously. People see values in conjunction with the protection of the common welfare and the fulfillment of needs.
- Values are intertwined with enthusiasm, for which individuals make sacrifices and even risk death.
- Values guide the individual in choosing and fulfilling social roles.

Values education, which is an important part of individual and social life, is a subject that has been emphasized from past to present. Values are also a carrier of cultural structure, a guiding and practicing structure in intercultural interaction and culture. The main purpose of value education is to help individuals adopt good and beautiful values created as a result of social consensus. Tezcan (2018) defines values education as an educational activity that encourages the acquisition of moral values and principles and carries individuals from youth to adulthood. In this respect, the aim of values education is to contribute to the upbringing of individuals with responsibility and moral judgment in society. The goal to be achieved in value education is to ensure that the individual, who is a part of society, reaches a certain maturity in terms of human behaviors (Karagöz, 2009). Values are one of the most important building blocks of cultural transmission. Since cultural transmission enables the nurturing of socially desirable cultural values, the teaching of values is one of the most important goals of the educational process (Çubukçu, 2014).

The individual is involved in value education from birth. Whether they are aware of this or not is not important. However, the value awareness given at school is gained in a planned and programmed manner. Within the educational policies of states, the idea of giving values to their citizens is dominant (Ulusoy & Dilmaç, 2020). It is now generally accepted that values education is an important and fundamental component of the education and training process in

helping students acquire values (Khan et al., 2021). Values seen as the source of social welfare it is very important that it is taught in schools as one of the fundamental issues of a democratic society (Gegiou et al., 2019). In other words, it can be said that the education of values in the education process is among the educational goals.

The Turkish and Literature course aims to teach students how to read and write correctly and beautifully, listen, speak and apply grammar rules, as well as to provide them with national, moral, social and universal values. The main material used by the course to achieve these aims is the textbooks and the texts given in these books (Şen, 2008, p.764). These texts should make students love their mother tongue, arouse their interest in cultural and historical values, provide them with many cognitive and affective skills and educate them by giving various messages. In short, these texts are of great importance in terms of forming the skeleton of Turkish and literature lessons and being the materials that keep the lesson alive (Solak & Yaylı, 2009).

Textbooks used as the main course material in Turkish lessons are very important in terms of providing students with basic language skills (Çeçen & Çiftçi, 2007). In Turkish lessons, which is the most important lesson of the language learning and teaching process, textbooks are one of the most functional and frequently used teaching materials of this process (Harmankaya, 2022). Textbooks are course materials that are prepared in line with the teaching programs and undergo a certain control. Yorgancı (2022) states that the skills and values that students should gain in Turkish lessons are tried to be gained through textbooks and that the selection of texts to be found in textbooks should be in accordance with the qualifications in the Turkish curriculum. Textbooks are the most effective course materials in learning environments in terms of being easy to access and presenting the learning process to students in a planned way (Harmankaya & Taşkın, 2019). Textbooks, which are one of the most basic course materials that students have concretely, are expected to reflect the educational goals of the country. In this respect, it can be said that textbooks are important educational materials for value education.

In July 2017, the Ministry of National Education changed its philosophy of education and training to a certain extent. "In line with the changing philosophy of the Ministry of National Education, efforts to develop, renew and update curricula started on a new track in 2005 and were completed in the 2015-2016 academic year. Since the beginning of the 2016-2017 academic year, a comprehensive renewal (update, review, replenishment and modification) work has been carried out on 51 curricula." (MoNE, 2017a). This update work was carried out after a certain process was carried out with the participation of many educational

stakeholders by adopting current educational approaches in line with developments in the field of education.

In this statement published by the Presidency of the Board of Education and Discipline on July 18, 2017, under the title "On our efforts to renew and change the curriculum", ten root values related to "Values Education" are mentioned (MoNE, 2017a). These values are: "justice, friendship, honesty, self-control, patience, respect, love, responsibility, patriotism and benevolence" (MoNE, 2020). The ten root values in the program (MoNE, 2019) and the sub-values they are related to (MoNE, 2017b) are shown in Table 1.

Table 1

Ten Root Values and Related Sub-Values

No	Root Value Name	Related Sub-Values
1	Justice	Giving one's right, fair share, equal treatment, being fair...
2	Friendship	Sharing, joint actions, gifting, playing together, loyalty, solidarity, understanding, trust, altruism...
3	Honesty	Keeping one's word, being reliable, being neat & stable, being truthful, being clear & understandable...
4	Self Control	Apologizing when necessary, having self-confidence, taking responsibility for one's own behavior, controlling behaviors...
5	Patience	B being persistent, being resilient, knowing how to wait to get the desired result, tolerating, being perseverance...
6	Respect	Being humble, valuing, valuing other people's personalities, behaving others the way they would like to be treated, observing the position, characteristics, & situation of the addressee...
7	Love	Wasting time for somebody or something, making sacrifices, expressing love, being loyal, gifting to close friends & family members, giving importance to family unity...
8	Responsibility	Taking responsibility for the consequences of one's actions, being consistent and reliable, keeping one's word, being responsible for oneself, one's environment, one's family, one's country...
9	Patriotism	Being loyalty to the country, being hardworking & productive, being sensitive to historical & natural heritage, caring about society...
10	Benevolence	Offering support, being generous, hospitable, cooperating, being compassionate, charity activities...

Table 1 shows the ten root values in the 2019 Turkish Curriculum and the sub-values that these values are related to. The other values that the values are related to are also important in terms of filling the existing values. It is possible to increase the number of sub-values associated with root values. Because it can be said that each of the ten root values has a very wide scope.

In the literature, studies (Beşer Yıldırım, 2022; Çoşkun & Derse, 2021; Deniz & Karagöl, 2018; Doğan & Gülüşen, 2011; Gerekten, 2018; Gül, 2017; Kaygana et al., 2013;

Küçüköğlü et al., 2020; Pilav et al., 2015; Susar Kırmızı, 2014; Şahin, 2015; Şakiroğlu, 2020; Taçyıldız, 2021; Temizkan et al., 2020; Türkmenoğlu et al., 2021) have been conducted at different times at different grade levels in order to determine the extent to which values are included in the textbooks used as one of the basic course materials in secondary school Turkish language teaching and the relationship between the texts in the textbooks and values. There are also studies (Köksal, 2021; Köksal et al., 2022; Horzum & Yildiz, 2023, Sürücü, 2022) in the literature that examine textbooks in other disciplines according to core values. When the literature is examined, there is no study examining the fifth grade Turkish textbook in terms of the ten root values in the 2019 Turkish Lesson Teaching Program. Determining the use of the ten root values included in the 2019 Turkish Language Teaching Program in the texts in the fifth grade Turkish textbook is important in terms of showing to what extent the root values are reflected in the texts in the fifth grade textbooks. Turkish lessons, which are compulsory in the fifth grade curriculum, also have the highest number of lesson hours at this grade level. Since the Turkish course is among the compulsory common courses in secondary school, the books accepted as textbooks by the Ministry of National Education at this grade level appeal to all students attending the fifth grade throughout the country. For this reason, it is thought to be very important to examine how much root values are included in the texts in the fifth grade level books, since it is the basis of the middle school, in order to determine the reflection of the objectives in the program on the content. In addition, the fact that the fifth grade serves as a bridge in the transition from primary school to secondary school was another reason for the preference of books at this grade level. In this context, the aim of the study is to descriptively examine the texts in the fifth grade Turkish textbooks in terms of the "ten root values" in the 2019 Turkish Curriculum. In line with the purpose of the research, the problem sentence of the study was expressed as "Which of the ten root values in the 2019 Turkish Curriculum are included in the units and texts in the fifth grade Turkish textbook?" and an answer to this sentence was sought within the scope of the study.

Method

Model

In this study, basic qualitative research design, one of the qualitative research designs, was used. Merriam (2015) states that the basic qualitative design is one of the most common forms of qualitative research used in education and that data can be collected through observation, interview or document analysis and analyzed with an interpretive approach. In this study, as stated in the basic qualitative research design, an existing document (fifth grade Turkish textbook) was analyzed from a specific aspect (in terms of ten root values).

Review Objects

This study was limited to the fifth grade Turkish textbook. This limitation was made in order to examine the relationship of the texts in the textbook with root values in depth. For this reason, the object of investigation of this study is the "Secondary School and Imam Hatip Secondary School 5th Grade Turkish Textbook" (Çapraz Baran & Diren, 2022) prepared by Anıttepe Publishing, which was decided to be taught as a fifth grade Turkish textbook for 5 (five) years starting from the 2019-2020 academic year with the decision of the Board of Education and Instruction dated 18.04.2019 and numbered 8 (45th in the attached list) and was taught as a fifth grade Turkish textbook in the 2022-2023 academic year.

Collection of Data and Analysis

This study does not require Ethics Committee Permission since the texts in the fifth grade middle school textbook were analyzed in terms of root values. In the study, document analysis technique was utilized to collect data. Document analysis is referred to in the literature as "documentary observation", "systematic examination of existing records or documents as a data source", "document scanning" and "library research" and is defined as "systematic examination of existing records or documents as a data source" (Karasar, 2023). Document analysis involves the analysis of written materials containing information about the phenomena and facts planned to be researched. In qualitative research, document analysis can be used as a stand-alone data collection method (Yıldırım & Şimşek, 2016).

The 5th Grade Turkish Textbook of Middle School and Imam Hatip Secondary School (Çapraz Baran & Diren, 2022), which was examined within the scope of the research, includes 8 units as "Individual and Society, National Struggle and Atatürk, Nature and Universe, Our

National Culture, Citizenship, Health and Sports, Virtues, Science and Technology". It was observed that there were a total of 5 course texts under each unit, 3 reading texts, 1 listening/watching text and 1 free reading text. There are 24 reading texts, 8 listening texts and 8 free reading texts under 8 units in the textbook, totaling 40 texts. The units in the fifth grade Turkish textbook and the texts in these units were analyzed by document analysis in terms of the ten root values in the 2019 Turkish Curriculum (Table 1). The data obtained are presented descriptively in the findings section. In addition, sample sentences from the texts in the textbook, which are related to the ten root values, are given under the descriptive data.

Findings

This section presents the findings obtained as a result of the analysis of the data obtained in the study.

The Situation of Root Values in Units and Texts in the Fifth Grade Turkish Textbook

The problem statement created in line with the research purpose was expressed as "Which of the ten root values in the 2019 Turkish Curriculum are included in the units and texts in the fifth grade Turkish textbook?". In this direction, the findings showing which of the ten root values in the 2019 Turkish Curriculum are included in the units and texts in the fifth grade Turkish textbook are presented in Table 2.

Table 2

Fifth Grade Turkish Textbook's Units and Texts Including Root Values

Unit Name	Text Name	Justice	Friendship	Honesty	Self Control	Patience	Respec	Love	Responsibility	Patriotism	Benevolence	Total
1. Individual and Society	Memleket İsterim	✓	✓		✓		✓	✓	✓	✓	✓	8
	Hoşça Kalın, Güle Güle				✓		✓		✓			3
	Anadolu'da Konukseverlik						✓			✓	✓	3
	Gelenekseldir											
	İlk Ders (Listening)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Çocuk ve Baloncu (Serbest Okuma)					✓						1
2.	Mustafa Kemal'in Kağnısı								✓	✓	✓	3
	Dumlupınar Savaşı								✓	✓	✓	3

Unit Name	Text Name	Justice	Friendship	Honesty	Self Control	Patience	Respec	Love	Responsibility	Patriotism	Benevolence	Total
National Struggle and Atatürk	6 Mart 1915 Gecesi				✓	✓			✓	✓	✓	5
	Bir Temmuz Gecesi (Dinleme/İzleme)				✓	✓		✓	✓	✓	✓	6
	Şahin Bey (Serbest Okuma)		✓			✓				✓	✓	4
3. Nature and the Universe	Bu Nehir Bizim				✓		✓		✓	✓		4
	Okland Adası									✓	✓	2
	Deprem				✓	✓	✓				✓	4
	Sakın Kesme (Dinleme/İzleme)				✓			✓	✓	✓		4
	Yarın Gene Sabah Olacak (Serbest Okuma)					✓						1
4. Our National Culture	Kilim			✓				✓		✓		3
	Vatan yahut Silistre		✓		✓			✓	✓	✓	✓	6
	Boğaç Han	✓		✓	✓		✓	✓	✓	✓	✓	8
	Ali Kuşçu (Dinleme/İzleme)		✓		✓	✓	✓	✓	✓	✓	✓	8
	Geyik Ana (Serbest Okuma)					✓		✓	✓	✓	✓	5
5. Citizenship	Çocuk Bahçesindeki Bekçi	✓			✓	✓	✓	✓	✓		✓	7
	Bilinçli Tüketici				✓				✓	✓		3
	Özgürlük		✓		✓				✓	✓		4
	Sokak (Dinleme/İzleme)				✓		✓	✓	✓		✓	5
	Çiftçi ile Çocukları (Serbest Okuma)					✓	✓	✓				3
6. Health and Sport	Karagöz Kibarlık Öğreniyor		✓				✓	✓				3
	Çitlembik		✓		✓			✓	✓		✓	5
	Spor ve Beden				✓							1
	Tavşan ile Kaplumbağa (Dinleme/İzleme)		✓		✓		✓		✓			4
	Dedemin Öyküsü (Serbest Okuma)				✓			✓	✓	✓		4
7. Virtues	Yağlı Güreşçi		✓		✓	✓	✓	✓	✓			6
	Büyüklerle Saygı		✓		✓		✓	✓	✓	✓		6
	Yaşama Sevinci				✓		✓	✓				3
	Paylaşım (Dinleme/İzleme)		✓		✓		✓	✓	✓		✓	6
	Bir Bardak Sütün Hatırı (Serbest Okuma)		✓		✓		✓	✓	✓		✓	6
8. Science and Technology	Barkod											0
	Sosyal Medya Psikolojinizi Etkiliyor			✓	✓	✓			✓	✓		5
	Akıllı Ulaşım Sistemleri											0
	Aziz Sançar (Dinleme/İzleme)			✓	✓	✓			✓			4
	Pastör (Serbest Okuma)		✓		✓	✓	✓	✓	✓		✓	7
Total		4	14	5	27	15	19	21	27	21	20	173

When the data in Table 2 are analyzed, it is seen that the ten root values used in the texts in the fifth grade Turkish textbook are mostly responsibility (27) and self-control (27). These

values are followed by patriotism (21), love (21), benevolence (20), respect (19), patience (15), friendship (14), honesty (5) and justice (4). In the fifth grade Turkish textbook, it is seen that the total number of texts that include ten root values is 173.

When the inclusion of root values in the units is examined, it is seen that the unit with the most root values is "Our National Culture (30)", which is the 4th unit in the fifth grade Turkish textbook. This unit is followed by "Virtues (27)", "Individual and Society (25)", "Citizenship (22)", "National Struggle and Atatürk (21)", "Health and Sports (17)", "Science and Technology (16)", "Nature and the Universe (15)".

When the texts in the fifth grade Turkish textbook presented in Table 2 were analyzed in terms of their inclusion of ten root values, it was determined that the listening/watching text "İlk Ders (10)" in the "Individual and Society" unit was related to all ten root values. The free reading texts "Boğaç Han (8)" and "Ali Kuşçu (8)" in the "Our National Culture" unit; "Çocuk Bahçesindeki Bekçi (7)" in the "Citizenship" unit; and "Pastör (7)" in the "Science and Technology" unit are the other texts with the highest number of relationships with ten root values. When the texts in the fifth grade Turkish textbook were examined in terms of their inclusion of ten root values, it was found that the texts "Barkod (0)" and "Akıllı Ulaşım Sistemleri (0)" in the Science and Technology unit had no relationship with any of the ten root values. The free reading texts "Çocuk ve Baloncu (1)" in the Individual and Society unit, "Yarın Gene Sabah ılacak (1)" in the Nature and the Universe unit and "Spor ve Beden (1)" in the Health and Sports unit were found to be related to only one of the ten root values.

Sample Sentences Related to Ten Root Values

Sample sentences of the texts in the fifth grade Turkish textbook examined within the scope of the study are given below. In the relationship of the texts with ten root values, it was tried to be determined by taking into account the sub-values related to the root values in Table 1.

1. Justice:

- Let there be no rich and poor, no you and me (Memleket İsterim)
- I gently stroked her chin and asked her, as I ask all the girls: "Is your name Zehra or Ayşe?" (İlk Ders)

2. Friendship:

- Mr. Şahin looked at his loyal friends with love and asked, "Are you ready to die with me for our homeland?" (Şahin Bey)

- I'm not enough, I made a folk song, I'm tired of this life. (Kilim)
- Look Karagöz, you are my friend of forty years. (Karagöz Kibarlık Öğreniyor)
- You saved him, the doctor told me. (Çitlembik)
- Joys between us,
- It will increase as we share. (Paylaşım)

3. Honesty:

- If that information is not there when you type it into a search engine, people don't believe it. (Sosyal Medya Psikolojimizi Etkiliyor)
- Was it you who sang a folk song yesterday afternoon, Munise? (The day before, I heard a thin child's voice singing a folk song in one of the gardens in the neighborhood.)

I was, teacher, she said. (İlk Ders)

- He was not very confident in himself and thought that he would not be as successful as other students in laboratory work. (Aziz Sancar)

4. Self-Control:

- There was great excitement and anxiety. What if Nusret was discovered by enemy ships? That would have been a disaster. The salvation of the homeland depended on throwing these mines into the sea. This had to be accomplished quietly. Everyone was excited and afraid. (6 Mart 1915 Gecesi)
- I'm sorry, Mr. Sinan.

Furkan and his friends said they did their part. (Bu Nehir Bizim)

- I wish I had listened more carefully in class (Deprem)
- I didn't chew the grass and jump over the wall like some kids do, but I still didn't like the watchman yelling at me. (Çocuk Bahçesinde Bekçi)
- Should not be wasteful (Bilinçli Tüketici)
- I promised myself that once I learned to read and write, I would write him a letter. When I started school and learned to write, I did. (Yaşama Sevinci)
- Those were the days when the Pasteur tried to fulfill the promise he had made to himself as a child. (Pastör)

5. Patience:

- The patience of the people of Antep had reached its limit (Şahin Bey).
- My father told me to be brave and patient to support my brother. (Deprem)
- We waited at the gate of the park until the watchman left for lunch. I had a hard time restraining my brother who was impatient to go in. (Çocuk Bahçesindeki Bekçi)

6. Respect:

- ...humane, friendly behavior towards strangers, orphans, travelers... (Anadolu'da Konukseverlik Gelenekseldir)
- The district governor said that they would follow up on the issue and thanked the children for their interest. (Bu Nehir Bizim)
- I was very proud of him. (Deprem)
- "Do not try to sell the fields. We inherited them from our ancestors. A great treasure lies in them." (Çiftçi ile Çocukları)
- He knocked the door a little timidly. When he saw the lovely young woman opening the door, he felt a little embarrassed and excited. Instead of asking for something to eat, he mistakenly asked, "May I have a glass of water, please?" (Bir Bardak Sütün Hatırı)
- We have to respect old age, maternal love, disability, fatigue and death. (Sokak)

7. Love:

- Let there be an end to brothers' quarrels (Memleket İsterim)
- It was as if his spirit floating in the sky was shouting: "Thanks be to God!" (6 Mart 1915 Gecesi)
- The young woman noticed the boy's confusion and shyness and invited Howard inside, thinking he might be hungry. She sat him down next to the stove to warm him up and brought him hot milk with water and some cookies. (Bir Bardak Sütün Hatırı)
- After these words from the doctors, Pasteur decided to try the vaccine. It was one of the most important moments in his life. And it was the first time the vaccine was tested on a human being (Pastör).
- We will be on the streets until our President says it's over. (Bir Temmuz Gecesi)

- Pick up a walking stick dropped by an old man. If two children are fighting, separate them. (Sokak)

8. Responsibility:

- After the Battle of Sakarya, Gazi Mustafa Kemal began preparations for a major war to drive the enemy out of the country (Dumlupınar Savaşı).
- My son, I am giving you a very important task. The salvation of the homeland depends on the successful fulfillment of this task. (6 Mart 1915 Gecesi)
- Why didn't they understand? Or was he unable to explain himself? (Bu Nehir Bizim)
- Be a conscious consumer (Bilinçli Tüketici)
- Born into a poor family, Howard (Havırt) was a boy who went door-to-door selling various items to support his family and pay for his own school fees. (Bir Bardak Sütün Hatırı)

9. Patriotism:

- Elifçik ran to Kocabaş's place, and marched on the enemy, high and lofty (Mustafa Kemal'in Kağnısı).
- After the Battle of Sakarya, Gazi Mustafa Kemal began preparations for a great war to completely expel the enemy from the country (Dumlupınar Savaşı).
- Since the old buildings have been restored in accordance with their originals, the city has not lost the beauty and characteristic of its founding years. (Oakland Adası)
- In our tradition, kilim means knowledge. (Kilim)
- In the intervening months, we prayed for the unity of our homeland. (Bir Temmuz Gecesi)

10. Benevolence:

- On winter days let everyone have hose and home (Memleket İsterim)
- The human, friendly behavior of Turks towards foreigners, strangers, strangers, orphans, travelers who come to their countries and cities, villages and towns, in short, their hospitality is very old. (Anadolu'da Konukseverlik Gelenekseldir)

- They prepared an offensive plan together. (Dumlupınar Savaşı).
- However, seeing his homeland under occupation caused him indescribable pain. (Şahin Bey)
- Today, the Maori and these immigrants are working together to make Oakland the most beautiful and comfortable city in the South Pacific Islands. (Oakland Adası)
- Then an uncle came and gave us blankets and food. (Deprem)
- Hand in hand,

When we join forces,

Everyone has their own opinion

It's good when we are together. (Paylaşım)

Discussion and Results

In this study, it is aimed to examine the texts in the fifth grade Turkish textbook in terms of the ten root values in the 2019 Turkish Curriculum. There are 8 units in the textbook; there are 5 texts in total, 3 reading, 1 listening/watching and 1 free reading in each unit. Within the scope of the study, a total of 40 texts were analyzed in 8 units. Texts in other activities or evaluation studies were not included in the analysis.

The texts in the fifth grade Turkish textbook are related to the ten root values in the 2019 Turkish Curriculum in 173 places in total. While "self-control, responsibility, patriotism, patriotism, love and benevolence" are the most frequently used values in the texts in the textbook, it was concluded that two important root values such as "justice and honesty" are rarely used. As a result of the research, it was determined that the root values were not homogeneously distributed in the units and texts in the fifth grade Turkish textbook.

Deniz & Karagöl (2018) conducted a study to determine the values in Turkish course and activity books used in fifth and 6th grades and found 148 values in the fifth grade textbook, 24 values in the 6th grade Turkish textbook (MoNE Publications) and 32 values in the 6th grade Turkish textbook (Başak Publications). However, in the study, only 10 root values were examined in the textbook and a total of 21 values were analyzed. In addition, in the related study, the most frequently used values in the fifth grade Turkish textbook were "love, patriotism and respect"; the least frequently used values were "justice, honesty, morality and sincerity"; and in the 6th grade Turkish textbook (MoNE Publications) the most frequently used values are

"friendship and love", the least frequently used values are "compassion, sharing, loyalty, fidelity and keeping one's word"; in the 6th grade Turkish textbook (Başak Publications) the most frequently used values are "love, friendship and respect", the least frequently used values are "solidarity, honesty, compassion, sharing, loyalty, keeping one's word and fidelity". While the results of this study and the results of the study conducted by Deniz & Karagöl (2018) differ in terms of the total values used in the textbooks, they show similarities in terms of the most and least frequently used values.

Şakiroğlu (2020) found that ten root values were used 163 times in total in the texts in the 6th grade Turkish textbook. In addition, in the related study, the most frequently used values in the textbook were "patriotism, love and benevolence", while the least frequently used values were "justice and honesty". It can be said that the results of the study are very similar to the results of Şakiroğlu's (2020) study.

Taçyıldız (2021) limited his study to 80 texts in the first four units of the textbooks at each grade level in order to determine the values in the texts in secondary school Turkish textbooks and to determine to what extent students use the values in the texts in their own texts. At the end of the study, the most frequently used values in the fifth grade textbook were "love, courage, aesthetics and patriotism" and the least frequently used values were "justice, generosity, peace, solidarity, compassion, responsibility, equality, language awareness, sincerity, protection and care". It can be said that the results of the research and the results of the related research are similar in terms of the most and least frequently used values in fifth grade textbooks.

Beşer Yıldırım (2022) analyzed the texts in 6th grade Turkish textbooks in terms of ten root values and found that a total of 102 root values were included. She also concluded that the 6th grade textbooks included "love, patriotism, friendship and respect" the most and "justice, self-control, honesty and patience" the least. While the results of Beşer Yıldırım (2022) and Beşer Yıldırım's (2022) results differ in terms of the total number of root values in the textbook, they show similarities in terms of the most and least used root values.

As a result of the study, no root value usage was found in the "Barkod" and "Akıllı Ulaşım Sistemleri" texts in the "Science and Technology" unit in the fifth grade Turkish textbook. In his study, Şakiroğlu (2020) found that no relationship was established with any root value in the texts "Büyük Keşifler", "Mavi Portakal" and "Buldum.... Buldum..." in the 6th grade textbook. These results are similar to the results of the study. However, Beşer Yıldırım (2022) also found that 11 texts in the 6th grade textbook, including "Mustafa Kemal Nasıl

Atatürk Oldu?, İlaç, Uygarlık Diyarı Harran, Nasrettin Hoca'nın Köyünde, Kiraz Yaylaları, Kış Uykusu, Uç Fil, Büyük Ustayı Ziyaret, Ay Şairi, Sufi ile Pufi, Yosun Pilleri” did not include root values. These results differ numerically from the results of Şakiroğlu (2020) and this study.

In the literature, there are studies that examine Turkish textbooks in terms of values, although they do not directly examine them according to the ten root values specified in the 2019 Turkish Curriculum. In their study, Padem & Aktan (2016) concluded that the fifth grade Turkish textbooks include aesthetics, success, solidarity, love, responsibility and benevolence at the highest level and friendship, pity, truthfulness, courage, good manners, sacrifice, determination, heroism, national unity consciousness, compassion, freedom, loyalty and frugality at the lowest level. Gül (2017) states that the most frequently used values in the fifth grade textbook are success, universality and hedonism, while the least frequently used values are power, benevolence and conformity. Baki (2019) found that aesthetics, kindness, happiness, love, sincerity, and peace, hospitality, and humility were the most frequently used values in the fifth grade textbook. Temizkan et al. (2020) concluded that patriotism, national values, traditions and customs were the most frequently used social values in Turkish textbooks, while justice, self-respect, equality, peacefulness, sensitivity, honesty, trust, tolerance, responsibility, courtesy, and respect were the least frequently used. In their study, Küçükoğlu et al. (2020) show how value education in the Turkish textbook is carried out through preparatory studies, listening and reading books, visuals, and activities; they state that value transfer is made by emphasizing the values of patriotism, unity and solidarity, hospitality, cooperation, honesty, respect and love, which form the basis of the Turkish social structure at all levels. Çoşkun & Derse (2021) concluded that respect, love, responsibility and patriotism were the most common values in the texts in the 6th grade Turkish textbook, while humility, development of aesthetic feelings, self-confidence and optimism were the least common values. When these studies are evaluated together, it is understood that although there are similarities on the value analyzed in Turkish textbooks, there is no unity. This study differs from these studies in that it deals with the value in the Turkish textbook in terms of the ten root values in the 2019 Turkish Curriculum.

Another result obtained from the findings of the study is the inclusion of the ten root values in the units of the fifth grade Turkish textbook. As a result of the research, it was determined that the units of National Struggle and Atatürk (30), Virtues (27), Individual and Society (25) were the units that included the ten root values the most, while the root values were least included in the units of Nature and the Universe (15) and Science and Technology (16). Beşer Yıldırım (2022) also concluded in his study that ten root values were mostly included in

the units of Virtues, Individual and Society, National Struggle and Atatürk, and least in the units of Health and Sports, Science and Technology, Nature and the Universe in 6th grade textbooks. Durhat & Ökten (2020) examined the "Virtues" unit in middle school Turkish textbooks in terms of root values. As a result of the study, a relationship was found with the values of benevolence, love, respect, patience, friendship in the fifth grade textbook, but no relationship was found with the values of justice, honesty, self-control, responsibility and patriotism. In all of the middle school textbooks, it was found that the root values in the "Virtues" unit were not distributed evenly; love and benevolence were the most common values, while patriotism and self-control were the least common values. These results are largely similar to the results of the study and support the results of the study.

The sample sentences presented in the study are important in terms of understanding the relationship between the texts in the fifth grade Turkish textbook and the ten root values. Identifying the sentences that are thought to be related to the root values in the texts and presenting them as examples in the study contributed to the understanding of the functioning of the research. It is thought that sample sentences also facilitate the understanding of the relationship of the relevant text with the root values.

When the results of the study are evaluated together, the relationship of the texts in the fifth grade Turkish textbook with root values is not at the same level. In addition, it is understood that the root values are not distributed equally in the units in the textbook. It is thought that it is very important for the students to acquire these values that the root values targeted to be acquired by the students are equally included in the whole book. In this respect, it can be said that the root values should be distributed more homogeneously in the units in the fifth grade Turkish textbook and therefore in the texts in these units.

Recommendations

It is thought that the sample sentences presented within the scope of the research can also serve as a source for similar studies to be conducted in the literature. The texts to be included in the textbooks used by middle school students, where value judgments begin to be established, should be prepared and selected in accordance with values education. In addition, curricula should include how values should be organized, analyzed and presented to students, and the value needs of society should be taken into consideration. In addition, textbook authors and publishers are recommended to include the values in the curricula in a balanced way.

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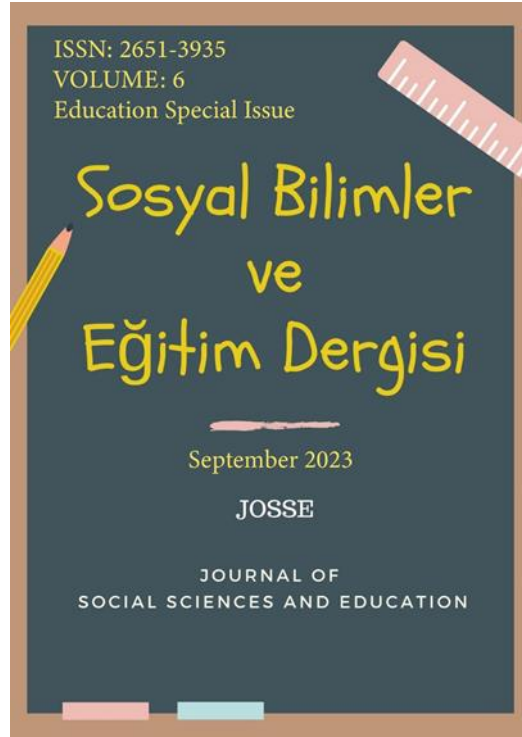
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An Analysis of Middle School Social Studies Textbooks with a Focus on Media Themes

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An Analysis of Middle School Social Studies Textbooks with a Focus on Media Themes

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ABSTRACT

This study analyzes middle school social studies textbooks regarding media coverage. Document analysis was the preferred methodology of data collection. The data was gathered from 5th, 6th, and 7th grade middle school textbooks, identified via random sampling. The Media Concept and Related Concepts Textbook Review Form, developed by the researcher, was utilized during the data collection process. Researcher triangulation was applied during the analysis phase. The media-related textbook content was encapsulated within the following five themes: Media elements, media effects, media functions, media literacy, and media ethics. Findings for the media elements were categorized into media development, media tools, media types, media institutions, and media workers. Another major theme emerging from the analysis of the textbook content was media effects, which contained both positive and negative dimensions related to the impacts of media. Media functions constituted another media content theme emerging from the textbook analysis. This theme encompassed the media functions of transmission, speed, and ease of processing, communication and communication tools, education, and digital content. The media literacy theme encompassed findings categorized into thematic concepts, basic skills, and consciousness-raising. The final main theme emerging from the textbook analysis was media ethics. This theme included findings associated with controllable and regulable activities and ethical rights.

Keywords: Media, middle school, social studies, textbook analysis

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Introduction

The media exerts substantial influence across numerous facets of individual and social life. In addition to impacting individuals' attitudes and behaviors, media elements continue to shape the cultural, economic, political, and social orientations of society. Since early life, individuals encounter media elements within the family context. They subsequently integrate the media-cultivated attitudes and behaviors into society. Moreover, from communication to shopping, the media furnishes society with convenience in many domains through its tools and platforms. The expansive sphere of influence and life opportunities has established the media as a center of power. Alongside other power centers like money, politics, culture, and information, media elements have faced criticism for fostering detrimental environments and models, not just positive ones, for individuals and society (Erol, 2022; Hong & Ryu, 2022; Khatrik et al., 2022; Robinson, et al., 2022; Ybarra et al., 2022; Yıldız, 2023).

The media refers to tools like newspapers, radio, television, and the Internet that facilitate communication without face-to-face contact (Tüzel, 2012). With developing technology, media tools occupy an integral role in human life given the environments and opportunities they provide (Bayer & Bulut Özek, 2021). The media represents a shaping factor in people's lives today (Asrak Hasdemir, 2012). The lifestyles, communication styles, interaction modes, and cultural elements maintained among people for centuries have transformed radically with media growth (Kıran, 2020). Regardless of time and place, media tools provide convenience across many domains, including information access, dissemination, communication, education, socialization, and entertainment. Frequently used internet-based applications appeal to many aspects of life from ages 7 to 70. The media pervades individual and social life through diverse platforms like cartoons, games, communication, education, e-commerce, and more.

Albeit its beneficial and facilitating features, the media harbors some risks. Media tools commonly aim to direct society as desired by dominant states/institutions, encourage consumption, and activate, pacify, modify, divide, or unite society (Mora, 2008). Additionally, the media can introduce risks like violence, negative models, cultural assimilation, and criminal elements. Media reflects violence through the many messaging tools integrated into its content (Özer, 2017). Numerous violent elements infiltrate mass media, especially news, daytime programs, and social media. These elements detrimentally influence families and children (Çoban & Kaplan, 2022). Young children are especially

vulnerable to such risks. Since children are born into a visually-oriented world, they undergo socialization where visuality holds priority, thus facing effects from school, family, environment, and notably, the media (Dinçer & Yılmazkol, 2009; Karaboğa, 2018). Excessive media use can foster addiction to games, movies, and the like. Contingent on addiction, physical and mental health issues like malnutrition (Ayas & Göral, 2023) and attention/behavioral problems may emerge (Güvendi et al., 2019; Hazar & Ekici, 2021; Sallayıcı & Yöndem, 2020).

An individual's development of awareness towards the risks of the media, correctly analysing and evaluating the message coming from the media, and exhibiting conscious behaviours are associated with literacy skills (Bendhaj, 2023). Media literacy represents a vital skill in fully and accurately comprehending media messages and mitigating risks that children face in media settings. Media literacy is acknowledged as an important skill in raising children's and youths' media awareness (Avşar, 2013). It proves critical for conscious media use, complete and precise perception, interpretation, analysis, and evaluation of transmitted messages. With media literacy skills, individuals can understand message world backgrounds and subtexts, actively evaluating and commenting on these codes to develop personal judgments (Paker, 2015). Media literacy skills are taught through planned, programmed school activities across the education process.

Turkey's Ministry of National Education curricula aim to cultivate multifariously knowledgeable, skilled, and valued individuals from preschool to higher education. Published in the Official Gazette No. 29581 on January 2, 2016, and numbered 29581, the Turkish Qualifications Framework seeks to enable individuals to utilize information/communication technologies safely and critically within 'Digital Competence' (Türkiye Cumhuriyeti Başbakanlık, 2016). Along with digital competence, the Social Studies curriculum incorporates the 'Media Literacy' skill and associated values, skills, and concepts. Citizenship ideals, cultural values, and the ability to consciously leverage information/communication technologies number among the program's specific objectives. Additionally, the program includes critical thinking, willpower, communication, saving, and other skills relatable to media literacy. It promotes raising productive, active individuals capable of learning, questioning, researching, and analyzing information (MoNE, 2023).

Curricula are actualized through textbooks, an important educational tool. As resources that assist student learning during and after lessons, textbooks are key instructional materials. Prepared per specific programs to fulfill educational goals, textbooks constitute the

basic material for education and the most widely utilized tool. Viewed as the primary information source, students use textbooks to learn at school and at home (Tarman & Kuran, 2015). Thus, textbooks represent the main educational resource for school-based media literacy. Textbooks are among the primary materials in teaching/learning (Güzel & Şimşek, 2012; Nalçacı, 2011). The ‘media’ theme status in social studies textbooks constitutes this research’s problem statement.

The objectives of the Social Studies course to raise citizens, interconnect with life and current events, and cover skills supporting digital competence and conscious media/communication technology usage establish the subject of this study in social studies and media literacy. Different studies on education and media exist in the literature (Altun, 2010; Avşar, 2013; Bayer & Bulut Özek, 2021; Bendhaj, 2023; Bulger, 2023; Dolanbay, 2022; Fernandes et al., 2022; Gupta et al., 2023; Asrak Hasdemir, 2012; Kıran, 2020; Yao, 2019). Social studies textbooks have been analyzed concerning values education approaches (Ersoy & Şahin, 2012), values (Kuş et al., 2013), cultural values and ideology (Pandhiani et al., 2016), conscious consumerism (Dere & Aktaşlı, 2019), global issues (Dere & Uçar, 2020), skills (Altay, 2020), personalities (Batmaz, 2022; Osmanoğlu & Cantemür, 2020), current events (Öztürk & Veziroğlu, 2020), power and ideology (Wangdu, 2020), society and knowledge (Hansen & Puustinen, 2021), religion (Zhao, 2020), empathy (Kan & Tebiş, 2022), citizenship values and skills (Gökçınar, 2022), disadvantaged groups (Demirezen & Kaya, 2023) and geographical elements (Ersoy & Ayaydın, 2023). However, no large-scale research has examined social studies textbooks through a media lens.

This study aims to identify the media-themed content and its dimensions/sub-dimensions within social studies textbooks. The problem statement of the study is ‘What is the media-themed content of social studies textbooks?’. By elucidating the media-related dimensions and sub-dimensions in social studies textbooks, this research holds importance for contributing to the relevant literature, researchers, educators, and policymakers in the educational domain.

Method

Model

This research utilized document analysis. The researcher obtained and reviewed the document(s) constituting the data source. The processed documents underwent systematic

analysis (Batmaz & Yurtbakan, 2022). Document analysis can be favored as a design or method itself in qualitative research when direct observation or interviews are infeasible for data collection. This method has a unique examination system with certain stages, including accessing documents, validating authenticity, comprehending, analyzing, and utilizing data (Yıldırım & Şimşek, 2011).

Sample and Population

The materials for this study encompassed all social studies textbooks selected randomly from those taught by the Ministry of National Education in the 2022-2023 academic year. These randomly chosen social studies texts served as the data sources analyzed in the research. The population comprised the entire set of social studies textbooks approved by the Ministry of National Education for the 2022-2023 academic year across all grade levels. From this population, the sample included randomly selected social studies textbooks at the 5th, 6th, and 7th grade levels only. The data within the sampled textbooks was not further subset or sampled. Rather, the full texts of the randomly selected 5th through 7th-grade social studies textbooks underwent thorough analysis (Table 1).

Table 1

Bibliographic Information of the Selected Social Studies Textbooks for Analysis

	Textbook	Authors	Publication Acceptance Year	Publisher
1	Social Studies 5th Grade Textbook	Seçil Büket HARUT	2019	ATA
2	Social Studies 6th Grade Textbook	Cengiz Yıldırım, Fatih Kaplan, Hayriye Kuru, Mukaddes Yılmaz	2019	MONE
3	Social Studies 7th Grade Textbook	Öznür Açıl, Hülya Güvenç, Ayşegül Hayta, Sezcan Kılıç	2019	MONE

Data Collection Tools

Textbook analysis utilized a specialized instrument developed by the researcher called the *Textbook Review Form in terms of Media Concepts and Related Concepts*. This form was created based on an extensive review of previous literature on media and education as well as feedback from subject matter experts (Bolat & Kazancı, 2023; Cao, et al., 2022; Doğan, et al., 2009; Hasasneh, 2022; Khatrik et al., 2022; Soydan, 2023; Üztemur & Dinç, 2020; Yıldız, 2023; Zafer & Vardarlıer, 2019). The resulting form contains 40 distinct concepts associated with media themes and coverage based on this literature review and expert feedback. The

Textbook Review Form provided a standardized way to identify, classify, and analyze media-related content within the sampled textbooks systematically. Each of the 40 concepts included on the form represented a specific media theme, issue, or term recommended for inclusion in textbooks according to the experts. These 40 concepts across all key facets of media served as the basis for reviewing and coding the sampled textbooks' contents related to media. Table 2 below provides the full listing of all 40 media-related concepts contained in the Textbook Review Form used to guide the textbook analysis.

Table 2

Some Concepts Associated with Media Terminology

<i>Concepts</i>			
Shopping	E-service	Willpower	Virtual office
Vehicle	E-commerce	Waste	Virtual environment
Information	<u>Film</u>	Mass communication	Motion Picture/Movie
Knowledge sharing	Newspaper	Media	Responsibility
Information system	Public Network/WWW	Media literacy	Social media
Computer	News	Distance shopping	Savings
Cell phone	Telecommunication	Fashion	Television
Series	Communication	Popular culture	Consumer information system
E-government	Communication tool	Radio	Consumption
Entertainment	Internet	Advertisement	Video
Other:			

Data Collection and Analysis

The data source was the 5th, 6th, and 7th grade social studies textbooks. Aligning with written material analysis, the data collection and analysis process proceeded as follows: (1) Textbooks were obtained online; (2) Texts were reviewed according to "Textbook Review Form" concepts, with identified concepts marked. Other media-related concepts were also considered; (3) Textbooks underwent initial complete review; (4) Marked concept-containing texts were re-read word-by-word and line-by-line. However, visuals other than 'smart signs'¹ and the concept of 'General network'², which expresses where the text is taken from, were not included in the analysis; (5) Context-related codes emerged through content analysis. Code selection ensured media concept contextualization; (6) Related codes were compiled into a separate table, generating categories; (7) Semantically associated categories produced themes;

¹ As visual expressions, smart signs were included in analysis since they can be expressed visually. Other visuals were only considered for finding-supporting explanations.

² Non-media contextual concepts like 'General Network' were excluded.

(8) Concepts were compared to literature explanations; (9) Descriptive statistics, visuals, and quotations explained the reported data.

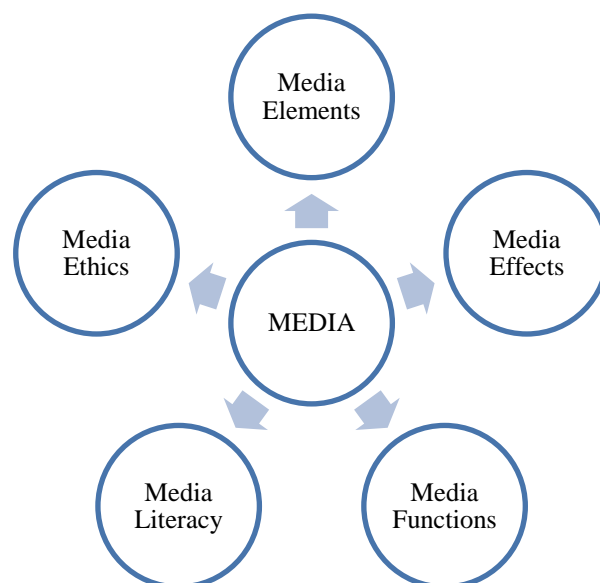
Words and lines constituted the analysis units. ‘Multi-researcher triangulation’ involving multiple independent analyses of the same qualitative data was utilized to prevent researcher bias (Patton, 2014). Analyses were conducted with a social studies teacher master’s student and two academics. The analysts collaboratively worked online, holding panel discussions throughout. Concept and theme generation achieved 100% agreement within this framework (Miles & Huberman, 1994). Additionally, findings were supported and illustrated by selected direct quotations and visuals.

Findings

The findings on media-themed content in social studies textbooks are presented below, along with sample visuals and expressions supporting these findings. Through in-depth analysis of the social studies textbooks, the research identified five overarching, primary dimensions related to the media theme embedded within the textbook contents. As depicted visually in Figure 1, these five key media-related dimensions contained media elements, media effects, media functions, media literacy, and media ethics based on the conceptual analysis of the social studies textbooks.

Figure 1

Categories Related to Media in Social Studies Textbooks



Media Elements in Social Studies Textbooks

One major theme emerging from the textbook media content analysis was ‘media elements.’ Findings for the media elements theme were categorized into media development, media tools, media types, media institutions, and media workers. Table 3 displays these categories and associated findings.

Table 3

Categorization of Media Elements in Social Studies Textbooks

Theme	Category	Content	5th grade		6th grade		7th grade	
			<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Media Elements	Media Development	The invention of media tools	0	0%	0	0%	17	7%
		Inventors of media tools	0	0%	0	0%	18	8%
		Communication and telecommunication technologies	3	3%	5	4%	19	8%
		Widespread use of media tools	5	5%	2	2%	3	1%
	Media Tools	Printed media tools (<i>Books, magazines, newspapers, etc.</i>)	10	10%	9	8%	32	14%
		Digital media tools (<i>e-book, e-magazine, e-publication, etc.</i>)	3	3%	0	0%	0	0%
		Mechanical media tools (<i>printing, etc.</i>)	0	0%	0	0%	14	6%
		Communication and telecommunication tools (<i>Mass Media [TV, computer, radio, telegraph, telephone, etc.].</i>)	23	22%	13	11%	73	32%
		Digital media providers (<i>Internet, public/global/social network, etc.</i>)	48	47%	11	10%	14	6%
		Messaging tools with message content (<i>Smart Signs, advertising, email, etc.</i>)	5	5%	46	40%	19	8%
	Media Type	Press and broadcasting	2	2%	1	1%	3	1%
		Audiovisual media (<i>movie, news, e-news, etc.</i>)	0	0%	19	17%	2	1%
		Social media	3	3%	7	6%	0	0%
	Media Institutions	Special Media Organization	0	0%	0	0%	1	0%
		Official Media Institution	1	1%	2	2%	11	5%
Media Worker	Occupations (<i>Journalist, designer, etc.</i>)	0	0%	0	0%	2	1%	
TOTAL			103	100%	115	100%	228	100%

The media element theme in Table 3 shows substantial 7th-grade textbook content on media development, while information about media inventors and inventions was absent at other grade levels. Among textbook media tools, communication/communication tools were more prevalent than other concepts. Coverage of media institutions and workers was less extensive than in other areas. Given its educational importance, the limited social media

content at the 5th and 6th-grade levels and its complete absence from 7th-grade texts is noteworthy.

The Effects of Media in Social Studies Textbooks

Another major theme emerging from the analysis of the textbook content was ‘media effects,’ which contained both *positive* and *negative* dimensions related to the impacts of media. The key findings categorized as positive media effects are displayed visually in Table 4, while Table 5 summarizes the negative media effects evidenced in the textbook contents. This media effects theme encompassed these two distinct but related categories of findings reflecting the favorable and unfavorable influences of media documented in the social studies textbooks.

Table 4

Positive Effects of Media in Social Studies Textbooks

Theme	Category	Content	5th grade		6th grade		7th grade	
			<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Positive Effects of Media	Social and Human Relations	Building public opinion	0	0%	2	11%	0	0%
		Idea and solution generation	0	0%	2	11%	1	2%
		Developing empathy	0	0%	0	0%	1	2%
		Influencing society	0	0%	2	11%	14	27%
		Increased social interaction and cooperation (<i>inter-communal cooperation and communication, global networking, new business opportunities</i>)	3	10%	1	5%	8	16%
	Improved Quality of Life and Welfare	High living standards	1	3%	0	0%	1	2%
		Time and cost savings	2	7%	0	0%	4	8%
	Cultural Impacts	Cultural contributions and innovations	1	3%	1	5%	5	10%
	Digital Transformation and Technological Facilitation	Digital facilitation (<i>shopping, trade, production, health, education, etc.</i>)	10	34%	5	26%	9	18%
	Information Access and Sharing	Easy access to information	9	31%	2	11%	4	8%
Telecommunication		3	10%	4	21%	4	8%	
TOTAL			29	100%	19	100%	51	100%

Table 4 indicates social studies textbooks incorporated positive media impacts, spanning *Social and Human Relations, Quality of Life and Welfare Increase, Cultural Effects, Digital Transformation and Technological Facilitation, Information Access, and Sharing*. Cooperation/communication between societies, global networking, and new business opportunities were the most frequently mentioned positives. Textbooks also stated digital

facilitation has eased shopping, trade, production, health, education, and information access. Less coverage addressed media influences on public opinion, opinion formation, and solution development.

Table 5

Negative Effects of Media in Social Studies Textbooks

Theme	Category	Content	5th grade		6th grade		7th grade	
			<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Negative Effects of the Media	Social and Communication Problems	Asociality	1	2%	0	0%	2	7%
		Communication problems	6	11%	0	0%	1	3%
	Addiction and Psychological Effects	Addiction <i>(TV, games, technology, etc.)</i>	0	0%	0	0%	2	7%
		Behavior disorder	0	0%	1	2%	1	3%
		Mood change	0	0%	0	0%	0	0%
	Online Dangers and Insecurity	Violent and risky sites	15	28%	0	0%	0	0%
		Fraud	4	8%	0	0%	0	0%
		Information pollution	21	40%	0	0%	9	31%
	Cultural Impacts	Presenting unrealistic role models	0	0%	0	0%	0	0%
		Cultural imperialism <i>(eroding and changing family, culture and values, etc.)</i>	0	0%	16	27%	3	10%
		Culture erosion <i>(corruption of language and values, etc.)</i>	4	8%	7	12%	0	0%
	Consumption and Perception Management	Consumption culture <i>(Changing consumption habits, leading to consumption, fashion, brand passion)</i>	0	0%	13	22%	8	28%
		Spread of popular culture	2	4%	18	31%	0	0%
		Distorted perception	0	0%	1	2%	3	10%
		Negative model presentation	0	0%	3	5%	0	0%
	TOTAL			53	100%	59	100%	29

Table 5 displays negative textbook media effects on *Social and Communication Problems, Addiction and Psychological Effects, Online Dangers and Insecurity, Cultural Effects, Consumption, and Perception Management*. Online danger and insecurity coverage, mainly regarding information pollution and violent/risky content sites, was proportionally highest in 5th grade. Cultural imperialism and consumer culture were more pronounced in 6th grade. Information pollution and consumer culture predominated in 7th-grade books. Unbalanced media content distribution between books was also striking.

The Functions of Media in Social Studies Textbooks

‘Media functions’ constituted another media content theme emerging from the textbook analysis. This theme encompassed the media functions of *transmission, speed, and ease of processing, communication and communication tools, education, and digital content*. Table 6 presents the key findings related to this media functions theme.

Table 6

Functions of Media in Social Studies Textbooks

Theme	Category	Content	5th grade		6th grade		7th grade		
			<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	
Functions of the Media	Transmission	Information and news transmission	0	0%	1	17%	26	43%	
		Regulation and supervision	0	0%	4	67%	1	2%	
		Printing and publishing	0	0%	0	0%	9	15%	
	Speed and Transaction Facilitation	Acceleration (<i>Process, organization, etc.</i>)	0	0%	0	0%	0	0%	
		Communication and Communication Tools	Broadcasting (<i>Radio activities, TV activities</i>)	0	0%	0	0%	3	5%
	Communication with the masses		1	100%	0	0%	0	0%	
	Global interaction network (<i>e-commerce environment, information access environment, cultural exchange, cultural imposition, global market, etc.</i>)		0	0%	1	17%	18	30%	
	Virtual interactions (<i>site/museum visit, etc.</i>)		0	0%	0	0%	0	0%	
	Cross-Cultural Interaction		0	0%	0	0%	2	3%	
	Education and Digital Content	Digital content creation in education	0	0%	0	0%	1	2%	
	TOTAL			1	100%	6	100%	60	100%

The results shown in Table 6 demonstrate generally low frequencies and percentages associated with the media functions theme at the 5th and 6th-grade levels based on the textbook analysis. In contrast, the 7th-grade textbook provided comparatively more coverage and emphasis on the media functions of information/news transmission and enabling a global interaction network.

Media Literacy in Social Studies Textbooks

An additional major theme identified through the textbook analysis was ‘media literacy.’ The media literacy theme encompassed findings categorized into *thematic concepts, basic skills, and consciousness-raising*. Table 7 summarizes the key findings relating to this media literacy theme.

Table 7*Media Literacy in Social Studies Textbooks*

Theme	Category	Content	5th grade		6th grade		7th grade	
			<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Media Literacy	Basic Concepts	Media	2	8%	8	73%	3	33%
		Media literacy	2	8%	0	0%	0	0%
		Public Network/WWW	0	0%	0	0%	1	11%
		Computer	0	0%	0	0%	1	11%
	Basic Skills	Access to information	3	12%	0	0%	0	0%
		Using and sharing knowledge	2	8%	0	0%	0	0%
		Critical Evaluation of Information	7	27%	1	9%	2	22%
		Assessing media effect	4	15%	1	9%	0	0%
	Consciousness Raising	Becoming media literate	6	23%	1	9%	2	22%
	TOTAL			26	100%	11	100%	9

Notable results include substantially greater media literacy content on skills and consciousness-raising in the 5th-grade textbook compared to the other textbooks. Specifically, the 5th-grade book provided comparatively more coverage of critical analysis of information related to media literacy skills. Additionally, the analysis revealed considerable variation in the frequencies and percentages associated with the media literacy theme across grade levels.

Media Ethics in Social Studies Textbooks

The final main theme emerging from the textbook analysis was ‘media ethics.’ This theme included findings associated with *controllable and regulable activities and ethical rights*, as shown in Table 8. Most of the textbook content linked to media ethics was contained in the 7th-grade textbook, with the least media ethics coverage appearing in the 5th-grade textbook. The 7th-grade textbook uniquely addressed media ethics issues like freedom of the press, while the 6th-grade textbook alone covered protecting ideas and works related to media. The grade level distinctions in coverage as well as the minimal media ethics content in the 5th grade textbook are particularly noteworthy results.

Table 8*Media Ethics in Social Studies Textbooks*

Theme	Category	Content	5th grade		6th grade		7th grade	
			<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Media Ethics	Auditable and Regulatory Activities	Auditable activities	0	0%	3	14%	1	2%
		Regulatable activities	0	0%	0	0%	0	0%
		Press publication principles	1	100%	0	0%	1	2%
		Responsibility to provide accurate	0	0%	0	0%	1	2%

	news						
	Uncontrolled information in the Mass Media (MM)	0	0%	0	0%	1	2%
Ethical Rights	Freedom of thought	0	0%	0	0%	1	2%
	Right to information	0	0%	1	5%	0	0%
	Right to protection of ideas and works	0	0%	17	77%	0	0%
	Accurate information and communication	0	0%	0	0%	9	20%
	Expressing and disseminating thought	0	0%	1	5%	10	22%
	Freedom of mass communication	0	0%	0	0%	1	2%
	Privacy of private life	0	0%	0	0%	13	28%
	Freedom of the press	0	0%	0	0%	8	17%
TOTAL		1	100%	22	100%	46	100%

Some Examples of Media-themed Statements in Social Studies Textbooks

To provide illustrative examples of the media content themes identified through analysis, Table 9 compiles sample textual excerpts and statements from the social studies textbooks reflecting each of the major media-related themes. These example statements from the textbook contents serve to concretely represent and reinforce the key media themes that emerged inductively based on a systematic analysis of the embedded textbook content on media elements, effects, functions, literacy, and ethics.

Table 9

Some Examples of Media-Themed Statements in Social Studies Textbooks

Book and Page No.	Expression	Relevant Thematic Context
7/171	"Electronic books can be defined as virtual books that we can read on computers, tablets or smartphones."	Media Elements
6/252	"Popular culture promises to liberate the individual in its advertisements. However, dressing according to changing fashions and choosing between several brands of fast food actually shows how limited the individual's freedom is."	Media Effect
7/151	"Countries are developing digital content to improve the quality of educational activities. "	Media Functions
5/95	"Media literacy aims to critically analyze and evaluate the information obtained through the media."	Media Literacy
7/28	"We see the most beautiful reflection of freedom of thought through the media. Because people express and spread their thoughts on a certain subject or event through media such as books, magazines, newspapers and television."	Media Ethics

Some Samples of Media-themed Images in Social Studies Textbooks

The findings presented so far focused on the textual analysis of media-themed content within the social studies textbooks. However, in addition to the textual media-related content, the social studies textbooks were also found to contain abundant related visuals, including

many images depicting and related to media topics and issues. To provide concrete illustrations of these visual depictions of media embedded throughout the social studies textbooks, examples of these media-themed textbook images are displayed in the figures below. These example visuals represent and complement the textual findings on media themes already presented.

Figure 2

Media Tools (Harut, 2019, p.95)



Figure 3

Digital Media Tools (Açıl et al., 2019, p. 171)



Figure 4

Consumption and Perception Management - Spread of Popular Culture (Yıldırım et al., 2019, p.250)

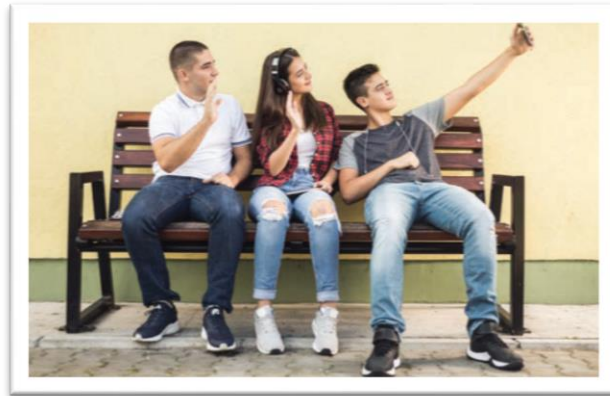


Figure 5

Ethical Rights-Privacy of Private Life (Açıl et al., 2019, p.31)

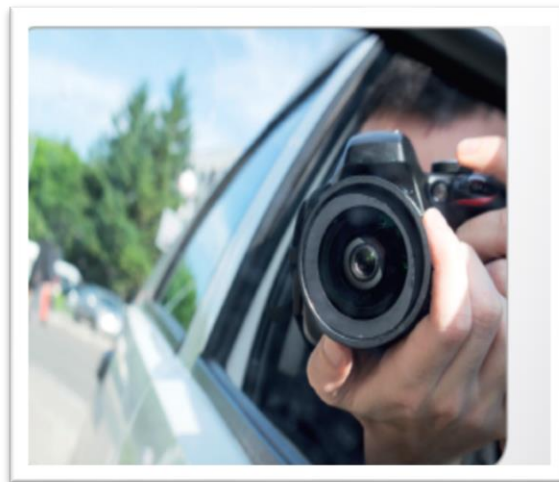


Figure 6

Online Dangers and Insecurity (Harut, 2019, p.97)



Figure 7

Education and Digital Content (Açıl et al., 2019, p.151)



Figure 8

Communication and Communication Tools (Harut, 2019, p.88)

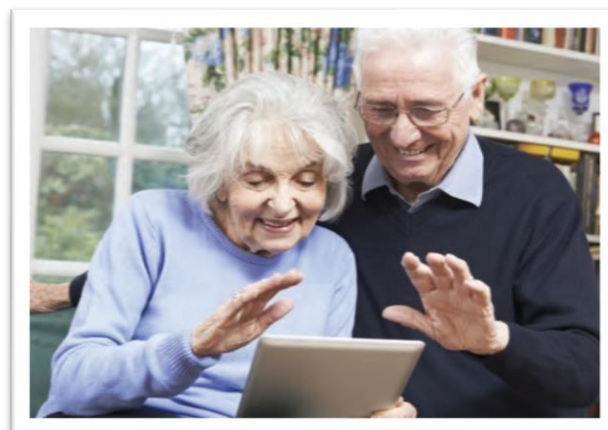


Figure 9

Online Dangers and Insecurity (Açıl et al., 2019, p.30)



Figure 10

Addiction and Psychological Effects (Harut, 2019, p.97)



Figure 11

Messaging Tools with Message Content (Yıldırım et al., 2019, p.136)



Discussion and Results

This study identified five distinct dimensions and 24 associated sub-dimensions explaining the related textbook content. The main research result dimensions were *media elements*, *media impact*, *media functions*, *media literacy*, and *media ethics*. All dimension frequencies and percentages evidenced irregular distribution both within individual textbooks and between texts. Erol (2021) has found that the content related to digital literacy and media literacy that can be associated with media is not evenly distributed in social studies textbooks, and in fact, that this content is included in the textbooks of the 5th and 7th grades but not in the textbooks of the 6th and 4th grades. These results highlight the need to review proportional topic distribution for media-themed content across textbooks. On the other hand, Sensekerici (2022) has determined that media-related quotations in social studies textbooks, which he examined within the framework of the themes expressed by UNESCO, are sufficient in terms of quantity but do not reflect the necessary diversity.

The media elements in the analyzed textbooks are categorized as *media development*, *media tools*, *media type*, *media institutions*, and *media workers*. While media development content was very frequent in the 7th-grade text, other grade levels omitted information on media inventions and inventors. Communication/communication tools had the highest frequency among media tools. The social media concept had low 5th and 6th grade frequencies, despite social media's educational importance. As Ayaydın and Yıldız Ayaydın (2018) found, social media contributes some middle school student skills and values like cooperation and patriotism, yet negatively impacts responsibilities, studying, and family. Per Koç and Koç (2023), social media increased socialization, solidarity, sharing, and patriotism but decreased empathy, respect, love, and honesty. Although beneficial for individual content production/sharing, Eşitti (2016) notes social media discourages action-taking. Therefore, with attention to contributions/risks, textbooks should incorporate social media and other media elements to promote awareness.

Identified positive textbook media effects were *social and human relations*, *quality of life and increase in welfare*, *cultural effects*, *digital transformation*, and *technological facilitation*, *information access*, and *sharing*. Negative effects encompassed *social and communication problems*, *addiction and psychological effects*, *online dangers*, and *insecurity*, *cultural effects*, *consumption*, and *perception management*. As Arslan (2004) states, media-disseminated messages positively or negatively shape perceptions, interpretations, and

cultures. Coen et al. (2021) have determined that media contributes to issues related to children's body image and eating habits. Paton and Figeac (2015), on the other hand, have stated that it triggers aggression and tendencies towards violence. In this research, increased social interaction/cooperation, digital facilitation, and information access showed high positive frequencies, while high negatives were information pollution, violent/risky websites, cultural imperialism, consumer culture, and popular culture spread. Less frequent positives were public opinion formation and idea/solution generation.

The issue of violence identified among the negative effects of the media is similar to the study of Özer (2017), which states that media content contains violence. The phenomenon of violence identified in this study is one of the important negative features of the media. Mass media, programs, and social media contain many elements of violence (Çoban & Kaplan, 2022). As Özer (2017) states, the way to understand the phenomenon of violence in the media is possible by taking into account the media economy, the ideological violence of the media, and the upbringing theory that explains violence in terms of production, content, and consumption. Therefore, when reflecting on the media issue in textbooks, not only the individual but also the society should be considered. Here, textbook authors must incorporate associated social alongside individual impacts while reflecting the negative effects of the media in the book.

The functions of the media in the analyzed textbooks include *transmission, speed, and ease of processing, communication and communication tools, education, and digital content*. According to Sayın and Aydın (2019), students generally see the media as a source of information, a medium of participation, a tool that requires conscious use, a tool of influence and guidance, and a tool of danger. İlhan et al. (2014) found that students generally use the media for entertainment, leisure time activities, and information. A significant number of students think that media texts contain ideological messages and present a fictional world. In some studies, it has been found that media tools are used for purposes such as spending time, having fun, getting news, acquiring information, making friends, and establishing communication (Kocadaş & Kılıç, 2017; Mackenbrock & Kleinert, 2023; Yeo, 2014). Ekmen and Bakar (2019) found that social studies textbooks include many contributions of digital technologies that make our lives easier. These include sharing information, recognizing cultures, and providing communication and educational tools. These findings support the findings of the study.

Media literacy is another result of the analyzed textbooks. Within the scope of media literacy, the categories of *basic concepts, basic skills, and consciousness-raising* were found. Basic skills, consciousness-raising, and the ability to look critically at information stand out in 5th-grade textbooks. In 5th and 6th grade textbooks, the frequency values related to media literacy are quite low. Altay (2020) also included media literacy among the skills in social studies textbooks. He stated that the 5th-grade textbook did not include any skills related to media literacy. Ekmen and Bakar (2019) state that concepts such as media and networks in textbooks have decreased from past to present, but concepts such as technology and digital have increased significantly. The scarcity or absence of media literacy skills in the content of textbooks suggests that we should reflect this skill, which is important in many areas of daily life, in textbooks. İlhan et al. (2014) found that media-literate students started to question the media and gained a critical perspective towards media content.

Media ethics findings were *controllable and regulable activities* and *ethical rights*. These issues related to media ethics were covered mostly in the 7th-grade textbook and least in the 5th-grade textbook. Rights and freedoms related to media ethics were covered intensively at the 7th-grade level. Protection of ideas and works is included in the 6th-grade textbook. At the 5th-grade level, the scarcity of content on media ethics draws attention. Çoban and Kaplan (2022) state that much of the news presented and produced in the media are very limited in terms of ethical standards. Damlapınar and Balcı (2016) found that the priority issue in the media's news reporting process is ethics and responsibility, but the participants believe that media organizations partially fulfill their professional responsibilities. Ekmen and Bakar (2019) addressed the issue of ethics and security in the sub-dimensions of ethical values, digital citizenship, privacy, and security. According to Kocadaş and Kılıç (2017), the majority of young people believe that communication tools are not reliable. Many effects of the media, which is the channel of the message, on society are known by all of us. Education plays a vital role in cultivating new generations of students who are conscious and critically aware of the potential positives and negatives surrounding media, media messages, and media impacts. Textbooks constitute particularly important educational resources and materials that can help build this critical consciousness among students regarding the multifaceted effects and dimensions of media in contemporary society.

Recommendations

The finding frequencies for media-themed content evidenced disproportionate distribution within individual textbooks and across texts. The content does not systematically explain media concept dimensions from specific to general or vice versa. Some media-related concepts and skills were entirely omitted. Thus, aligning with the spiraling course structure, textbook authors should restructure media concept dimensions/sub-dimensions with proportional coverage, ensure expression integrity, and address deficiencies at each grade level.

This study analyzed middle school social studies textbooks. Future researchers examining this topic might focus on elementary social studies texts, analyze other subject area textbooks regarding media, or conduct cross-national social studies textbook comparisons using this study's findings. Researchers could also examine how well the results generalize to textbooks from different countries' educational systems and curricula. Comparing the current findings to equivalent data from social studies textbooks in other nations would reveal cross-cultural commonalities and distinctions in how media is incorporated into social studies education.

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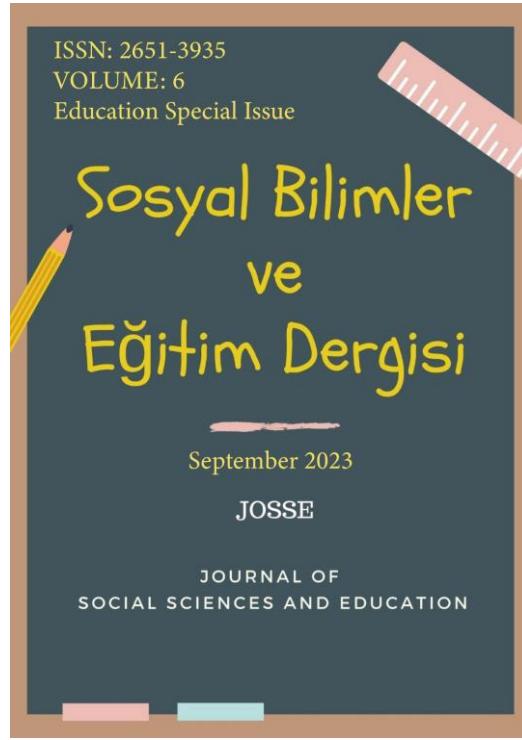
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A Bibliometric Analysis of Multicultural Education Research

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A Bibliometric Analysis of Multicultural Education Research

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ABSTRACT

Bibliometrics, a research methodology that involves quantitative analysis to examine the characteristics of publications in a research area, is widely used by researchers. The lack of bibliometric research in multiculturalism and multicultural education prompted this study. This study aims to conduct a bibliometric analysis of research on " multicultural education in the Web of Science database. The bibliographic data of 1,300 documents were acquired from the Web of Science and downloaded into a file. Then, the data were analyzed using the Wosviewer program. The results showed that the number of studies had steadily increased over time. The Journal for Multicultural Education proved to be the publication that published the most articles on multicultural education. In addition, more than half of the publications came from the United States of America, and the top ten universities contributing to multicultural education research are in the United States. In addition, Geneve Gay and Gloria Ladson Billings were identified as the most cited researchers in multiculturalism. Finally, the Journal of Teacher EducationTeaching and Teacher Education and Teaching and Teacher Education were the most frequently cited journals in multicultural education.

Keywords: Web of Sience, multiculturalism, multicultural education

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Introduction

Throughout history, epidemics, natural disasters, and conflicts have driven human migration to foreign lands. These unfortunate circumstances have sometimes compelled individuals to share their lives with people from different cultural backgrounds, either out of necessity or in pursuit of personal betterment. However, with globalization and advancements in transportation technology, we have witnessed the emergence of multinational states and the transformation of existing states into multicultural societies. These developments have facilitated communication among diverse cultures and encouraged the exchange of ideas and values. Consequently, multiculturalism has gained prominence to promote the peaceful coexistence of various cultural communities within the public sphere (Rdodoplu, 2020).

Multiculturalism holds significant implications, influencing various domains such as education, state policies, citizenship, employment, and media (Çelik, 2008). Its origins can be traced back to the 1970s when countries like Australia and Canada initially embraced it to celebrate the diversity of indigenous populations and immigrants. Over subsequent decades, it expanded to English-speaking nations like the United States, the United Kingdom, and New Zealand, gradually spreading to other parts of Europe (Doytcheva, 2009). However, the reception of multiculturalism has been mixed, with some nations welcoming it enthusiastically while others remain skeptical (Rdodoplu, 2020).

One fundamental approach to fostering harmonious coexistence among individuals from diverse backgrounds is through multicultural education provided to school students. Unlike traditional educational models that produce individuals rooted in a single culture, multicultural education aims to cultivate individuals who deeply appreciate diverse cultures, offer equal development opportunities, and demonstrate sensitivity to various cultural backgrounds (Polat & Kılıç, 2013). Multicultural societies have profoundly influenced educational practices, giving rise to multicultural education. Banks et al. (2001) define multicultural education as a reform and process ensuring equal educational opportunities for all students, regardless of race, gender, socioeconomic status, or ethnic origin.

In the research literature, the bibliometric analysis method is a systematic review tool that quantitatively assesses the publications within a specific academic discipline or field (Çalık & Sözbilir, 2014). Bibliometrics, through its analysis of various aspects of publications within a field, plays a pivotal role in identifying trends and patterns. By conducting comprehensive bibliometric studies, researchers can gain valuable insights into gaps and

disparities within the research domain (Polat, 2013). Independent studies within the same field may yield divergent results, underscoring the significance of bibliometric studies in aggregating, selecting, synthesizing, organizing, and summarizing research outcomes. Consequently, a well-executed bibliometric study offers researchers a rich source of information conveniently consolidated in one accessible location.

An extensive review of the existing literature on multicultural education has revealed a noticeable lack of bibliometric studies within this field. Because there is no bibliometric research and multicultural education in the literature, the present study will fill a gap in the multicultural education field. To the author's knowledge, no study has a bibliometric analysis of research on multicultural education. The lack of bibliometric research in multicultural education addresses an important research gap in the literature. Furthermore, only two studies related to bibliographic and multicultural studies are closely parallel to the present study. For example, Cabrera et al. (2019) conducted a bibliometric study to analyze nine highly published studies concerning ethnic and racial bullying. Their findings revealed the important physical and psychological challenges faced by young individuals who experienced ethnic and racial bullying. In a more recent study, Wu et al. (2022) conducted a bibliometric analysis focused on the impact of electronic data interchange (EDI) on culture within English-speaking countries, utilizing data from the Web of Science database. This study revealed that EDI harmed national identity and indigeneity. However, the studies of Cabrera et al. (2019) and Wu et al. (2022) are not related to multicultural education, and they have not conducted a comprehensive bibliometric analysis of articles related to multicultural education in the field of education. With this aspect, research gaps are clear in conducting bibliometric research on multicultural education.

Therefore, a need for conducting research for a bibliometric analysis of multicultural education has emerged in the literature. Therefore, this research aims to make a bibliometric analysis of published documents on multicultural education in the Web of Science database. The results obtained from this research can serve as a beginning point for scholars and strengthen future research to encourage further initiatives and research efforts in multicultural education. In terms of this importance, the research results can contribute to the knowledge of multicultural education researchers who work on multicultural education, reveal research gaps revealed from the existing studies on multicultural education, and give valuable insights for policymakers and curricula on multicultural education.

Method

Model

During this research, we used the bibliometric analysis method to examine English-language studies in the Web of Science Core Collection database. Bibliometrics, as a methodology, involves the application of mathematical and statistical techniques to extract relevant insights from academic studies, taking into account factors such as subject matter, publication year, affiliations of contributors, number of authors, and citation patterns (Ulu & Akdağ, 2015). Studies conducted using bibliometric content analysis hold considerable importance, as they offer valuable guidance for shaping future research efforts in the field.

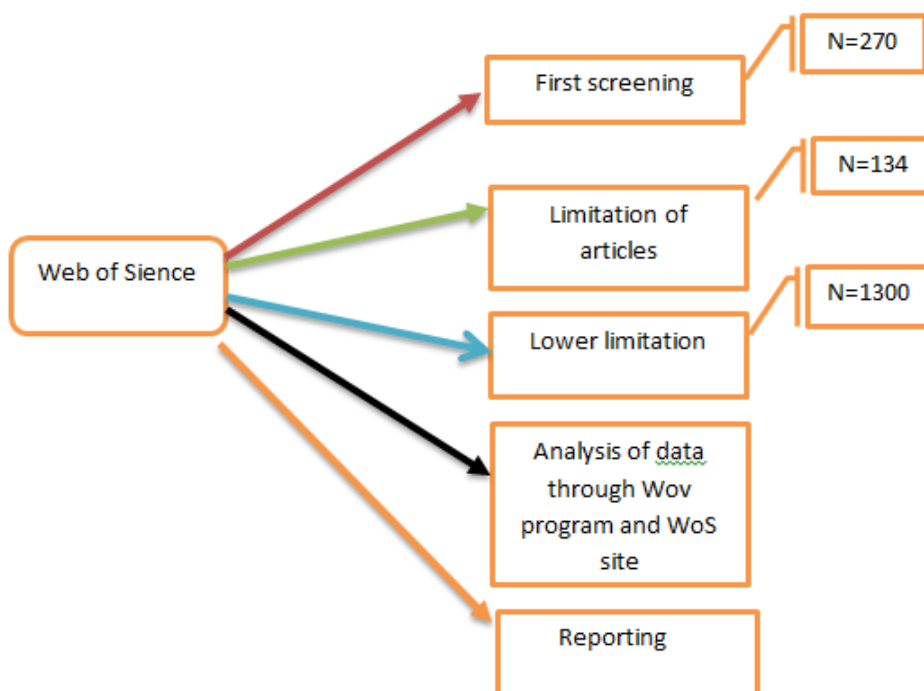
Data Collection

The study's dataset consisted of articles in the field of education that were related to the fundamental concepts of "multicultural" and "multicultural education." These articles were collected from various journals within the Web of Science Core Collection database, spanning 1992 to 2022. The database search specifically focused on articles, with an emphasis on publications in the English language. The decision to begin the study in 1992 was based on the availability of the earliest article in the database for that year. Furthermore, excluding data from 2023 was considered necessary as the year had not yet concluded. This exclusion was done to ensure the integrity of the analysis and to avoid complications in the interpretation of results.

During the research, keyword searches for "multicultural" and "multicultural education" yielded 1400 studies across educational research and educational sciences domains. To align with the research objectives, filtering based on document type and language was applied, resulting in a refined dataset of 1347 articles. Subsequently, the primary researcher and another expert meticulously examined these 1347 articles and excluded 47 that fell outside the defined subject area. Consequently, 1300 articles were ultimately incorporated into the study, with disagreements among the researchers resolved through discussion and consensus.

Figure 1

Flow Diagram Showing the Stages of Bibliometric Research



Analysis of Data

The data were analyzed using the Web of Science database's proprietary system, employing the descriptive analysis method. The Web of Science database extracted information on the distribution of studies by publication year, document type, journals with the highest publication rates, countries contributing the most publications, universities, and authors. Subsequently, bibliometric analyses were conducted utilizing the Wosviewer program. A TAB file containing bibliographic data from 1300 documents downloaded from WoS was downloaded. This TAB file was then uploaded to the Wosviewer program, where citation (journal, author, and document), co-citation (author), and common word analyses were executed. Before each analysis, a meticulous review of the relevant data was undertaken, and necessary data-cleaning procedures were applied. These included consolidating author, journal, and institution names that were written in different languages or characters, as well as words with similar meanings (e.g., 'student' and 'students,' 'success' and 'achievement'), accomplished through the creation of 'thesaurus files.'

The research scope encompasses studies on multicultural education within the Web of Science database, aligning with the research objectives. The included studies were initially

examined by publication year, followed by document type, journals of publication, contributing countries, affiliated universities, researchers, fields of study, keywords, study objectives, studies and journals ranked by citation counts, data collection, and analysis techniques. The findings from these analyses are presented as a comprehensive report.

Limitations

This study's limitation lies in its exclusive focus on multiculturalism and multicultural education. Conducting bibliometric research encompassing a broader range of studies addressing multiculturalism as an application area could yield more comprehensive insights. Furthermore, the study's scope was limited to articles sourced exclusively from the Web of Science database. Future research efforts should incorporate various databases such as ERIC and SCOPUS. Additionally, to track the evolution of this field, it would be beneficial to compare subsequent studies on multiculturalism with the data gathered in this research. Future bibliometric studies within multiculturalism could also extend to an analysis of theses, shedding light on the types of studies cited by academics in these theses and determining whether references to articles are concentrated within specific journals. Moreover, it is worth noting that this study focused solely on English articles published between 1992 and 2022 and exclusively utilized the keywords "multiculturalism" and "multicultural education"

Findings

Figure 1 demonstrates the distribution of the studies conducted in the Web of Science database between 1994 and 2022 according to years.

Figure 1

Distribution of Studies by Years

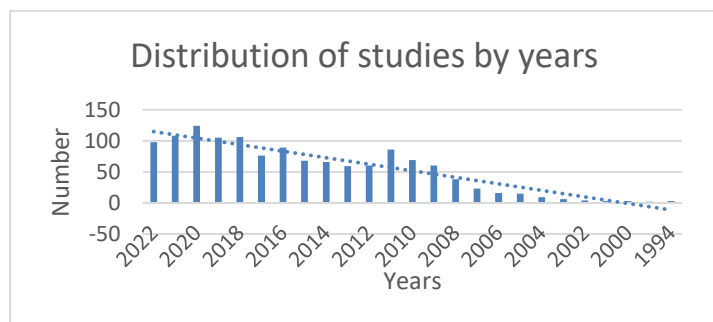


Figure 1 illustrates that the earliest study on multicultural education was conducted in 1994. Consequently, studies conducted between 1994 and 2022 were encompassed within the scope of the bibliometric analysis. As 2023 remains ongoing, the study did not consider data from this year. When examining the studies conducted within this time frame, it becomes apparent that the highest number of studies occurred in 2020, and the multiculturalism-related studies the lowest number occurred in 1997. The trend line in Figure 1 reveals a consistent upward trajectory in the number of studies conducted in multicultural education over the years. This increase was particularly pronounced in 2020. Figure 2 illustrates the distribution of multiculturalism-related studies in the Web of Science database from 1994 to 2022, categorized by document type.

Figure 2

The Distribution of Studies

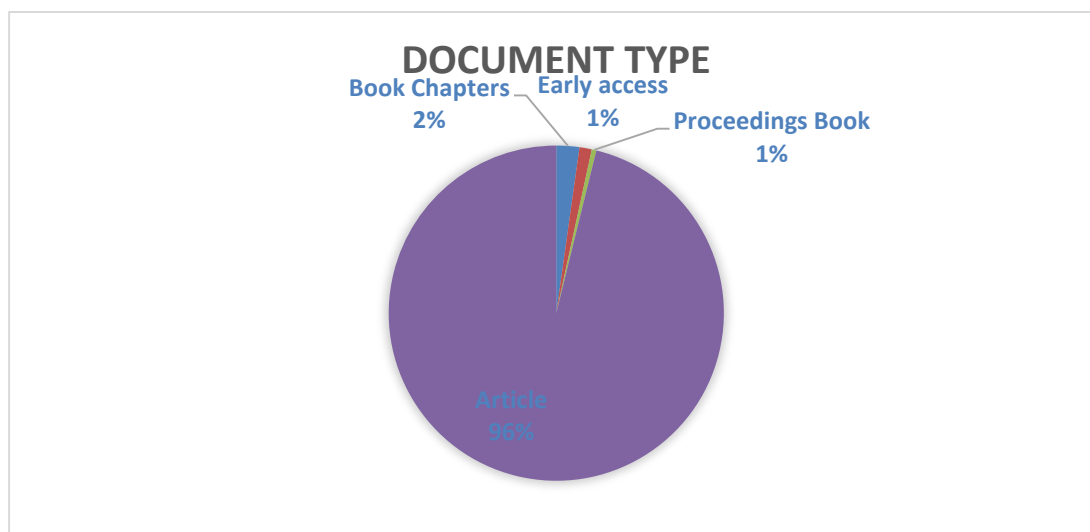


Figure 2 illustrates the distribution of studies within the Web of Science database based on document type. Upon examination, it becomes evident that most of these studies (96%) are published articles. Published articles are followed by book chapters (2%), with early access articles (1%) and proceedings (1%). Out of the 1300 studies analyzed, 1248 were published, 30 were book chapters, 16 were early access articles, and 6 were proceedings.

Table 1*Top 10 Journals with the Highest Number of Publications*

Journals	Number of Articles	Percentage
Journal For Multicultural Education	71	5,4%
Multicultural Education Review	64	4,9%
Intercultural Education	55	4,2%
Education And Urban Society	41	3,1%
Teaching And Teacher Education	41	3,1%
International Journal of Multicultural Education	39	3,0%
Reading Teacher	32	2,4%
Journal of Teacher Education	29	2,2%
Counselor Education and Supervision	27	2,0%
Urban Education	21	1,6%

Table 1 presents that the Journal for Multicultural Education holds the foremost position with 71 articles, accounting for 5.4% of the total. Multicultural Education Review follows this with 64 articles (4.9%), Intercultural Education with 55 articles (4.2%), Education and Urban Society, and Teaching and Teacher Education, each contributing 41 articles. The International Journal of Multicultural Education follows closely with 39 articles, while the Reading Teacher published 32 articles. Journal of Teacher Education contributed 29 articles, Counselor Education and Supervision offers 27 articles, and Urban Education features 21 articles. Table 2 demonstrates the top 10 countries where studies published in the Web of Science database from 1994 to 2022 were predominantly published.

Table 2*Countries with the Highest Number of Published Studies*

Countries	Number of Articles	Percentage
United States	730	56.1%
Avustralia	64	5.3%
Turkey	55	3.4%
South Korea	41	3.1%
İsrael	41	3.1%
England	39	2.8%
China	32	2.8%
Canada	29	2.7%
Finland	27	2.0%
Russia	21	2.0%

Table 2 reveals that most of the studies, accounting for 56.1%, were published in the United States, totaling 730 articles from 1994 to 2022. Australia follows with 64 articles (5.3%), Turkey with 55 articles (3.4%), while South Korea and Israel both contributed 41 articles each (3.1%). England recorded 39 articles, China 32 articles (2.8%), Canada 29 articles (2.7%), Finland 27 articles (2.0%), and Russia 21 articles (2.0%). Meanwhile, Table 3 highlights the top ten universities within the Web of Science database where studies published between 1994 and 2022 originated.

Table 3

Universities with the Highest Number of Published Studies

Universities	Number of Articles	Percentage
Florida State University	43	3.3%
California State University	38	2.9%
University of North Carolina	37	2.8%
University of Texas System	35	2.6%
University System of Georgia	32	2.4%
University of Wisconsin	26	2.0%
University of California System	23	1.7%
University of Ohio	23	1.7%
State University of New York Suny System	22	1.6%
City University of New York Cuny System	19	1.4%

Table 3 shows that the top ten universities actively engaged in multiculturalism research are in the United States of America. The university with the highest volume of studies is the State University System of Florida, contributing 43 articles, which accounts for 3.3% of the total. Following closely is the California State University System with 38 articles (2.9%), the University of North Carolina with 37 articles (2.8%), the University of Texas System with 35 articles (2.6%), and the University of Georgia System with 32 articles (2.4%). The University of Georgia System ranks sixth with 26 (2.0%) articles. Subsequently, the University of Wisconsin System, the University of California System, and the University of Ohio each have 23 articles. The State University of New York SUNY System contributed 22 articles, and the City University of New York CUNY System produced 19 articles. Table 4 presents the researchers with the highest number of studies in the Web of Science database from 1994 to 2022.

Table 4*Most Published Researchers on Multicultural Education*

Authors	Number of Articles	Percentage	Countries	Universities
Aydın Hasan	8	%0,6	Turkey	Yıldız Technical University
Gunn AA	7	%0,5	ABD	University of South Florida
Bennett SV	6	%0,4	ABD	The University of Texas at Austin
Skerret A	6	%0,4	ABD	The University of Texas at Austin
Vivian Acquah	5	%0,3	ABD	-
Bankalar JA	5	%0,3	Japan	Nihon University
Chan Heng Chee	5	%0,3	Singapore	Singapore Ambassador to the United States
Gunilla Holm	5	%0,3	Finland	University of Helsinki
Jong Hun Kim	5	%0,3	South Korea	Hongik University
Smith P.	5	%0,3	ABD	University of South Florida

Table 4 reveals that Hasan Aydın is the researcher who has conducted the most studies, contributing a total of 8 articles (0.6%). Following Hasan Aydın is AnnMarie Alberton Gunn with seven articles (0.5%), while Allison Skerrett and Susan Bennett have authored six articles each (0.4%). Additionally, Vivian Acquah CDE, Banks JA, Chan E, Holm G, Kim J, and Smith P have each produced five articles, comprising 0.3% of the total. Table 5 presents the fields of study covered by articles within the Web of Science database from 1994 to 2022.

Table 5*Fields of Study of Publications*

Workspaces	Number of Articles	Percentage
Education Research	1242	95,5%
Urban Studies	62	4,7%
Special Education	40	3,0%
Linguistics	29	2,2%
Applied Psychology	27	2,0%
Language Linguistics	25	1,9%
Music	22	1,6%
Psychology Education	22	1,6%
Educational Sciences Disciplines	21	1,6%
Ethnic Studies	18	1,3%

Table 5 reveals that most of the studies were conducted in the field of educational research, comprising 1242 articles, corresponding to 95.5% of the total. Educational research is followed by special education with 62 articles (4.7%), linguistics with 29 articles (2.2%),

and applied psychology with 27 articles (2.0%). Table 6 provides an overview of the keywords associated with articles on multicultural education within the Web of Science database between 1994 and 2022.

Table 6

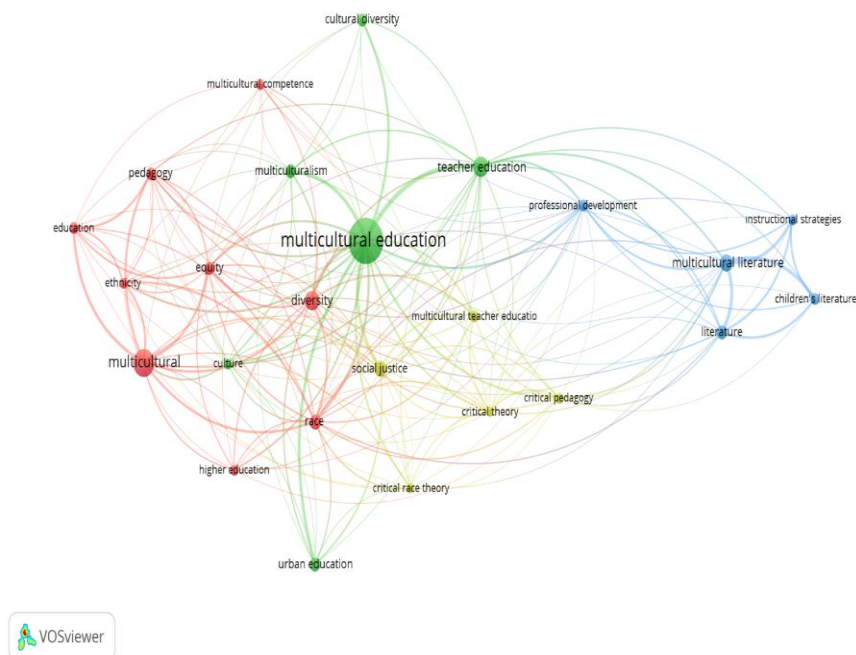
Keywords with the Highest Number in Publications

Keywords	Number of Articles
Multicultural Education	397
Multicultural	149
Teacher Education	78
Multicultural Literature	61
Race	47

Table 6 shows that the most frequently employed keyword in the articles is ‘multicultural education’ appearing in 397 instances. Following ‘multicultural education’ is ‘multicultural’ with 149 occurrences, ‘teacher education’ with 78, ‘multicultural literature’ with 61, and ‘race’ with 47. Figure 3 illustrates the network of the 25 keywords that have been utilized most frequently across articles within the field of multicultural education.

Figure 3

Keyword Network in Multicultural Education Articles



As illustrated in Figure 3, the keywords are organized into four distinct clusters. The first cluster, highlighted in red, encompasses keywords such as education, equity, ethnicity, multicultural, pedagogy, and race. The second cluster, depicted in blue, includes keywords like children's literature, instructional strategies, literature, multicultural literature, and professional development. The third cluster, marked in green, consists of critical pedagogy, diversity, and multicultural teacher education. The fourth cluster comprises keywords such as cultural diversity, multicultural education, multiculturalism, and teacher education. Table 7 demonstrates the subject targets of the Web of Science database articles between 1994 and 2022.

Table 7*Study Objectives of Publications*

Target Area	Number of Articles	Percentage
Quality Education	884	68.0%
Reducing Inequality	144	11,0%
Health and Wellbeing	122	9,3%
No to Poverty	23	1,7%
Gender Equality	16	1,2%
Industry Innovation and Infrastructure	8	0,6%
Sustainable Cities and Communities	4	0,3%
Decent Work and Economic Growth	3	0,2%
The Powerful Institution of Peace and Justice	2	0,1%
Zero Hunger	1	0,07%

As seen in Table 7, it becomes evident that the primary objective in most studies is to achieve quality education, accounting for 68.0%. Following this, reducing inequality is identified as a goal in 144 articles, while health and welfare are highlighted in 122 articles, and poverty alleviation is the focus in 23 articles. Figure 4 presents the co-citation network of the studies within the Web of Science database.

Figure 4

Co-citation Nnetwork of Publications

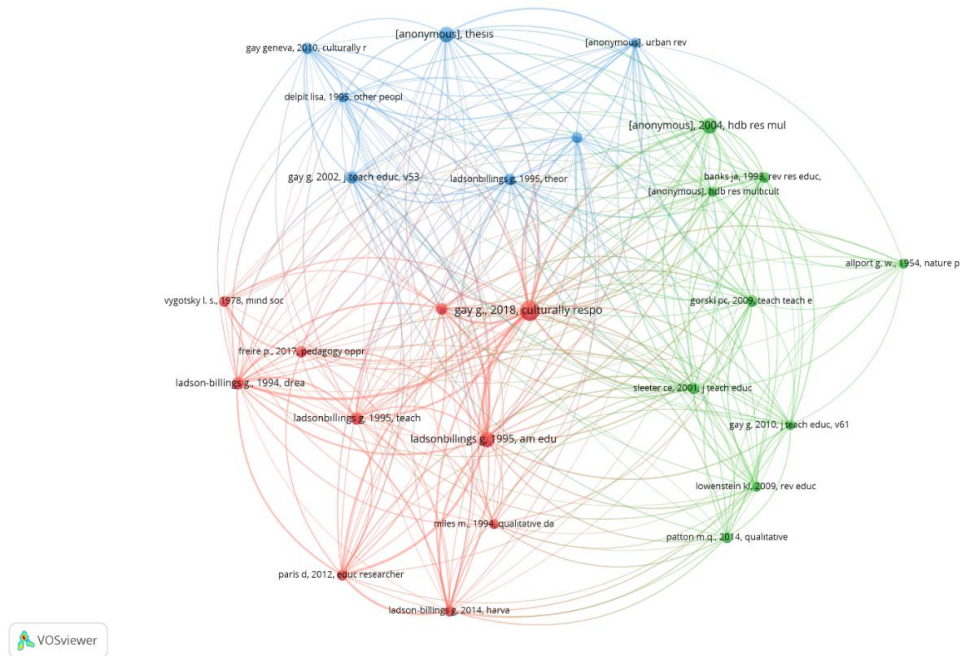


Table 8 provides information about the top 10 most cited publications in the Web of science databa.

Table 8

Most Commonly Cited Ten Documentations

Rank	Publication title	Authors	Year	Document type	Country	Number of citations	Total connection strength	Journal impact factor (2022)
1	Culturally Responsive Teaching: Theory, Research, and Practice, Third Edition	Geneve Gay	2018	Book	ABD	97	217	NA
2	Toward a Theory of Culturally Relevant Pedagogy	Gloria Ladson Billings	1995	Article	ABD	57	168	3,6
3	"Yes, But How Do We Do It?"	Gloria Ladson B.	2011	Book	ABD	41	107	NA
4	Preparing Teachers for Culturally Diverse Schools: Research	Christine E. Sleeter	2001	Article	ABD	32	104	3,9

5	and the Overwhelming Presence of Whiteness Culturally Sustaining Pedagogy: A Needed Change in Stance, Terminology, and Practice	Django Paris	2012	Article	ABD	29	97	8,2
6	But that's just good teaching! The case for culturally relevant pedagogy	Gloria Ladson Billings	2009	Article	ABD	35	96	3,2
7	Culturally Relevant Pedagogy 2.0: a.k.a. the Remix	Gloria Ladson Billings	2014	Article	ABD	28	92	2,19
8	Fighting racism, battling burnout: causes of activist burnout in US racial justice activists	Paul C. Gorski	2017	Article	United Kingdom	34	81	2,5
9	Bilingual Classroom Studies and Community Analysis: Some Recent Trends	Luis C. Moll	1992	Article	ABD	34	80	8,2
10	Preparing for Culturally Responsive Teaching	Geneve Gay	2002	Article	ABD	38	79	3,9

Figure 5 demonstrates the co-citation network of the most cited journals in the Web of Science database.

Figure 5

Co-citation Analysis of Sources

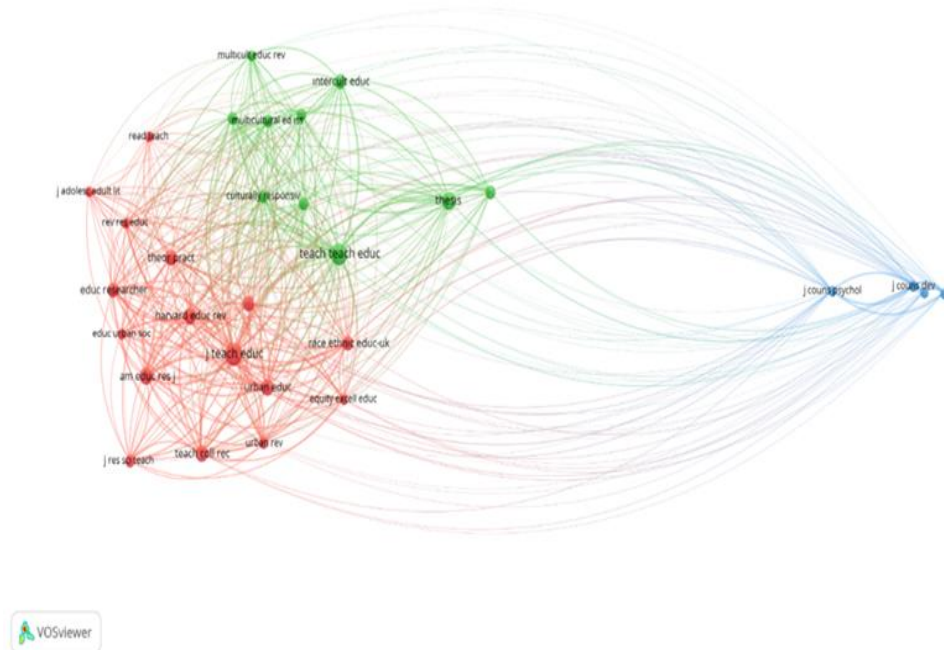


Table 8 demonstrates the most extensively cited studies in multiculturalism, providing details about the authors, publication years, document types, countries of publication, citation counts, and the impact factors of the journals in which they appeared. A comprehensive examination of the table reveals that out of the top 10 most impactful works on multiculturalism, two are books, while the remaining eight are articles. It is worth noting that nine of these studies, with just one exception, originated from the United States. Furthermore, it is noteworthy that the journals in which these studies were published typically have high impact factors.

Considering of the authors behind these influential studies, the names Geneve Gay and Gloria Ladson Billings prominently emerge. Notably, Gloria Ladson Billings contributed 4 of the top 10 cited studies, while Geneve Gay authored 2 of the most frequently cited works. When we delve into the co-citation network presented in Figure 4, it becomes evident that Geneve Gay's book, "Culturally responsive teaching: Theory, research, and practice," holds a central position within this network.

Geneve Gay is widely recognized for her significant contributions to multicultural education, particularly in the areas of curriculum design, professional development, and classroom instruction. In her book, she sought to bridge insights from multicultural education theory with real-life classroom experiences, with a focus on nurturing culturally responsive

students, improving the quality of life for children from diverse cultural backgrounds, and fostering culturally responsive teaching practices. Meanwhile, Table 9 presents the top 10 most cited journals within the Web of Science database.

Table 9

Top 10 Most Cited Journals

Journal name	Number of citations	Total connection strength
Journal of Teacher Education	500	6302
Teaching and Teacher Education	462	5348
Urban Education	274	3377
Teachers College Record	265	3171
American Educational Research Journal	284	3078
Harvard Education Press	261	2883
Review of Educational Research	236	2680
Educational Researcher	213	2486
Physiotherapy Theory and Practice	233	2376
Race Ethnicity and Education	225	2326

A thorough analysis of Table 9 shows that the Journal of Teacher Education emerges as the most frequently cited journal. Teaching and Teacher Education, Urban Education, and Teachers College Record closely follow it. To provide further clarity and organization, journals with more than 150 citations have been categorized into three distinct clusters based on their citation patterns:

Red Cluster: This cluster includes the following journals - Harm Reduction Journal, Educational Research, Harvard Education Press, Journal of Scientific Research, Journal of Teacher Research, Race Ethnicity and Education, Review of Educational Research, Teachers College Record, Theory and Practice, and Urban Education.

Green Cluster: The second cluster, depicted in green, includes the journals - Taking a Cultural-Response Approach to Teaching, HDB-NUS Study on the Social Aspects of the Built Environment, International Journal, Journal of Intercultural Studies, Multicultural Education, Journal for Multicultural Education, Teaching and Teacher Education, and Thesis - Journal.

Blue Cluster: Lastly, the third cluster, marked in blue, includes The Journals Journal Coun Psychol and Journal Couns Development.

These clusters helped to visualize the relationships and groupings among journals concerning their citation counts, offering valuable insights into the academic landscape.

Discussion and Results

This research aimed to conduct an exhaustive bibliometric analysis of articles related to multicultural education. In this context, we examined various bibliometric indicators derived from the Web of Science database. These indicators encompass publication trends over the years, types of articles, noteworthy journals, countries of publication, affiliating universities, prominent researchers, research fields, keywords, target areas, and the studies and researchers most frequently cited. The study's scope was defined from 1994 to 2022, as 2023 was excluded due to its ongoing nature. A noteworthy finding was the rapid growth in research activity in the field of multicultural education since its inception in 1994. The pinnacle of research output in multicultural education was observed in 2020. This surge in research may be attributed to global events such as the Arab Spring conflicts in Syria, Afghanistan, and other Middle Eastern nations, which forced people to migrate to various countries, consequently influencing societies to become more multicultural. This shift in demographics likely heightened the interest of researchers, resulting in an increased number of studies in recent years. The negative situations in countries such as Egypt and Syria have caused intense migration worldwide, especially in countries close to Middle Eastern societies. This mass migration to Middle Eastern societies has created several political, economic, security, and social negativities in countries. Due to this situation, multiculturalism has become an interesting field for researchers, and the number of researchers has increased over the years (Aybar et al.,2018).

Examining multicultural education and multiculturalism journals in the Web of Science database revealed that the United Kingdom's Journal for Multicultural Education and Multicultural Education Review occupied the top two spots in terms of publication frequency. Generally, journals specializing in multiculturalism featured prominently in the list of those publishing the most on multicultural education. Geographically, most of these studies originated from the United States, owing to its rich diversity of ethnic cultures. The United States was followed by Australia, where multiculturalism has long been a foundational principle. Australian Prime Minister Malcolm Turnbull (2016) MP, emphasized that Australia has embraced multiculturalism for millennia, making it a nation of immigrants. Consequently, Australian researchers have actively contributed to the field of multiculturalism. Turkey emerged as the third-highest contributor to articles, reflecting its multicultural historical context and domestic and foreign political motivations for adopting multiculturalism. Since

countries such as the USA, Australia, and the United Kingdom have been multicultural societies for many years, the number of studies on multiculturalism is naturally increasing day by day (Hazır, 2010).

Regarding research domains, a significant proportion of articles focused on educational research, followed by urban studies, special education, linguistics, and applied psychology. This alignment with educational research findings substantiates the prevalence of articles in this domain within the Web of Science database. Keyword analysis revealed that terms like multicultural education, multicultural, teacher education, multicultural literature, and race are prominently featured, highlighting the intrinsic connection between multiculturalism and education. These keywords underscore the inseparable relationship between these concepts. Increasing migration movements in recent years may have led to a focus of research on multiculturalism and multicultural education, teacher education, and racial discrimination (Kılavuz, 2023).

A deeper exploration of studies indexed under the keywords multiculturalism and multicultural education in the Web of Science database indicated that the predominant goal of these studies is to advance quality education. This objective is closely followed by goals related to reducing inequality, promoting health and welfare, eradicating poverty, and achieving gender equality. Multicultural education seeks equal educational opportunities for individuals from diverse cultural backgrounds, fostering cultural respect and competence. In this context, the goals of multicultural education align harmoniously with the objectives emerging from the studies found in the database, reflecting a shared commitment to enhancing the quality of education and societal equity.

The studies in the top 10 with the highest number of citations are authored by Geneve Gay, Gloria Ladson Billings, Christine E. Sleeter, and Django Paris, all of whom are researchers in the United States. Additionally, it is noteworthy that all the journals in the top 10 with the highest number of citations are also based in the United States. This alignment reflects that the USA boasts the greatest ethnic diversity in the world, earning it the designation of a "nation of nations," as initially noted by Rose in 1964. The country's history has witnessed waves of immigration from Western and Northern Europe and extending to Southern and Eastern Europe. Given this historical backdrop, the study of multiculturalism within the United States is of paramount importance and significantly supports the findings uncovered in this research. It is thought to be a result of the interest of researchers working at

American universities in multiculturalism and the research opportunities provided to them by American universities (Kılavuz, 2023).

Recommendations

It may be helpful to consider incorporating other databases, such as Scopus and ERIC to obtain a more complete picture, as relevant studies on this topic may have been left out by only looking at articles from the Web of Science database. It could also be beneficial to compare studies on multiculturalism in the future to observe how research in this field changes over time. In addition, conducting bibliometric studies on theses and comparing them to articles could provide a deeper understanding of the subject. Another suggestion is to investigate the number of studies in education, especially after significant global events like the Russian-Ukrainian war, to examine how research priorities shift. This could reveal how global events impact education research.

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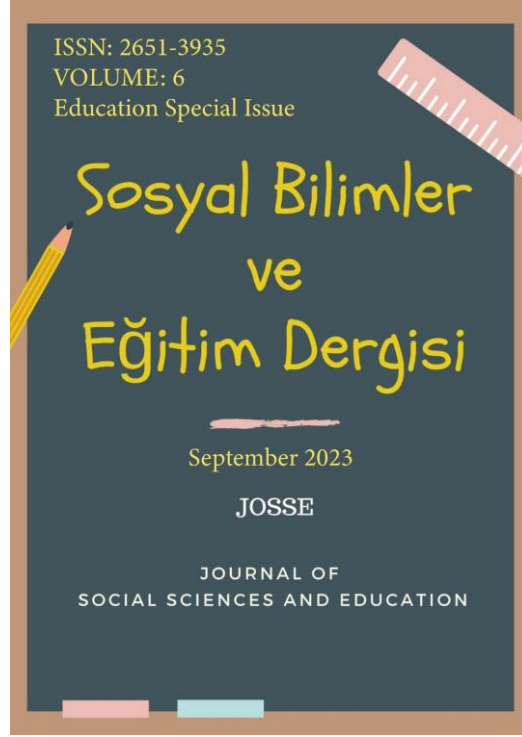
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Cartoons in The Context of Paul McGhee's Theory of Humor Development

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Cartoons in The Context of Paul McGhee's Theory of Humor Development

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ABSTRACT

Research Article

This study, which was conducted to examine cartoons according to Paul McGhee's humor development theory, is a basic qualitative research design. The research study group consists of 8 cartoons, 4 Turkish and 4 foreign productions, which are available on national and international children's channels and digital broadcasting platforms. These cartoons are; Keloğlan Masalları, Niloya, Pepee, Rafadan Tayfa, Caillou, Masha and the Bear, SpongeBob, and The Smurfs. The study's data were analyzed using the "humor checklist" prepared by the researcher. Document analysis technique was used to analyze the data obtained. As a result of the study, it was determined that the cartoon with the most humor elements was Masha and the Bear, the cartoon with the least humor elements was Pepee. In the study, it was observed that the most humor elements were found in stage 4c, which includes humor aimed at distorting the properties of objects, people, and animals, and the least humor elements were found in stage 4d, which includes naming the opposite sex. As a result of the research, it was determined that the cartoon with the most and least humorous elements in each stage differed. Since cartoons have different characteristics, the amount of humor in different stages may vary. However, humor is universal, and children of all ages watch cartoons. In this context, it is suggested that cartoons should have humor elements with different characteristics.

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Introduction

Today, technology plays a vital role in the lives of children and adults. From smartphones to tablets, computers to televisions, children can use many technological devices, sometimes even more expertly than adults. Depending on the duration, content, and intended use of technology, it can either contribute to or harm children's development and learning. Cartoons, one of children's daily habits, can also affect children's behavior positively or negatively (Wijethilaka, 2020). A cartoon is a humorous film, especially for children, made using animation instead of live actors (Thompson, 2010). It can also be defined as movies consisting of different drawings or models that appear to move and change when shown one after the other in sequence (Habib & Soleman, 2015). Visual and content features play a key role in determining the quality of cartoons. The visuals in cartoons are narrative tools for conveying cartoon content to children (Kagan, 1982). Theme and character features constitute the content features of cartoons (Güler, 2013). The colorful, exaggerated, and enjoyable world created by cartoons entertains and affects children (Peri, 1997). Children can internalize events and characters watching cartoons (Oruç et al., 2011). Although it is stated that YouTube videos have emerged as an alternative to traditional children's television and there are many popular children's videos on the platform (Papadamou et al., 2020), it is thought that cartoons on television are still up to date since every socio-economic level family has a television at home. The study by Yazıcı et al. (2019) determined that 97% of children watched cartoons, 46.7% watched television, and 24.0% watched mobile phones. Cartoons are among the most preferred and criticized programs (Aktaş Arnas, 2005). On the one hand, some argue that cartoons have adverse effects on children, such as violence and aggression; on the other hand, some claim that there is insufficient reliable evidence to support these claims (Browne & Hamilton Giachritsis, 2005). Studies are showing that well-designed cartoons contribute significantly to children's positive behaviors and cognitive, social, and language development (Akpınar, 2004; Bulut Pedük, 2012; Öztürk, 1999; Yaşlı, 2013), as well as studies showing that cartoons increase children's aggression (Fouts et al., 2006; Luther & Legg, 2010; Yaşar & Paksoy, 2011). Studies also show that using cartoons in educational environments contributes to children's academic achievement and learning. For example, in the study conducted by Oruç and Teymuroğlu (2016) to examine the effect of cartoons on the academic achievement of primary school 5th-grade students in social studies teaching, it was determined that the use of cartoons in social studies teaching was effective in increasing

students' academic achievement. The study of Türkan et al. (2016) determined that using cartoons in science teaching positively contributed to the academic achievement and attitudes towards science of children in the 3rd grade.

Humor is a phenomenon that has existed for as long as human history (Martin, 2007). It is ubiquitous in social and professional life, taking many forms, including jokes, cartoons, and funny conversations (Wyer & Collins 1992). Humor in children's lives contributes to their cognitive, physical, social, and emotional development (Loizou & Recchia, 2019; McGhee, 2002). Bergen (2018) found that humor helps children make decisions on moral issues, and Schmidt (2002) found that using materials containing humor in educational environments facilitates their learning.

There are also studies to determine the relationship between children's psychosocial adjustment and humor. For example, Sherman (1988) found that children rated as humorous by their peers were also rated as less socially distant. Masten (1986) found that better humor production and understanding were associated with better social competence. Humor also helps children cope with stress. Dowling (2014) found that children use humor to cope with various stressors related to school and home life and can give examples to support the benefits of using humor. Führ (2001) found that children reported that humor was a proper coping strategy for dealing with problems or events but not for dealing with serious problems or deeply felt emotions. The primary emotion that arises when comprehending and appreciating a humorous event is fun (Herring et al. 2011; Shiota et al. 2006). According to Keltner (2008), the experience of fun and laughter in response to humor can be likened to a momentary vacation of the mind where one takes a break from severe events.

McGhee(2002), who examined the development of humor according to Piaget's cognitive development theory, put forward his theory consisting of five stages by suggesting that the humor examples that individuals understand and produce show qualitative differences in the stages of cognitive development with age.

In the zeroth stage, laughing without humor (first 6 months), infants laugh without any humor. In the first stage, laughing at the attachment figure (6 months- 12/15 months), they laugh at their parents' unfamiliar actions. In the second stage, inconsistent behavior towards objects (12/15 months- 3/4/5 years), the earliest examples of humor created by children are seen. Children enjoy using an object in unusual and inappropriate ways once an object has become very familiar to the child. In the third stage, inconsistent naming of objects, events, and people (2-3/4 years), children begin to play with objects by giving them the wrong names.

The fourth stage, conceptual inconsistency (3-5 years old), is divided into 4 categories: a. Playing with the sounds of words (not their meanings), in which children become attuned to the sounds of words and begin to play with the sounds of words on their own. b. In combining nonsense and real words, children like to put words together in absurd ways, even if they know they are wrong c. In distorting the properties of objects, people, or animals, children like to add properties that do not belong to people, animals, or objects, erase existing properties, and change the size, color, or shape of familiar things. They laugh at inconsistent and impossible behavior of events, items, and people with exaggerated characteristics. d. In the opposite-sex naming category, children find it amusing when other children are called by the name of the opposite sex or called by a name associated with the opposite sex. In the fifth stage, riddles and jokes (multiple meanings) (6/7- 10/11), children can understand humorous jokes and riddles made with double-meaning or ambiguous words (McGhee, 2002).

In the literature, there are studies examining cartoons in terms of cultural elements (Karakuş, 2016; Pekşen Akça & Baran, 2018), popular culture (Tozduman Yaralı & Avcı, 2017), suitability for children (Hamarat et al., 2015) gender roles (Duman & Koçtürk, 2021; Semiz Türkoğlu & Türkoğlu, 2022; Şen & Deniz, 2019), and values education (Akıncı Coşgun & Güven, 2014; Ay & Yangil, 2021), peer bullying (Dilek Çin et al., 2023). Studies examining the humor characteristics of children's books (Dirican et al., 2020; Eroğlu, 2008; İnce Samur & Arıkan, 2018; Pala & Gönen, 2018; Taşçılar & Babaoğlu, 2023) were also found. However, no study on humor development theory was found in which cartoons were examined. Although cartoons, which take place in children's lives and are produced for children, have been examined from different angles in studies, they have not been examined in terms of humor features. However, it is thought that it is necessary to determine how humor, which is effective in children's development, learning, having fun and coping with stress, is included in cartoons. With this study, it is aimed to benefit both cartoon producers, teachers who use cartoons in the educational environment, and parents who should be a guide in children's choice of cartoons. In addition, it can be said that including examples in the context of Paul McGhee's (2002) humour development theory will be useful in terms of understanding the theory. In this context, it is thought that this study will contribute to the literature.

This study aims to examine the cartoons according to Paul McGhee's humor development theory. In line with this primary purpose, answers to the following questions will be sought:

- According to Paul McGhee's humor development theory, what is the distribution of the humor elements in the cartoons in the study group?
- Which cartoons contain the most and least humorous elements?
- Which humor development stage contains the most and least humor elements?
- What are the sample scenes in cartoons according to Paul McGhee's humor development theory?

Method

In this section, the design of the study, the study group and the collection and analysis of data will be discussed.

Model

This research was conducted in a basic qualitative research design. Basic qualitative research analyzes data obtained through observation, interviews, or documents. The aim of basic qualitative research, which is a qualitative research design frequently used in education and social sciences, is to focus on and understand the process (Merriam, 2013). In this study, cartoons were handled as documents, watched by focusing on Paul McGhee's humor development theory, and a conclusion was reached by making sense of the scenes in the cartoons according to the theory.

Ethical principles were followed at every stage of this research. However, ethics committee permission was not obtained because the cartoons, which were open to everyone, were analysed and no data were collected from any living creature.

Sample and Population

The study group of the research consists of 8 cartoons, 4 Turkish and 4 foreign productions, produced for preschool children, which are available on both national and international children's channels and digital broadcasting platforms.

The cartoons included in the study group are 480 episodes and last 6074 minutes. In line with the purpose of the study, criterion sampling technique, one of the purposeful sampling types, was used to select the cartoons in the study group. While selecting the selected cartoons, attention was paid to the following criteria:

- Being a cartoon produced for preschool children

- Availability of a sufficient number of departments,
- Continues to be broadcasted
- Appearance on national and international channels broadcasting in Turkey and digital broadcasting platforms

Information about the cartoons in the study group is given in Table 1.

Table 1

Information About The Cartoons

Cartoon Movie	Country	Year	Place of Broadcasting	Average Duration of an Episode	Number of Episodes Watched (Total: 480)	Time Watched (6074 min.)
Keloğlan Masalları	TR	2008	TRT Kids	13-21 min.	44	760 min.
Niloya	TR	2012	Yumurcak TV-TRT Kids	5-7 min.	125	755 min.
Pepe	TR	2008	TRT Kids	10-20 min.	60	768 min.
Rafadan Tayfa	TR	2014	TRT Kids	13-17 min.	50	750 min.
Caillou	Canada	1997	Yumurcak TV, TRT Kids, Cartoon Network	16-23 min.	45	765 min.
Masha and the Bear	Russia	2012	TV8, Netflix	8-14 min	74	753 min.
Sponge Bob	USA	1999	Nickelodeon, Netflix	22-24 min.	33	759 min.
Smurfs	Belgium	1984	Kanal D, Cartoon Network, Boomerang	12-24 min.	49	764 min.

Data Collection Tool

The study's data were collected using the "humor checklist" prepared by the researcher. The humor checklist consists of the sections in Paul McGhee's humor development theory, except for stage 0 and stage 1, where the name of each stage is written, and the number of examples of the stage in the cartoon and the scene's content is written. There are no sections for Stage 0 and Stage 1 in the humor checklist because laughter in Stage 0 does not contain humor, and in Stage 1, children laugh at the attachment figure. The humor checklist was sent to two child development experts for their expert opinions, and necessary

arrangements were made in line with the experts' opinions. Then, in order to determine whether the humor checklist was useful or not, a pilot study was conducted by two researchers by watching a section that was not included in the study group. Thus, the "humor checklist" was finalized.

Collection of Data and Analysis

In the first stage, after the cartoons to be analyzed were selected considering the purpose of the study and the criteria determined, random episodes were identified for each cartoon. Then, the researchers watched each episode twice, and the "humor checklist" was filled out. The data were collected in 5 months between January 2023 and May 2023. To ensure the reliability of the study, the data in the humor checklist were examined, and the coders' agreement was calculated according to Miles & Huberman's (1994) reliability formula. The agreement between the coders was calculated as $734 / 734 + 86 \times 100 = 89\%$. This agreement is expected to be 70% and above (Tavşancıl & Aslan, 2001). The coders re-watched the relevant scene for their evaluations and reached a common opinion. Document analysis technique was used to analyze the data obtained. In document analysis, both written sources and visual materials such as films, videos, or photographs can be analyzed (Yıldırım & Şimşek, 2016). The data obtained were tabulated, and frequency values were calculated.

Findings

The findings are presented in the order of the sub-problems of the study.

General Findings Regarding the Distribution of Humor Elements in Cartoons According to Paul McGhee's Humor Development Theory

The analysis of the humor elements in the cartoons in the study group according to Paul McGhee's humor development theory is given in Table 2.

Table 2

Distribution of The Elements of Humor in The Cartoons According to Paul McGhee's Humor Development Theory

Stage / Cartoon	Stage 2 f	Stage 3 f	Stage 4a f	Stage 4b f	Stage 4c f	Stage 4d f	Stage 5 f	Total f
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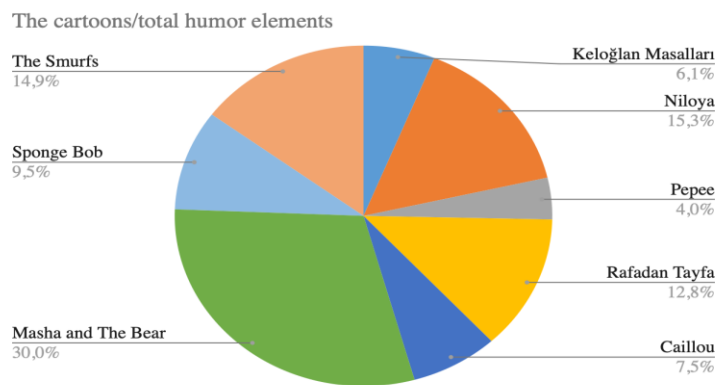
Keloğlan Masalları	2	3	1	3	32	1	3	45
Niloya	14	0	0	0	93	0	5	112
Pepe	3	1	1	0	24	0	0	29
Rafadan Tayfa	20	2	2	3	41	1	25	94
Caillou	20	1	0	3	30	0	1	55
Masha and the Bear	33	1	0	1	185	0	0	220
Sponge Bob	17	1	0	0	48	0	4	70
The Smurfs	10	4	0	5	74	1	15	109
Total	119	13	4	15	527	3	53	734

Table 2. shows that there are 734 scenes containing humor elements in cartoons. It was determined that the cartoons with the most humor elements were Masha and the Bear (f:220), Niloya (f:112), and The Smurfs (f:109). In contrast, the cartoons with the least humor elements were Pepe (f:29), Keloğlan Masalları(f:45), and Caillou (f:55). In all comics, it was determined that the humor elements in the conceptual inconsistency stage (f:527), which is stage 4c, took place the most, and the humor elements in the naming of the opposite sex stage (f:3), which is stage 4d, took place the least. Only two cartoons (Keloğlan Masalları and Rafadan Tayfa) had at least 1 humor element in all phases.

Findings Related to The Cartoons with The Least and Most Humor Elements / Humor Development Stages

Graph 1

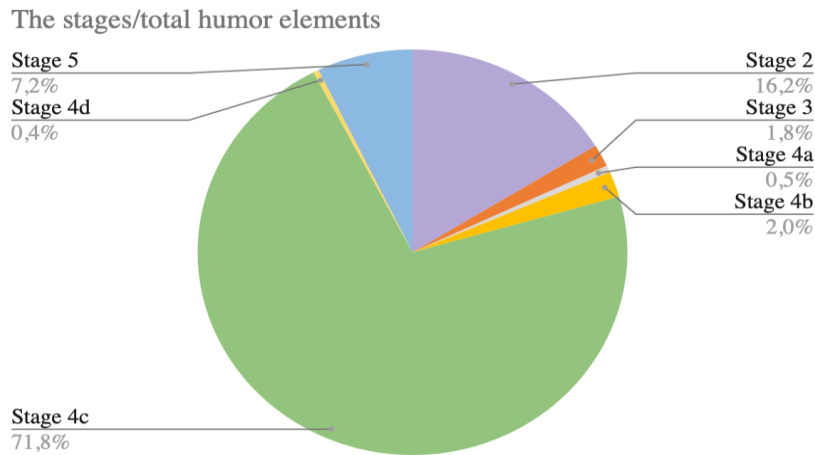
Distribution of Total Humor Elements in Cartoons



Graph 1 shows that the cartoon with the most humor elements is Masha and the Bear (30%), and the cartoon with the least humor elements is Pepee (4%).

Graph 2

Distribution of Total Humor Elements in Cartoons According to The Stages in Humor Theory

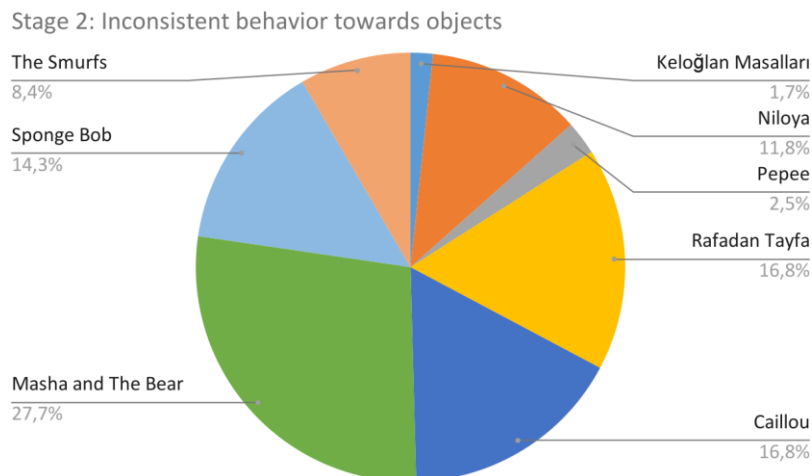


Graph 2 shows that the highest number of humor elements is found in stage 4c, while the lowest number is found in stage 4d.

Findings on The Distribution of Humor Elements in Cartoons According to Stages

Graph 3

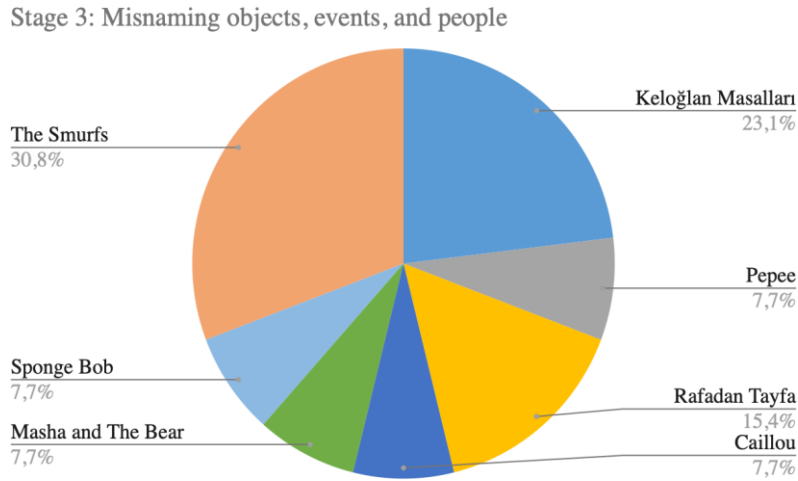
Distribution of Humor Elements in Cartoons According to Stage 2



Graph 3 shows that the highest number of humor elements suitable for the 2nd stage is in Masha and the Bear, and the lowest number of humor elements is in Keloğlan Masalları.

Graph 4

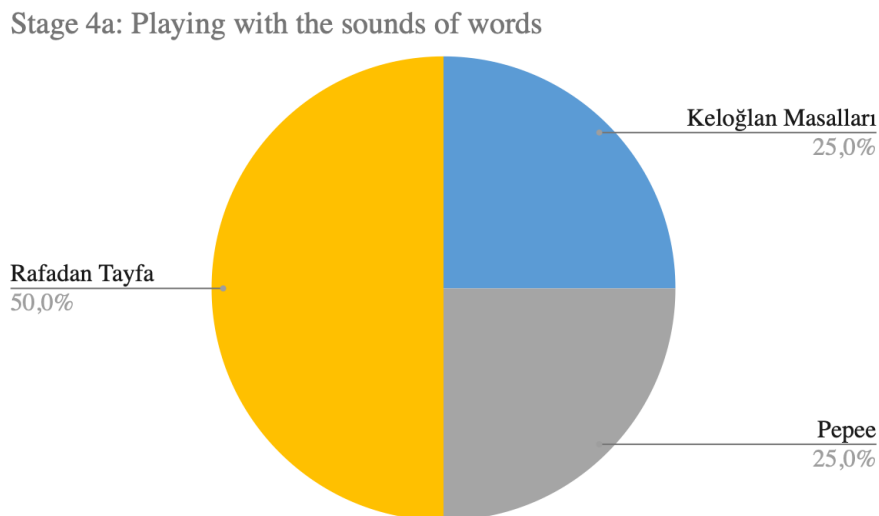
Distribution of Humor Elements in Cartoons According to Stage 3



Graph 4 shows that the highest number of humor elements suitable for the 3rd stage is found in The Smurfs. Niloya, on the other hand, does not have any humor elements suitable for this stage.

Graph 5

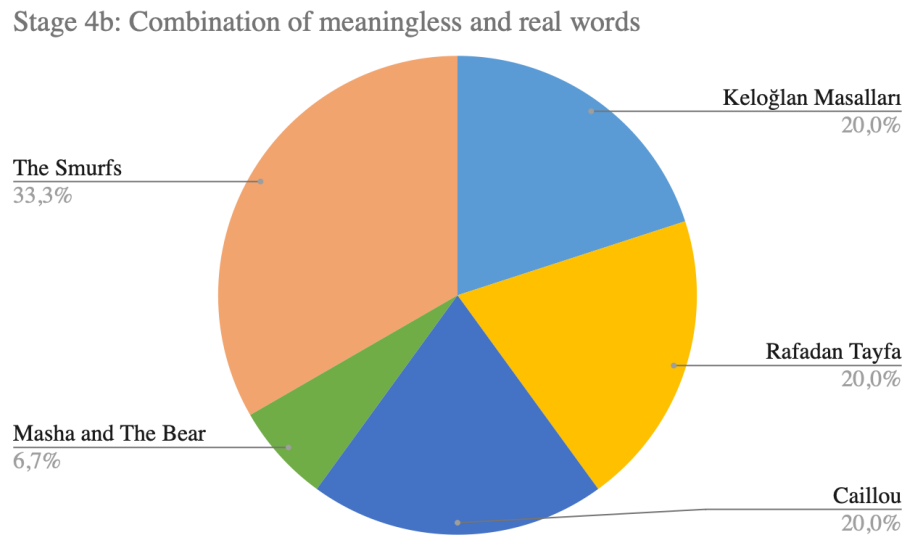
Distribution of Humor Elements in Cartoons According To Stage 4a



Graph 5 shows that only Rafadan Tayfa, Keloğlan Masalları, and Pepee have examples suitable for stage 4a.

Graph 6

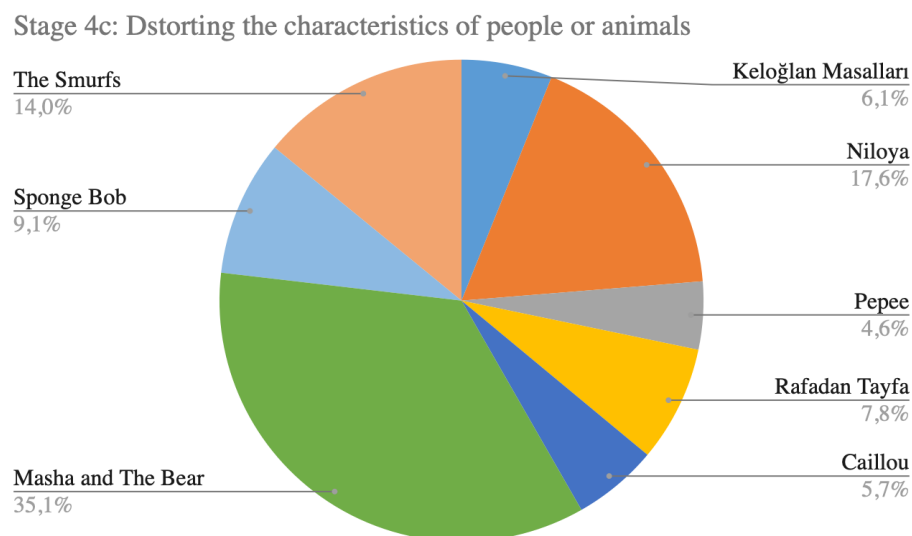
Distribution of Humor Elements in Cartoons According To Stage 4b



Graph 6 shows that the highest number of humor elements suitable for stage 4b is found in The Smurfs, while SpongeBob, Niloya, and Pepee do not have any humor elements suitable for this stage.

Graph 7

Distribution of Humor Elements in Cartoons According To Stage 4c

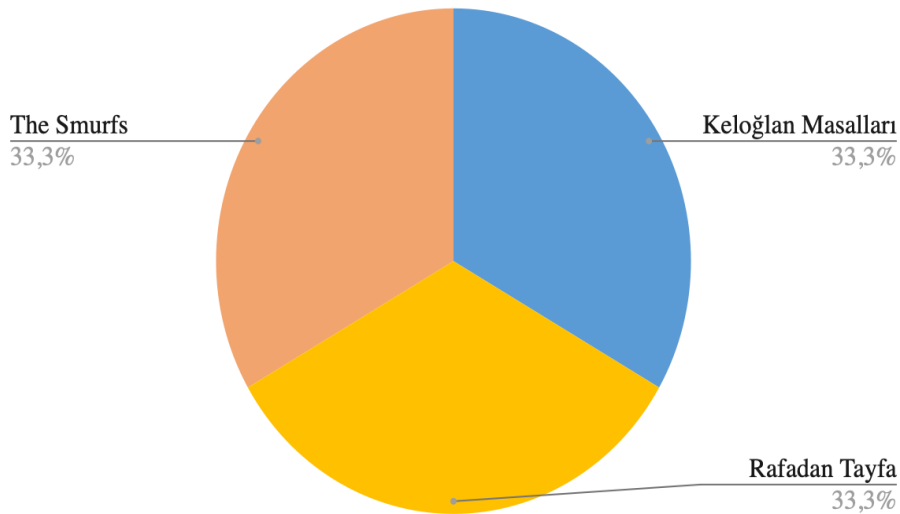


Graph 7 shows that Masha and the Bear has the highest number of humor elements suitable for stage 4c, while Pepe has the lowest number of humor elements.

Graph 8

Distribution Of Humor Elements in Cartoons According To Stage 4d

Stage 4d: Opposite-sex naming

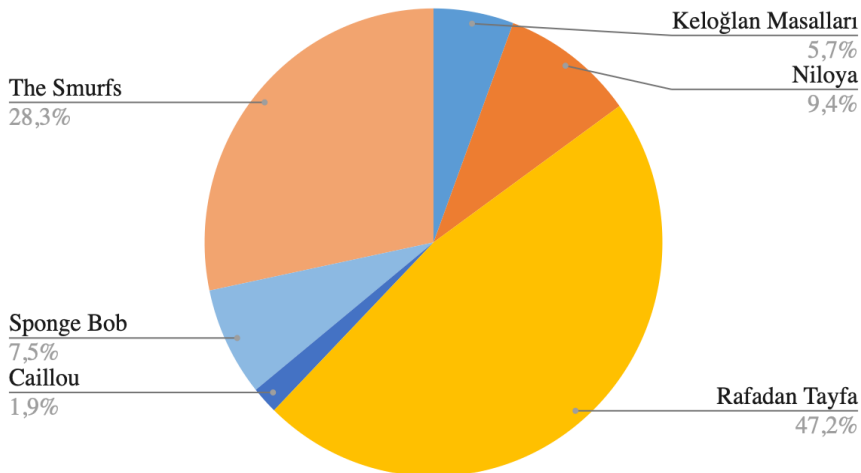


Graph 8 shows that only Rafadan Tayfa, Keloğlan Masalları, and The Smurfs have examples suitable for stage 4d.

Graph 9

Distribution of Humor Elements in Cartoons According To Stage 5

Stage 5: Riddles and jokes (multiple meanings)



Graph 9 shows that Rafadan Tayfa has the highest number of humor elements suitable for the 5th stage, while Masha and the Bear and Pepee do not have any humor elements suitable for this stage.

Findings on Sample Scenes from Humor Elements in Cartoons

According to Paul McGhee's humor development theory, examples of scenes containing humor elements in cartoons are given in Table 3.

Table 3

Examples of Scenes Containing Humor Elements in Cartoons

Phase/ Example	Example scene 1	Featured in the cartoon	Example scene 2	Featured in the cartoon
Stage 2	Niloya uses a lemon peel as a hat	Niloya	SpongeBob using his nose as a flute	Sponge Bob
Stage 3	Uzun calls ginger a radish	Keloğlan Masalları	When Şila says 'out' when she should have said 'burnt' while playing with Pepee	Pepee
Stage 4a	Keloğlan says "Dondalomanda, Shondolamanda, zanga, banga, pondolamanda" while performing magic.	Keloğlan Masalları	Someone in the forest calls Kamil "rafa rara fara fara rafa danara" and in response Kamil says "rara fara fara"	Rafadan Tayfa
Stage 4b	Caillou's mom asks if you made screw and loaf soup for lunch.	Caillou	Masha says she will drink cabbage milk, not goat's milk	Masha and the Bear
Stage 4c	Masha hatches the egg she found and puts it on Bear's foot for incubation.	Masha and the Bear	Ants are too big	Niloya
Stage 4d	The transformation of Grumpy, a boy, into Smurfette, a girl.	Smurfs	Kamil saying to Mert: "What's wrong with you, auntie?"	Rafadan Tayfa
Stage 5	Metemaking a joke by saying, 'It's so delicious, I love it when he eats mulberry	Niloya	Shirin's saying that it is true what they say that love is blind; the man has gone blind.	Smurfs

Discussion and Results

In this study, which was conducted to examine the cartoons according to Paul McGhee's humor development theory, 8 cartoons were included. As a result of the study, it was determined that the cartoon with the most humor elements was Masha and the Bear (30%), and the cartoon with the least humor elements was Pepee (4%). The adventures

between a small and cute Russian girl named Masha and a big but cute bear retired from the circus are told in the cartoon Masha and the Bear. In the cartoon, the Bear is not frightening, wild, and angry; it is a naive and easily deceived bear (Karakale, 2018). It is thought that the fact that Big Bear is an innocent and easily deceived character increases the humor elements in the cartoon. Looking at the whole cartoon, the fact that a little girl and a giant bear have adventures together can be seen as an incompatibility in itself. Pepee is a cartoon for the preschool age group that attracts attention by teaching basic concepts such as shape, color, and number with songs and processing cultural characteristics with folk dances and folk songs (Coşkun & Köroğlu, 2016). Pepee is a cartoon that has been the subject of many studies in terms of cultural values, concept teaching, and gender (Kalaycı, 2015; Pekşen Akça & Baran, 2017; Türkmen, 2013; Yılmaz & Arı, 2021). However, it can be said that the humorous elements in the Pepee cartoon, which was examined for the first time in this study in terms of humorous elements, are pretty low. It can be said that the fact that Pepee has the least humor element is because it is a cartoon that is intended to have educational features and the educational feature overrides the entertainment feature. As a result of the study, it was determined that only two cartoons (Keloğlan Masalları and Rafadan Tayfa) had at least one humor element belonging to all phases. This finding means that there were no humor elements in some stages in other cartoons. It is thought that this situation may be because humor development in children is less known and researched than in other developmental areas. The people involved in the production processes of cartoons do not have sufficient knowledge on this subject. Although there are humor elements in cartoons, it would be beneficial to diversify them to support children's humor development.

The study observed that the most humor elements took place in stage 4c and the least in stage 4d. In stage 4c, which is the conceptual inconsistency stage, it is expected that humor aimed at distorting the properties of objects, people, and animals, adding properties that do not belong to objects, erasing their existing properties, changing the size, color, or shape of things they know, and inconsistent events are expected to take place (McGhee, 2002). It can be said that it is easier to give humor situations suitable for this stage visually due to the fact that cartoons consist of visual scenes compared to other stages. In stage 4d, humor elements related to naming the opposite sex are expected (McGhee, 2002). The least humorous elements are considered in the 4d stage because the production of appropriate examples is more limited than in other stages. In the study of Koçer et al. (2012) to examine the situations in which 6-year-old children produced humor and appreciated the value of humor according

to McGhee's humor development stages based on the observations of their parents, similar results were obtained to the results of this study. While no cases were observed in which children produced humor and appreciated the value of humor in categories 4a. playing with the sounds of words, 4b. combination of meaningless and real words and 4d. naming the opposite sex, it was found that children produced humor and appreciated the value of humor mostly in category 4c.

As a result of the research, it was determined that the cartoon with the most and least humorous elements for each stage differed. This may be due to the differences in the content of cartoons, the age group they appeal to, and the countries where they are produced. Since cartoons have different characteristics, the amount of humor in different stages may vary. However, humor is universal, and children of all ages watch cartoons. In this context, it is thought that each cartoon should have humor elements with different characteristics. Because including humor elements in cartoons will enable children to produce humor. According to Bandura's (1977) social learning theory, children learn through modeling, observation and imitation. In the theory, it is stated that there are three types of modeling stimuli. a. Live model: A real person who demonstrates a desired behavior. b. Symbolic model: A real/fictional character or person portrayed on different platforms through the media, including movies, television, internet, books and radio. c. Verbal directives: Instructions on how a person should behave. From this perspective, it can be said that children encounter symbolic models in the cartoons they watch. If these symbolic models produce humor and appreciate the value of the humor produced, the children watching them can produce humor in a similar way. The study of Eskidemir Meral and Koçer (2023) revealed that children's exposure to jokes enables them to create humor. In this context, it is thought that including humor situations with various characteristics suitable for different age groups in cartoons will contribute to children's humor development.

In stage 2, it is seen that the most humor elements are found in Masha and the Bear, and the least humor elements are found in Keloğlan Masalları. Stage 2 is the earliest stage in which humor is produced (McGhee, 2002). It is thought that the fact that Masha is a 4-year-old girl who loves to play games all the time (Masha and The Bear, 2023) and that she produces examples suitable for this phase is the reason why Masha and The Bear has the most examples suitable for the second phase, which is the phase in which children use one object as another object and laugh at it, especially with the emergence of symbolic play. Although Keloğlan is an adult in fairy tales, he appears as a child in the cartoon Keloğlan Masalları. It is

stated that it is not a coincidence that the age of the hero in the cartoon is close to the age of primary school children. Considering that those who watch the Keloğlan cartoon are generally 5-12 years old, it is deliberate that the age of Keloğlan as a cartoon hero is close to this age group (Bayraktar,2014). Since behavioral patterns want to be transferred to children through Keloğlan, it has come to life on the screens by updating it so that children can empathize with empathy (Bayraktar, 2014). In this study, it can be said that the least number of examples suitable for stage 2 is in the Keloğlan Masalları cartoon because Keloğlan's wise personality continues in the cartoon; even though he is a child, he shows adult characteristics. He, therefore, does not use an object differently. At the same time, it is an expected finding that Keloğlan Masalları are targeting children in the 6-9 age group (Yorulmaz & Tanrıverdi, 2015), and therefore there are no examples in the 2nd stage, which is the earliest stage in which humor is produced.

In stage 3, it is seen that the highest number of humor elements are found in The Smurfs. Niloya, on the other hand, does not have any humor elements suitable for this stage. Sauthom (2005) states that after children learn the meanings of words with their developing language skills, they produce appropriate humor and find this kind of humor funny. In this stage, children start to play by giving the wrong names to objects. The Smurfs cartoon occurs in an unspecified place called "Smurfland" (Güler, 2013). It can be said that the country of the Smurfs is unusual, and some of the known objects here are named differently. Therefore, the most humorous situation in this phase is expected to occur in The Smurfs.

As a result of the research, it was seen that there was at least humor produced in stage 4d. However, it can be said that the examples of humor in stages 4a and 4b, which include word games, are also quite limited. Only Rafadan Tayfa, Keloğlan Masalları, and Pepee have humor elements suitable for stage 4a. The highest number of humor elements suitable for stage 4b was found in The Smurfs, while SpongeBob, Niloya, and Pepee did not have any humor elements suitable for this stage. In some cartoons, no examples suitable for these stages were found. Pala & Gönen (2018)'s study examining the humor elements in illustrated children's books determined that the least number of examples in the category of "verbal humor" (15%) was found in illustrated children's books.

It was determined that the highest number of humor elements suitable for stage 4c, the stage where the most humor is produced, was found in Masha and the Bear, and the lowest number of humor elements was found in Pepee. In the 5th stage, Rafadan Tayfa had the most humor elements, while SpongeBob, Masha and the Bear, and Pepee did not have any humor

elements suitable for this stage. In a study conducted to determine the favorite cartoons of primary school children (Cerrah Özsevgeç & Saka, 2018), it was determined that the favorite cartoons of 1st-grade children were Rafadan Tayfa (40%) and Masha and the Bear (20%). In the study of Yazıcı et al. (2019), it was found that the cartoon children watched the most was Rafadan Tayfa, and their favorite character was Hayri. The fact that Rafadan Tayfa targets children in the older age group and that the adult type of humor, which is stage 5, is mainly in the Turkish-made Rafadan Tayfa cartoon can be considered an indication that cartoon producers take into account the humor development characteristics of children. In the SpongeBob cartoon, which also appeals to adults and is at the forefront with its humor elements, more examples of stage 5 were expected to be found, but the opposite situation was encountered. Humor is universal but also culture-specific (Jiang et al., 2019). It is clear that cultural characteristics have significant effects on the way humor is used and the situations that are deemed appropriate for laughter (Martin & Ford, 2018). Xia et al. (2023) stated that the translation of humor has long been a challenge for translators and that it is inevitable for translators to eliminate or reduce some of the humorous effects in the target language despite their efforts to preserve humor elements. In his study, he mentioned the difficulties encountered in translating the humorous scenes of the American comedy cartoon SpongeBob. Stage 5 adult humor is expected to include examples of multiple meanings. It is thought that another reason why fewer humorous situations were found in SpongeBob in the 5th stage than expected is due to the translation of the cartoon into Turkish.

In this study, it was determined that there are elements suitable for humor development in cartoons, which are indispensable for children's lives. In the study of Güleken Katfar and Yılmaz (2020) to examine the effects of dominant personality traits in cartoons on children, it was determined that children found the behaviors of the dominant character in the cartoon funny and entertaining and exhibited similar behaviors. In this respect, it can be said that if fun and funny elements are included in cartoons, children will also produce humor.

As a result, in this study, it was determined that the cartoon with the most humor elements was Masha and Big Bear and the cartoon with the least humor elements was Pepee. In the study, it was observed that the most humor elements were found in stage 4c, which includes humor aimed at distorting the properties of objects, people and animals, and the least humor elements were found in stage 4d, which includes naming the opposite sex. As a result of the research, it was determined that the cartoon with the most and least humor elements in each phase was different from each other.

Recommendations

In this study, humor elements in cartoons were examined based on Paul McGhee's theory of humor development. The humor elements in the scenes were not examined in terms of compatible and incompatible humor types. Studies can be conducted in which humor elements in cartoons are examined in terms of compatible and incompatible humor.

In this study, the cartoons with the most and least humor elements were determined. However, children's reactions to the humor elements in cartoons were not examined. Studies can be conducted to examine children's reactions to cartoons containing humor.

In this study, it was determined that the cartoon with the most and least humor elements for each stage was different from each other. Studies can be conducted to examine the effect of including different cartoons containing humor in educational environments.

It was determined that there are elements suitable for humor development in cartoons, but in some cartoons these elements are limited. In this respect, trainings can be given to increase the awareness of people who produce cartoons for children about humor development.

In this study, only cartoons were examined in terms of humor elements. It may be recommended to conduct studies investigating the humor elements in videos prepared for children and their suitability for children.

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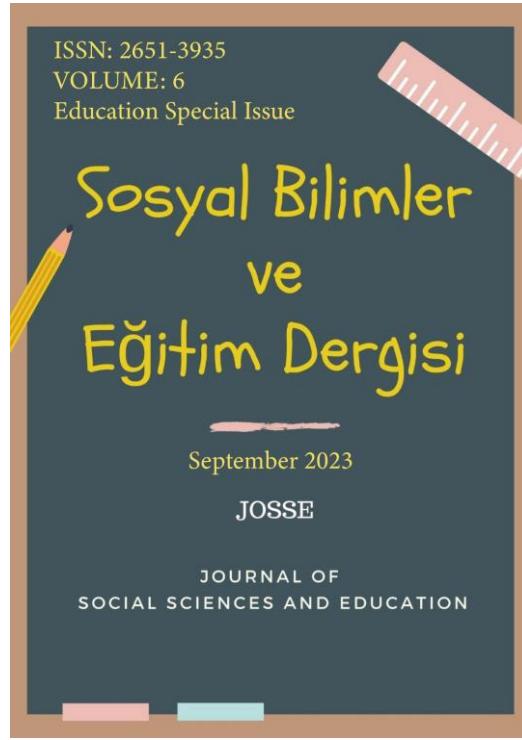
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Examination of Visual Items in Secondary School Science Textbooks

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Examination of Visual Items in Secondary School Science Textbooks

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ABSTRACT

Textbooks are seen as the initial resources used in the science learning and teaching process to ensure that the curriculum goals are achieved, and almost half of the pages in the textbooks are covered with visual elements, this study aims to analyze the visual content of the secondary school science textbooks taught in Turkey in the 2022-2023 academic year. It is aimed to examine the elements according to their types, functions, and in-text association status. In this direction, in this research, which is planned as a document analysis, the coding scheme was used in the research of Akçay, Özgür-Kapıcı, and Akçay (2020). After examining 1713 images, it was concluded that more than half of the visuals in the science textbooks at each grade level (5, 6, 7, and 8) were schematized. Also, most of the visuals in the secondary school science textbooks are included in the main text. This is an essential result of the research because learners' interaction with multiple different and complementary stimuli simultaneously makes their learning more meaningful and permanent.

Keywords: Textbooks, visual images, representations

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Introduction

Textbooks are the initial resources used in science education to achieve curriculum achievements (Albach & Kelly, 1998; Abd-El-Khalick et al., 2008). In the teaching of all courses, textbooks are the most used teaching material, and the planning of the learning process is shaped according to the textbooks, together with the determination of what will be taught in many classes (Niza & Maza, 2011; Chiappetta & Fillman, 2007). Furthermore, it is known that textbooks provide comfort and convenience to teachers in planning lessons (Elliott & Woodward, 1990). The most accessible sources of knowledge for learners to read and use for homework are textbooks. Because of this, textbooks are crucial in the educational system as a source of instructional strategies and materials. (Aldahmash et al., 2016). It is vital that the textbooks, considered the primary source used by the teachers in teaching the lessons in the classroom, are created in line with the approach determined in the curriculum. Therefore, classroom learning environments can be compatible with the relevant approach in the curriculum only with textbooks in this direction (Erdoğan, 2007). The books, in which the order of the subjects and teaching methods, including the achievements in the curriculum, are seen as guides for both teachers and students.

Göçer (2008), textbooks are also seen as the only resources every student can access and, in most cases, take as a reference while creating their own learning. This situation reveals that the textbook has an active role in terms of creating curiosity about the subjects on which they will learn lessons. The texts contained in the textbook should be suitable for the level of the student, and there should be sections that allow students to measure their own knowledge, as well as sufficient and attractive visual richness (Elliott & Woodward, 1990).

The effectiveness of a textbook can be examined by its degree of compliance with physically determined standards, the way the content is presented and its design, its visual features, and its adequacy in terms of language expression (Ünsal & Güneş, 2004). In their study, Eroğlu-Doğan, Ekinçi, and Doğan (2020) analyzed the science textbooks examined in the analysis of studies related to the examination of science books in Turkey, according to the distribution of examination criteria, mainly in terms of "Content," and least in terms of "Style, Language and It was seen that it was handled in terms of the criterion of "Expression." The design of the science textbook according to the principles of visual design is also of interest to the teachers in terms of giving the right message to the student along with the text because teachers can guide students in making connections between images and text. (Uçar and

Somuncuoğlu-Özerbaş, 2017). Via the direct links between text and images created by combining visual and verbal channels, students may build scientific systems' mental models (Anderson, 2014). At the same time, annotated pictures point out significant images and words to readers, help them organize information into cause-effect systems, and allow for elaboration and reinforcement of meaningful content (Coleman et al., 2011).

Researchers in the literature examine the visuals in the textbooks. Among these studies, the visuals in the textbooks used in different years and in different countries were examined according to their types, compatibility with the text, and their functions (Akçay et al., 2020; Guo et al., 2018; Demirdöğen, 2017; Papageorgiou et al., 2017; Liu & Khine, 2016; Dimopoulos et al., 2003). Considering the general results of the studies, it was determined that almost half of the pages in the textbooks were covered with visual elements, and these visual elements were related to the information in the text. While textbooks frequently include images, they do not always include tools for understanding visual material. (Cannon, 2017). Indeed, visual elements not only help students save the relevant concept from abstraction and make sense of the processes but also help students reveal and use their existing thinking styles and determine how they interpret new information according to their functions (Postigo & López-Manjón, 2019). Nowadays, newly published textbooks tend to have a different semiotic catalog or features used to represent objects than older textbooks; This reveals the importance of visual literacy as one of the critical features of teacher education. (Peterson et al., 2021). Therefore this research examined the visual elements in the secondary school textbooks taught in Turkey in the 2022-2023 academic year. In this context, the research questions are as follows:

- How do the visual types in secondary school science textbooks change according to grade levels?
- How do the functions of visuals in secondary school science textbooks change according to grade levels?
- How does the degree of relationship between text and images in secondary school science textbooks vary according to grade levels?

Method

Research Design

This research is qualitative research, and the document analysis method was used to analyze the visuals in secondary school science textbooks from various aspects. Document analysis enables inferences to be made from visual and written documents containing information about the subjects or concepts to be researched (Yıldırım & Şimşek, 2011). In this research, textbooks were examined as documents.

Textbooks Reviewed

In this research, the visuals in the science textbooks taught in secondary schools in Turkey in the 2022-2023 academic year were examined. These textbooks were approved by the Ministry of National Education and were widely used. One textbook was selected from each grade level. Information about the examined textbooks is given in Table 1

Table 1

Textbooks Examined in The Research

The name of the book	Class	Authors	Publishing House and Year of Publication
Secondary School and Imam Hatip Secondary School Science Textbook 5	5	Seval AKTER, Hatice Betül ARSLAN, Meltem ŞİMŞEK	MoNE- 2021
Secondary School and Imam Hatip Secondary School Science Textbook 6	6	Semra DEMİRÇALI, Birsen ALKAN	MoNE- 2021
Secondary School and Imam Hatip Secondary School Science Textbook 7	7	İsmail GEZER	Aydın Publications- 2021
Secondary School and Imam Hatip Secondary School Science Textbook 8	8	Murat Volkan YANCI	Vertical Publishing- 2021

Data Analysis

The coding scheme in Table 2, which was obtained by combining the models developed by Khine and Liu (2017) and Dimopoulos, Koulaidis, and Sklaveniti (2003), which Akçay, Özgür-Kapıcı, and Akçay (2020) used in their research for the examination of visual elements in secondary school science textbooks.

Table 1

The coding scheme used in the research

Image types			Functions of images				Associate with text	
Realistic	schematized	Mixed	Classifier	Analytical	Narrative	Metaphorical	Associated	Not associated

Visual elements were analyzed into three types: realistic images, schematized images, and composite images. Realistic images are the visuals that can be depicted by naked eyes, like drawings or photographs (Figure 1). Schematic images represent reality in a coded form, for instance graphs, maps or diagrams (Figure 2). Mixed images are visuals that is a combination of schematic and realistic images in the same image (Figure 3) (Akçay et al., 2020).

Figure 1

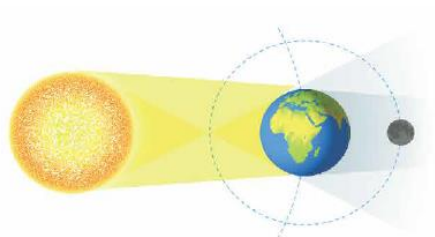
Real Image Example (7th Grade Textbook pp. 32)



Kuzular

Figure 1

Example of Schematized Image (6th Grade Textbook pp. 38)



Ay Tutulması

Figure 3

Mixed Image Example (Grade 8 Textbook pp. 84)



Visuals were examined in terms of their functions in four categories: classificatory, analytical, narrative, and metaphorical. In terms of the educational environment, *classification*, and analytic pictures prioritize visual solid images, whereas narrative and figurative images favor weak visual images. Classification images (Figure 4) depict relationships within a specific classification. The relationships between the part-whole structure are shown by analytical images (Figure 5). Narrative visuals, such as the carbon cycle (Figure 6), clearly or imaginatively depict the process of an action or event. The last one is metaphorical visuals that only provide visual support to the narrative of a subject or consist of the image of a living thing (Figure 7) (Akçay et al., 2020). For the association category with text, if there is a link in the text related to the image, it is coded as associated. Otherwise, it is coded as not indexed (Figure 8).

Figure 2

Classification Image Example (Grade 5 Textbook pp. 56)

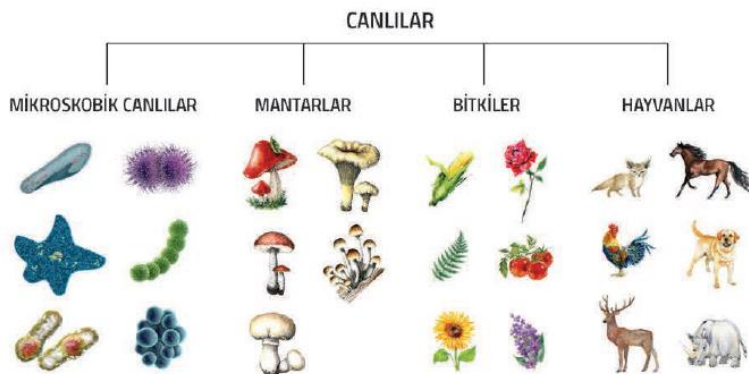


Figure 5

Analytical Image Example (6th Grade Textbook pp. 57)

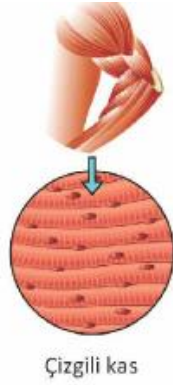


Figure 6

Narrative Image Example (7th Grade Textbook pp. 35)

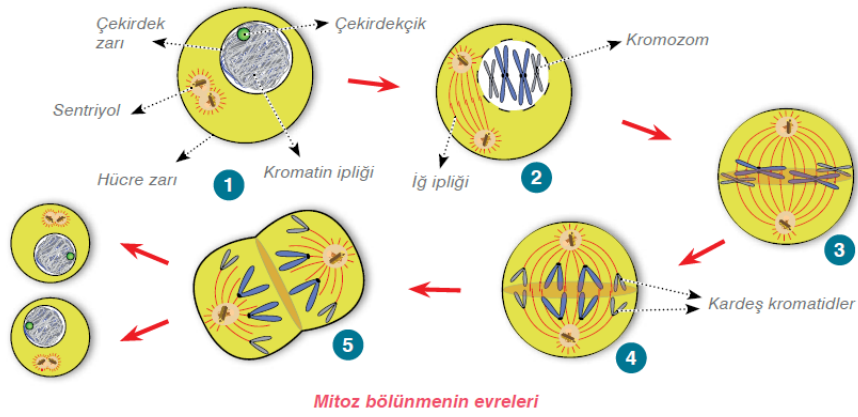


Figure 7

Example of Metaphorical Image (Grade 8 textbook pp. 85)



Evangelista Torricelli
(Temsil)

Figure 8

Example of An Associated Image (Grade 8 Textbook pp. 85)



While analyzing the data, the two researchers performed the analyses separately from each other. The two researchers' answers with the same evaluation were accepted as consensus, and the answers with different evaluations were accepted as disagreement. The reliability of the research, $\text{Reliability} = \frac{\text{Consensus}}{(\text{Consensus} + \text{disagreement})} \times 100$, is calculated using the mathematical expression. Accordingly, the reliability of the study was found to be 83.33%. A result above 0.70 ensures the reliability of the research (Miles & Huberman, 1994). Therefore, the classification can be expressed reliably. Then, the two researchers came together, and the results were compared. After reviewing the disagreements, a common conclusion was reached.

Findings

The total number of visuals in secondary school science books within the scope of the research is given in Table 3.

Table 3

Total Number of Visuals in Secondary School Science Textbooks

Class	Number of Images
5	381
6	397
7	447
8	488
Total	1713

When the data in Table 3 are examined, it is seen that there are 1713 visuals in total in the secondary school science textbooks, and these visuals are approximately equally distributed among the classes.

Findings for the First Research Problem

The first problem of the research is about the change of visual types in secondary school science textbooks according to grade levels. It can be seen in Table 4 that the textbooks examined in this context mainly contain schematized visuals.

Table 4

Distribution of Visual Types by Classes

Class	Image Type						Total
	Realistic		schematized		Mixed		
5	133	34.9%	236	61.9%	12	3.1%	381
6	180	45.3%	189	47.6%	28	7.1%	397
7	206	46.1%	214	47.9%	27	6.0%	447
8	245	50.2%	225	46.1%	18	3.7%	488
Total	764	44.6%	864	50.4%	85	5.0%	1713

When the data in Table 4 are examined, it is seen that schematized visuals are primarily used in secondary school science textbooks. 50.4% (864) of the 1713 visuals in the textbooks are schematized visuals. Among the total visuals, there are mixed visuals where at least 5% realistic and schematized visuals are used together. Considering the grade levels, it is seen that the schematized visuals are at the highest level in the 5th grade, with a rate of 61.9%. This ratio decreases from 5th grade to 8th grade, and the ratio of realistic items also increases. In the 8th grade, the percentage of realistic items (50.2 - 245) is higher than schematized visuals (46.1 - 225%). When we look at the mixed visuals, there is the least number of them at each grade level, and there are mixed visual elements in the 6th grade, with a maximum of 7.1%.

Findings for the Second Research Problem

The second problem of of the research is about the changes in the functions of the visuals in secondary school science textbooks according to the grade levels. In this context, it is seen in Table 5 that mostly metaphorical visuals are included in the textbooks examined.

Table 5

The Distribution of the Functions of the Images According to the Classes

Functions of images									
Class	Classifier		Analytical		Narrative		Metaphorical		TOTAL
5th grade	one	0.3%	5	1.3%	50	13.1%	325	85.3%	381
6th grade	17	4.3%	32	8.1%	56	14.1%	292	73.6%	397
7th grade	9	2.0%	45	10.1%	140	31.3%	253	56.6%	447
8th grade	32	6.6%	18	3.7%	101	20.7%	337	69.1%	488
	59	3.4%	100	5.8%	347	20.3%	1207	70.5%	1713

When the data in Table 5 is examined, it is seen that metaphorical visuals are mostly used in secondary school science textbooks. 70.5% (1207) of the 1713 visuals in the textbooks are metaphorical visuals. Among the total images, there are the least classifying images, with 3.4%. For the rest of other grade levels, it is seen that the metaphorical visuals are at the highest level in the 5th grade, with a rate of 85.3%. After metaphorical visuals, narrative visuals were the most used (20.3% – 347). Each grade level usually has at least one classifier, then analytical, and then narrative visuals. Only at the 8th-grade level the percentage of classifier visuals (6.6% – 32%) is higher than analytical visuals (3.7% – 18%).

Findings for The Third Research Problem

The third problem of the research is related to the change of images in secondary school science textbooks according to the degree of relationship between text and pictures. In this context, it is seen in Table 6 that primarily associated visuals are included in the textbooks examined.

Table 6

Distribution of Association Types of Images by Class

Associate with text					
Class	Associated		Not associated		TOTAL
5th grade	342	89.8%	39	10.2%	381
6th grade	341	85.9%	56	14.1%	397
7th grade	402	89.9%	45	10.1%	447
8th grade	462	94.7%	26	5.3%	488
	1547	90.3%	166	9.7%	1713

When the data in Table 6 is examined, it is seen that 90% of the total 1713 images in secondary school science textbooks are associated with the text. Considering the grade levels, it was seen that 94.7% (462) of the 8th-grade visuals were associated with the highest rate. This rate does not change significantly across grade levels.

Discussion and Results

This study examined visual elements in secondary school science textbooks taught in Turkey in the 2022-2023 academic year according to their types, functions, and in-text associations. Visual elements consist of pictures, graphs, diagrams, tables, maps, network charts, and similar elements within the text that support the written expression in the text, facilitate the understanding of its content, and make the reader think visually (Cannon, 2017). Visual elements perform functions such as helping to comprehend the content, attracting attention, motivating, and explaining abstract and complex concepts. Visual elements are easily interpreted because they contain condensed information, make it easier to remember, and attract interest and attention (Coleman et al., 2011). Additionally, many tools, such as tables, graphs, and visuals, can strengthen communication (Pozzer et al., 2004). Illustrations should help understand the text (information) and effectively like the lesson. The feature of illustrations is their functionality. Explanation of the subject and information is essential. In the textbook illustrations, importance should be given to the text-image relationship. Book illustrations, maps, graphs, tables, and diagrams are visual elements that facilitate learning.

When the visual elements in the secondary school science textbooks were examined according to the types, it was concluded that more than half of the visuals in the science textbooks at each grade level (5, 6, 7, and 8) were schematized. This result differs from the study of Akçay, Özgür-Kapıcı, and Akçay (2020) and Guo, Wright, and McTigue (2018). In the studies of Akçay, Özgür-Kapıcı, and Akçay (2020), more than 60% of the images in the science textbooks between 2002 and 2017 were realistic. The study conducted by Guo, Wright, and McTigue (2018) concluded that realistic photographs were given more space than drawings in the science books of the 3rd and 5th grades. This situation may lead to the conclusion that it is preferable to schematize objects or living things visually rather than looking realistically at the time passed between the books examined. At the same time, hybrid representations containing a combination of realistic and schematized representations had the lowest rate. However, this type of representation actually enables learners to see abstract and

concrete concepts at the same time, and this makes it easier for learners to learn the desired information..

When the functions of visual images in secondary school science textbooks are examined, it is seen that metaphorical images that only provide visual support to the expression of a subject or that consist of the image of a living thing are included in the books. This situation shows the importance of supporting with visuals while giving a lecture to secondary school students. However, this result is not similar to the study of Akçay, Özgür-Kapıcı, and Akçay (2020) and Dimopoulos, Koulaidis, and Sklaveniti (2003). Most of the visual elements examined in these studies were found analytically. The fact that the publication years of the books examined in the studies were older than the current study may have caused the functions of the visual elements to change.

In terms of the criteria of relation with the text, most of the visuals in the secondary school science textbooks are included in the main text. This is an important result of the research; because learners' interaction with multiple different and complementary stimuli at the same time makes their learning more meaningful and more permanent. In this way, the visuals used and the main texts that need to be interpreted will be more easily understood. (Pozzer et al., 2004). With links or relationships in the text, it can be easier for students to understand the images correctly.

Considering the research findings and results, the use of these elements in national or international science exams can be examined by other researchers since the preference of including visual elements in the books will support the students' learning.

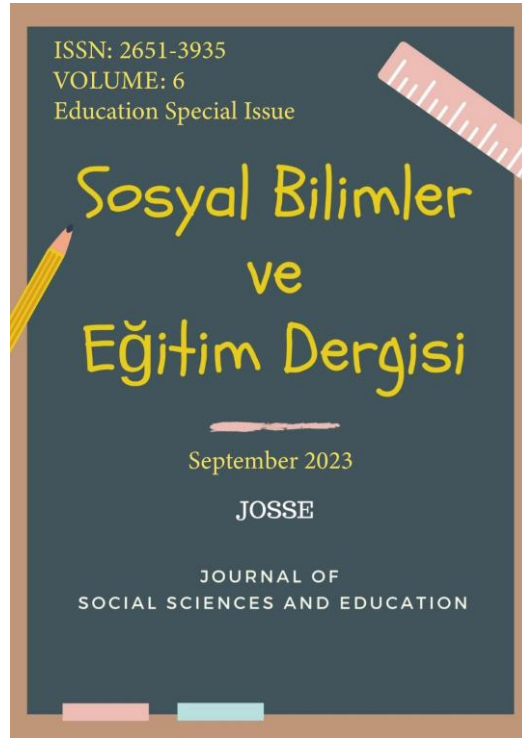
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Articles on Education and Artificial Intelligence: A Bibliometric Analysis

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Articles on Education and Artificial Intelligence: A Bibliometric Analysis

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ABSTRACT

Research Article

In our rapidly evolving technological landscape, the educational sector is undergoing a profound transformation with the integration of artificial intelligence (AI). This study undertakes a comprehensive investigation at the intersection of education and AI to shed light on emerging trends and intricate relationships. By employing advanced bibliometric techniques, an analysis of 6498 articles spanning the years 1980 to 2022 is conducted, revealing core thematic areas, influential author networks, and the dynamic evolution of keywords. The remarkable annual growth rate of 22.68% in published articles underscores the rapid expansion of this field. Noteworthy contributors include prominent countries such as China, the US, the UK, Australia, and India. Predominant themes like Machine Learning and AI permeate the discourse, while visually engaging word clouds highlight the most prominent keywords. Through meticulous thematic analysis, this study categorizes themes into core, niche, emerging, and declining categories, providing a nuanced understanding of focal points and underserved areas. The insights gained from this analysis hold significant implications for both researchers and policymakers, helping to shape future directions in the realm of education and AI. This study takes a forward-looking perspective, envisioning the dynamic future where education and AI intertwine, offering guidance for research endeavors and strategic decision-making. In essence, this study not only encapsulates the historical and current landscape of education and AI but also forecasts their potential trajectories. The rich insights into evolving trends, dominant themes, and research priorities position this work as a resource for both academia and industry.

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Introduction

Artificial Intelligence is an ever-evolving technological field that has the potential to completely transform how we interact with one another in various ways. This rapidly advancing technology has the capability to make significant changes and improvements in our daily lives. It does this by allowing machines to replicate human cognitive functions and perform tasks that were previously only possible for humans. As AI continues to develop, its influence on society is expected to grow even more, leading to changes in how we engage with technology, communicate with each other, and navigate the world around us (Pedro, 2019).

Rapid advances in artificial intelligence technologies have had profound impacts on all areas of human society, from economics to politics, science to education. These technological advances have caused radical changes in a wide range of fields and have fundamentally affected human society. In this context, big data and artificial intelligence technologies have reshaped economic structures, transformed political processes, accelerated scientific discoveries, and radically changed educational approaches. These developments have changed not only the way business is done, but also the way people interact with each other, the way they learn, and the way they access information (Luan et al., 2020).

Artificial Intelligence in Education is a field that deals specifically with the development of computer systems that perform cognitive tasks associated with the human mind, such as learning and problem-solving. Artificial Intelligence in Education aims to make modern educational processes more effective, efficient, and personalized. In this context, it aims to enable computers to mimic human-like intelligence and learning abilities. Artificial Intelligence in Education includes technologies such as learning analytics, personalized learning materials, and student progress tracking, which are developed to provide better guidance to teachers and education professionals while monitoring students' learning paths (Baker et al., 2019). Actually, AI-powered computer systems interact with the world using human-like abilities and intelligent behaviors, aiming to make implicit knowledge explicit in education (Luckin & Holmes, 2019).

Artificial Intelligence technologies are making a huge impact through applications and tools that are increasingly being used in the field of education today. In particular, AI-powered tools such as intelligent robots and adaptive learning systems are being used between instructors and learners by educational institutions from primary school to university level.

These technologies have the potential to make educational processes more effective, efficient, and customized. AI technologies have great potential to provide students with personalized learning opportunities. Every student is a different individual with unique learning styles, abilities, and needs. While traditional educational methods often fail to fully accommodate these differences, AI technologies aim to maximize the potential of each student by providing customized solutions to individual needs. This enriches the learning experience by enabling students to be better motivated, show more interest, and gain independence (Ventura et al., 2017).

AI in Education explores the use of Artificial Intelligence methods to understand human teaching practices and create systems that enhance the process of human learning. It involves the application of AI technologies to improve and analyze teaching methods and educational systems (Woolf, 1991). Furthermore, AI technologies have great potential to support students with learning difficulties to become more engaged in the educational process. AI-supported applications can be used to understand the specific needs of students and provide appropriate learning material or methods. In this way, students with learning disabilities can be more supported and included. AI technologies can provide students with a more personalized, interactive and efficient learning experience, while providing instructors with better guidance and student tracking (Wang, 2017).

Especially the COVID-19 pandemic has forced traditional teaching models to change rapidly and turn to online learning. At this point, artificial intelligence plays an important role in education. Online learning platforms and AI-powered tools have the potential to provide students with a more effective and personalized educational experience. AI-powered tools such as smart assistants are designed to enable teachers to use their time more efficiently. They can take on a range of administrative tasks, from tracking student attendance to lesson planning and organizing classroom activities. This provides teachers with more time and energy, giving them the opportunity to give more individual attention to students (Nemorin et al., 2023).

Despite the positive impacts of AI in education, some concerns and caveats have also been raised. Ethical issues may arise, especially in areas such as data privacy, student assessment and student-teacher interaction. Therefore, the role of AI in education needs to be carefully considered and developed (Baker et al., 2019). Thus, the positive effects of AI in commercial and societal areas are visibly increasing. Especially in the field of education, online learning platforms and AI-powered tools can provide a more effective and accessible

learning experience. However, the ethical and practical aspects of these developments should be carefully considered (Miao et al., 2021).

With the increasing use of AI technologies in education, the number of published studies in the field has increased. However, no large-scale analysis has been conducted to comprehensively investigate the various aspects of this field (Chen et al., 2022). Hence, this research aims to thoroughly examine the relationship between education and artificial intelligence. It explores how AI is changing education, improving learning outcomes, and enabling new ways of sharing knowledge. Through a comprehensive analysis of academic literature at the intersection of education and AI, this study uncovers the various aspects of this transformative connection. It identifies key research, influential scholars, and pioneering studies that have driven progress in this interdisciplinary field. Additionally, the research seeks to understand the emerging trends in education and AI. It looks for patterns in research, technology advancements, and educational practices that shape this dynamic field. This is not just a retrospective analysis but a forward-looking exploration, anticipating the future of research and innovation in education.

This study positions itself at the crossroads of education and AI, recognizing the potential and significance of their integration. It emphasizes the importance of understanding and utilizing AI's transformative power in education. Ultimately, it aims to guide researchers, educators, and policymakers toward a future where AI-driven educational methods and technologies play a vital role in creating a more informed, equitable, and innovative educational landscape.

One of the expected outcomes of this study is a comprehensive understanding of the interaction between the fields of education and AI, hypothesizing that the impact and collaboration between these two disciplines will continue to grow rapidly. The remarkable annual growth rate in the number of published articles reflects the significance of this expansion, indicating that it will provide a fertile ground for future collaborations and innovations. Moreover, it is anticipated that the insights gained from this analysis, which categorizes themes into core, niche, emerging, and declining categories, will offer a nuanced understanding of focal points and areas that require further attention. This, in turn, will hold substantial implications for researchers and policymakers alike, guiding their strategic decisions in the dynamic landscape where education and AI intersect. In essence, this study not only encapsulates the historical and current landscape of education and AI but also

forecasts their potential trajectories, setting the stage for further research endeavors and informed decision-making.

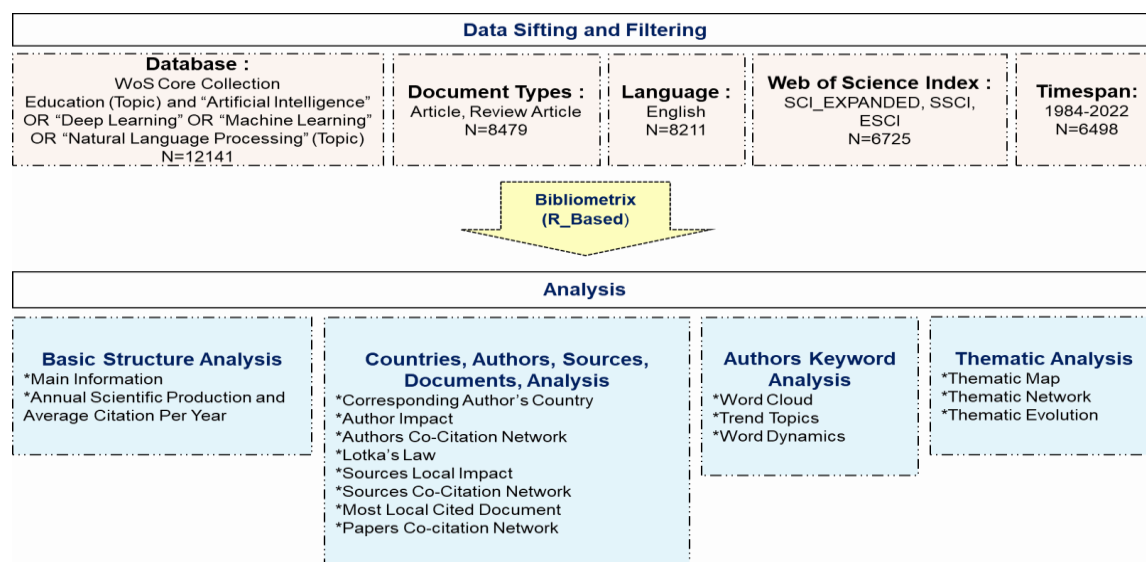
Method

This study embraced the science mapping method. Science mapping is a method generally used to understand and visualize publications in academic literature and the relationships between these publications. This method is used to examine the literature on a particular subject or field of science, to show the relationships between topics, and to present these relationships in visual maps or graphs. This study utilized bibliometric analysis method. The bibliometric analysis is one of the important techniques that provides a macroscopic examination of the literature and offers a projection to the reader. For this reason, those who want to follow the characteristics and development process of scientific outputs in a particular research field can apply this analysis method (Kurutkan & Orhan, 2018).

The study framework that has been determined for the study topic titled Education and Artificial Intelligence is shown in Figure 1.

Figure 1

Workflow of Science Mapping



The Web of Science (WoS) database, which is widely preferred for bibliometric analyses or literature searches (Leydesdorff, 2012) was used. WoS has a large database covering many disciplines and indexes various scientific journals, conferences, patents, and

other information sources. Although full texts of scientific articles are often not available on the platform, citation data and abstracts are accessible. Citation data can be used as an important indicator to assess how often a study is cited by other studies and its impact.

The data search was conducted in the WoS database in May 2023. In the next stage, the data retrieved from the database were extracted and filtered. When publications on [Education (Topic) and "Artificial Intelligence" OR "Deep Learning" OR "Machine Learning" OR "Natural Language Processing" (Topic)] were searched in the WoS database, 12141 articles were identified. "Article, Review Article" was selected as the publication type and 8479 articles were found. When the publication language was selected as "English", 8211 articles were found and when the WoS index was selected as "SCI_EXPANDED, SSCI, ESCI", 6725 articles were found. Since new publications are still entering the database, articles from 2023 were excluded from the scope and a total of 6498 articles were analyzed. The Bibliometrix program was used to analyze the data obtained. The Bibliometrix program is one of the recent open-source software developed on the basis of R to perform science mapping (Aria & Cuccurullo, 2017). There are many packages and libraries written in the R language, and R Studio makes it easy to manage and use these packages. Users can use these packages to perform the analytical tasks they want and make the data analysis process more effective.

In the review, 6498 articles were analyzed in four sections. The first part is a basic structure analysis of articles in the field of Education and Artificial Intelligence, the second part is an analysis of countries, authors, journals and articles, the third part is an analysis of author keywords, and the fourth part is a thematic analysis. No word combinations were made during the analysis.

Findings

Basic Structure Analysis

6498 articles on Education and Artificial Intelligence were produced between 1980 and 2022. These articles were published in 2217 different journals. 14275 author keywords were used. 246887 articles were used as references in bibliographies. The annual article growth rate is 22.68%. It is seen that the article production rate from year to year is quite high. The number of authors with single-author articles is 1016 and the number of single-author articles is 1079. Other statistics are presented in Table 1.

Table 1

Main Information

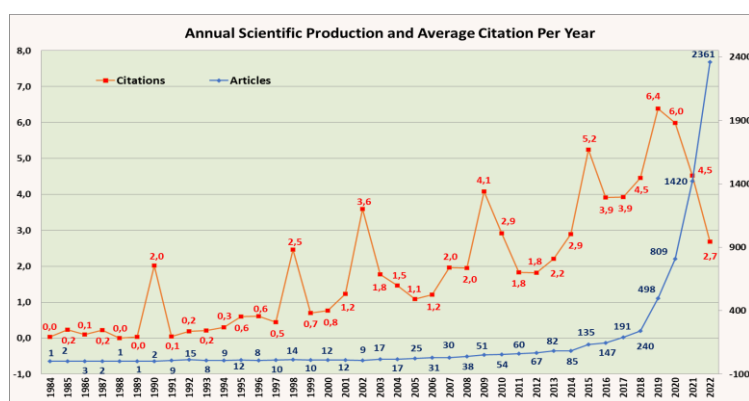
Description	Results	Description	Results
MAIN INFORMATION ABOUT DATA		AUTHORS COLLABORATION	
Timespan	1984:2022	Single-authored docs	1079
Sources (Journals, Books, etc)	2217	Co-Authors per Doc	3.97
Documents	6498	International co-authorships %	23.35
Annual Growth Rate %	22.68	DOCUMENT TYPES	
Document Average Age	3.85	article	5699
Average citations per doc	13.07	article; book chapter	11
References	246877	article; data paper	14
DOCUMENT CONTENTS		article; early access	150
Keywords Plus (ID)	6067	article; proceedings paper	81
Author's Keywords (DE)	14275	article; retracted publication	1
AUTHORS		review	523
Authors	21502	review; book chapter	2
Authors of single-authored docs	1016	review; early access	17

The annual number of scientific publications produced in the field of Education and Artificial Intelligence between 1984 and 2022 and the annual average citation amounts were obtained using Bibliometrics as presented in Figure 2.

When the annual production amounts of articles on Education and Artificial Intelligence are analyzed, while 1 article was produced in 1984, 2361 articles were produced in 2022. While the annual article productions exhibited an increasing graph between 1-240 from 1984 to 2018, 498 articles were produced in 2019, 809 in 2020, 1420 in 2021 and 2361 in 2022. In recent years, there has been an increase in article production above the standards. The number of articles produced in 2022 is 9.84 times the number of articles produced in 2018.

Figure 2

Annual Scientific Production and Average Citation Per Year



When the annual average citations are analyzed, the articles published in 2019 received the most citations with an average of 6.4. The second highest citation average occurred in 2020 with 6.0. From 1984 to 2022, when the annual average citations are analyzed, it is seen that publications in certain years received more citations than other years. This situation shows that the articles published in those years are more qualified articles in the field. In 1990, 2.0, in 1998, 2.5, in 2002, 3.6, in 2009, 4.1, in 2015, 5.2 annual average citation values were obtained. 6.4 in 2019, 6.0 in 2020, and 4.5 in 2021 is very valuable for articles published in recent years. These articles are influential articles in the field. However, the large number of articles produced in recent years should also be taken into consideration. Although the articles published in recent years have the disadvantage of receiving citations, they have reached a very good citation value.

Countries, Authors, Sources, Documents Analysis

The top 20 countries of the responsible authors for our field of study on Education and Artificial Intelligence are shown in Table 2. The table was obtained from Bibliometrix in order of total publications. China (1529), USA (1248), UK (390), Australia (298) and India (230) are among the top five leading countries in terms of total number of articles in the field of Education and Artificial Intelligence. Among single-country authors, China (1288), USA (1032), UK (287), Australia (223) and India (186) stand out, while among multi-country authors, China (241), USA (216), UK (103), Australia (75) and Canada (54) stand out.

MCP ratio is obtained from the ratio of the number of multi-country publications to the total number of country publications. Pakistan has the best MCP ratio value with a value of 0.55. After Pakistan, the country with the highest MCP ratio value is France with a value of 0.397.

Table 2

Corresponding Author's Country

Country	TPC	SCP	MCP	MCP_Ratio
CHINA	1529	1288	241	0,158
USA	1248	1032	216	0,173
UNITED KINGDOM	390	287	103	0,264
AUSTRALIA	298	223	75	0,252
INDIA	230	186	44	0,191
CANADA	204	150	54	0,265
SPAIN	184	134	50	0,272
KOREA	155	101	54	0,348
GERMANY	153	103	50	0,327

SAUDI ARABIA	135	93	42	0,311
TURKEY	128	116	12	0,094
ITALY	103	68	35	0,34
BRAZIL	79	61	18	0,228
MALAYSIA	78	52	26	0,333
NETHERLANDS	72	48	24	0,333
MEXICO	69	58	11	0,159
FRANCE	68	41	27	0,397
JAPAN	68	54	14	0,206
SOUTH AFRICA	65	59	6	0,092
PAKISTAN	60	27	33	0,55

TPC = Total number of publications by the corresponding author's country, SCP = Single country publications, MCP = Multiple country publications, MCP_Ratio=MCP/TCP

Turkey ranked 11th on the list with a total of 128 publications, including 116 single-country and 12 multi-country publications. The h-index, g-index, m-index, total citations (TC), total number of publications (NP), and year of first publication in the field of Education and Artificial Intelligence (PY-Start) of the top 20 authors who contributed the most to the field are presented in Table 3.

The h-index of an author is the maximum number of publications of this person with at least the same number of citations. The value of this indicator, "h", indicates that an academic has at least an "h" number of publications with at least an "h" number of citations. More important than the total number of citations, the h-index measures how stable the citations are.

The h-index, first introduced to science by Jorge E. Hirsch, is a measure of the productivity and impact of a scientific researcher (Hirsch, 2005) (Kamdem et al., 2019). The authors with the highest H-index are Hwang GJ (9), Lee S (8) and Wang J (8). The G-index was determined regarding the performance of the author's most read articles. The authors with the highest G-index are Li Y (18), Kumar A (16) Liu Y (16). It generally takes more than 5 years for publications to be cited. One way to compare academics with academic careers in different time periods is to divide the h-index by the number of years of academic activity. This index is defined as the m-index (Harzing, 2012). The authors with the highest m-index are Chen Y (1.75), Chai CS (1.5) and Zhang C (1.5). The authors who are among the top 20 influential authors and started publishing closest to the present day are Chen Y (2020), Chai CS (2020) and Zhang C (2020).

Author Co-citation Network analysis was conducted to examine the co-citations of the authors of the Education and Artificial Intelligence articles. As shown in Figure 3, the co-citation network is divided into three sets of nodes consisting of circles. The first 30 authors were analyzed. Louvain algorithm was used.

Table 3*Author Impact*

Author	h_index	g_index	m_index	TC	NP	PY_start
HWANG GJ	9	15	0,9	360	15	2014
LEE S	8	13	0,889	284	13	2015
WANG J	8	13	1,333	172	13	2018
CHEN Y	7	10	1,75	115	17	2020
KOTSIANTIS S	7	10	0,5	222	10	2010
KUMAR A	7	16	1,167	263	16	2018
LI Y	7	18	1	338	22	2017
LIU X	7	14	1,167	360	14	2018
ZHANG J	7	12	0,333	153	12	2003
ZHANG W	7	11	1,167	293	11	2018
CHAI CS	6	7	1,5	156	7	2020
CHEN F	6	10	1,2	197	10	2019
CUI Y	6	7	1,2	103	7	2019
KOEDINGER KR	6	6	0,667	185	6	2015
KOSTOPOULOS G	6	6	1	88	6	2018
LI J	6	13	1,2	192	17	2019
LIU Y	6	16	0,375	265	21	2008
YANG Y	6	12	1,2	359	12	2019
ZHANG C	6	9	1,5	208	9	2020
ZHANG Y	6	8	1	82	16	2018

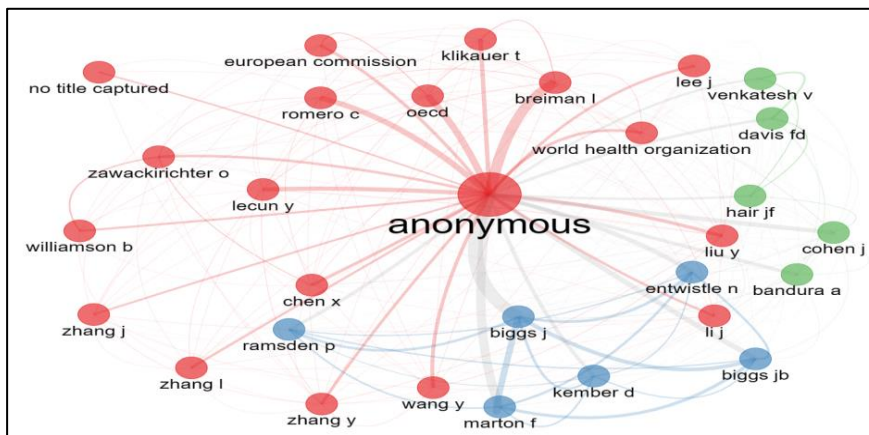
NP = Number of publications, TC = Total citations, PY_start = Publication year starting.

The red cluster became the largest cluster. The red cluster consisted of 19 authors, the blue cluster of 6 authors and the green cluster of 5 authors. In the red cluster, Anonymous, which represents publications of official institutions with no central author, is the most cited author. When the WOS database was examined, it was seen that the authors of publications whose author names were not entered in the bibliography were entered as Anonymous. Except for the author registered as Anonymous in the red cluster, there is no prominent author in the blue and green clusters. However, when the line thickness between them is analyzed, it is seen that the authors named Breiman L, Romero C, Oecd, Lecun Y in the red cluster, Biggs J, Biggs JB, Marton F in the blue cluster, Cohen J, Bandura A in the green cluster stand out.

When the authors with the highest number of co-citations together are analyzed; Anonymous - Breiman L, Anonymous - Biggs J, Anonymous - Marton F, Anonymous - Romero C, Anonymous - Oecd, Anonymous - Lecun Y, Anonymous - Cohen J, Anonymous - Bandura A, Anonymous - Biggs JB, Biggs J - Marton F, Biggs J - Biggs JB, Biggs J - Biggs JB are the author duos that have been cited the most by the authors after them.

Figure 3

Authors Co-Citation Network



The publications of the authors working in the field of Education and Artificial Intelligence according to Lotka's Law are presented in Figure 4. According to Lotka's Law, 60% of the authors contribute to a field of study with one article, 15% with 2 articles, and 7% with 3 articles (Birinci, 2008).

A total of 21502 authors have contributed to the field of Education and Artificial Intelligence. When the articles and authors are analyzed within the framework of Lotka's law, 88.13% of the authors contributed to the field of Education and Artificial Intelligence with one article, 8.16% with two articles, 2.15% with three articles, 0.71% with four articles, and 0.31% with five articles.

It is understood that the author distribution of the articles in the field of Education and Artificial Intelligence does not comply with Lotka's law. Nevertheless, authors with more than five publications can be considered to have deepened in the field of Education and Artificial Intelligence and should be considered as core authors.

Figure 4

Lotka's Law

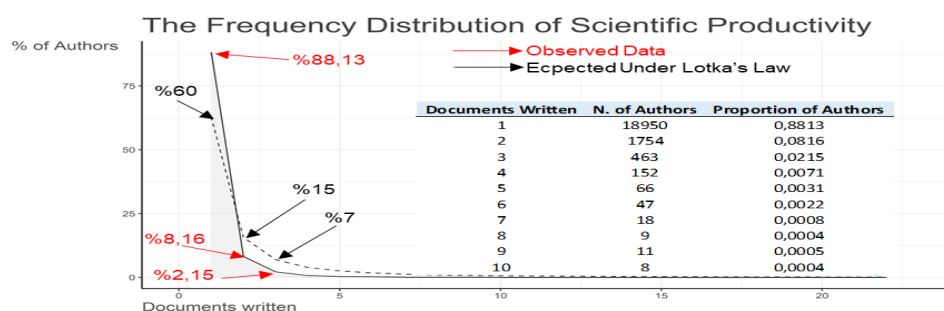


Table 4 shows the top 20 h-index ranked journals (Source Local Impact). These top 20 journals publish 15.97% (1038/6498) of the total articles. The journal with the highest h-index value of 33, g-index value of 66, and m-index value of 4.125 is Engineering.

IEEE Access represents 2.26% (147/6498) of all articles and Sustainability represents 2.00% (130/6498) of all articles. The journal with the highest number of citations for publications on Education and Artificial Intelligence is Engineering with 3183 citations. The second most cited journal is Computers & Education with 30726 citations.

The number of citations per article, which shows the ratio between the number of citations and the number of documents for each journal, was analyzed. With a value of 66.65%, Engineering offers the highest average citation value per article.

When evaluated according to the year of publication, the Sustainability journal, which started its publication life in 2018, has become influential in the field in a short time with 130 publications, 1204 citations, 19 h-index, 29 g-index, and 3,167 m-index values.

Sources Co-citation Network analysis was conducted to examine the co-citations of the sources of Education and Artificial Intelligence articles. Louvain algorithm was used and the first 30 articles were analyzed. As seen in Figure 5, the co-citation network is divided into three node clusters consisting of circles. Each circle in the clusters represents a source.

Table 4

Source Local Impact

Source	H-Index	G-Index	M-Index	TC	NP	TC/NP	PY_start
ENGINEERING	33	66	4,125	4399	66	66,65	2016
COMPUTERS & EDUCATION	29	56	0,906	3183	57	55,84	1992
IEEE ACCESS	21	44	2,1	2324	147	15,81	2014
SUSTAINABILITY	19	29	3,167	1204	130	9,26	2018
INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE IN EDUCATION	18	33	2	1179	54	21,83	2015
COMPUTERS IN HUMAN BEHAVIOR	17	27	0,63	1114	27	41,26	1997
EDUCATION AND INFORMATION TECHNOLOGIES	17	24	2,125	721	48	15,02	2016
APPLIED SCIENCES-BASEL	16	27	2,286	901	86	10,48	2017
BRITISH JOURNAL OF EDUCATIONAL TECHNOLOGY	16	24	0,485	613	27	22,70	1991
JOURNAL OF MEDICAL INTERNET RESEARCH	16	32	0,941	1042	38	27,42	2007
PLOS ONE	14	23	1,75	575	46	12,50	2016
INTERACTIVE LEARNING ENVIRONMENTS	13	20	1	430	35	12,29	2011
NURSE EDUCATION TODAY	13	22	0,464	522	22	23,73	1996
EDUCATIONAL TECHNOLOGY &	12	20	0,6	446	33	13,52	2004

SOCIETY							
IEEE TRANSACTIONS ON EDUCATION	12	19	0,375	379	21	18,05	1992
MEDICAL EDUCATION	12	15	0,5	663	15	44,20	2000
MEDICAL TEACHER	12	22	0,429	646	22	29,36	1996
COMPUTER APPLICATIONS IN ENGINEERING EDUCATION	11	20	0,407	431	35	12,31	1997
INTERNATIONAL JOURNAL OF EMERGING TECHNOLOGIES IN LEARNING	11	18	1,222	444	59	7,53	2015
JOURNAL OF INTELLIGENT & FUZZY SYSTEMS	11	14	1,571	409	70	5,84	2017

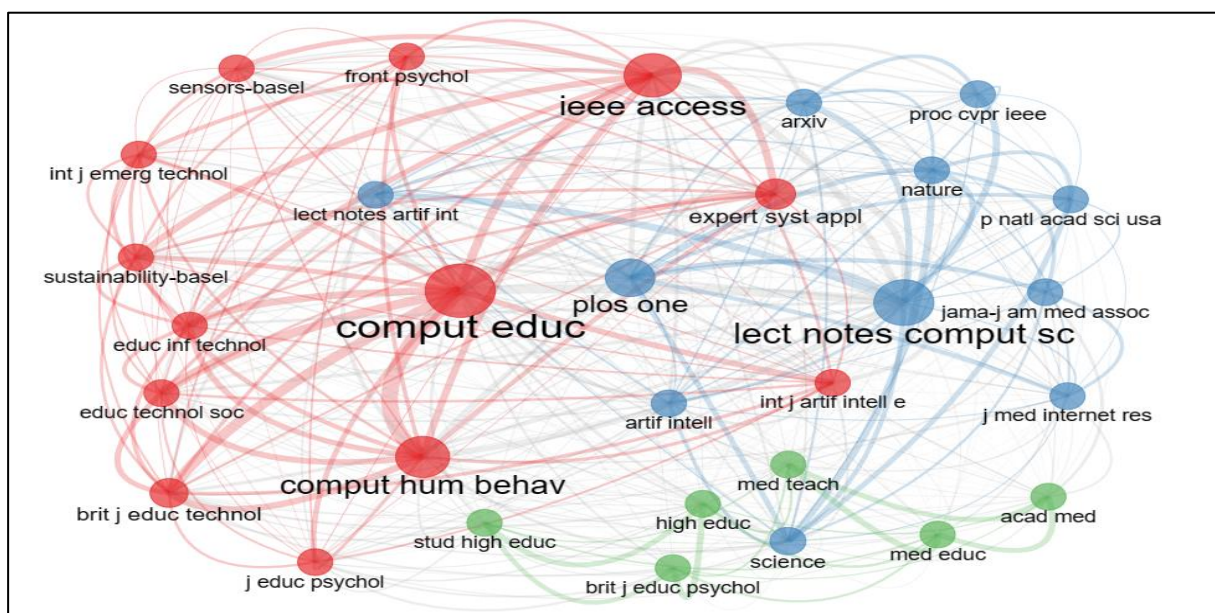
NP = Number of publications, TC = Total citations, TC/NP = Citations per paper, PY_start = Publication year starting

The red cluster is the central cluster with high centrality and has 13 journals. Comput Educ journal is located in the center. It has co-citation links with resources in its cluster and other clusters. Other journals with the highest number of co-citations in the red cluster are Ieee Access, Comput Hum Behav, Expert Syst Appl, Brit J Educ Technol.

There are 11 journals in the blue cluster. The most cited journal in the blue cluster is Lect Notes Comput Sc. The other most cited journal is Plos One. The green cluster consists of 6 journals. The predominantly most cited journal is not in the green cluster.

Figure 5

Sources Co-Citation Network



The thickness of the line between them shows that the journals Comput Educ - Comput Hum Behav, Comput Educ - Brit Educ Technol, Comput Educ - Educ Technol Soc, Comput Educ - Educ Inf Technol, Lect Notes Comput SC - Lect Notes Artif Int, Comput Educ - Ieee Access, Ieee Access - Sustainability-Basel received the most co-citations.

Citation analysis was conducted to identify the most cited articles and the links between these articles in the field of Education and Artificial Intelligence. Citation analysis is commonly used to investigate the underlying intellectual structure and developmental dynamics of the field of study. The 20 most cited publications in the field of Education and Artificial Intelligence are presented in Table 5 in descending order according to the number of local citations (LC).

Table 5

Most Local Cited Documents

Document	YP	LC	LC/YYP	GC	GC/YYP	LC/GC Ratio%
ZAWACKI-RICHTER O, 2019, INT J EDUC	2019	100	25,000	302	75,500	33,11
DOS SANTOS DP, 2019, EUR RADIOL	2019	64	16,000	194	48,500	32,99
ROLL I, 2016, INT J ARTIF INTELL E	2016	53	7,571	128	18,286	41,41
JORDAN MI, 2015, SCIENCE	2015	47	5,875	3046	380,750	1,54
CHEN LJ, 2020, IEEE ACCESS	2020	43	14,333	144	48,000	29,86
LYKOURANTZOU I, 2009, COMPUT EDUC	2009	38	2,714	187	13,357	20,32
GONG B, 2019, ACAD RADIOL	2019	38	9,500	109	27,250	34,86
COSTA EB, 2017, COMPUT HUM BEHAV	2017	36	6,000	168	28,000	21,43
SIT C, 2020, INSIGHTS IMAGING	2020	34	11,333	92	30,667	36,96
TIMMS MJ, 2016, INT J ARTIF INTELL E	2016	33	4,714	99	14,143	33,33
KOLACHALAMA VB, 2018, NPJ DIGIT MED	2018	29	5,800	87	17,400	33,33
WAHEED H, 2020, COMPUT HUM BEHAV	2020	27	9,000	132	44,000	20,45
HUSSAIN MT, 2019, ARTIF INTELL REV	2019	26	6,500	80	20,000	32,50
HINOJO-LUCENA FJ, 2019, EDUC SCI	2019	25	6,250	59	14,750	42,37
HUSSAIN M, 2018, COMPUT INTEL NEUROSC	2018	24	4,800	116	23,200	20,69
CHUI KT, 2020, COMPUT HUM BEHAV	2020	24	8,000	82	27,333	29,27
SCOULLER K, 1998, HIGH EDUC	1998	22	0,880	416	16,640	5,29
GRAY CC, 2019, COMPUT EDUC	2019	22	5,500	71	17,750	30,99
MASTERS K, 2019, MED TEACH	2019	22	5,500	67	16,750	32,84
KAPLAN A, 2019, BUS HORIZONS	2019	22	5,500	583	145,750	3,77

Year of Publication (YP), YYP= Year 2023-Year of Publication, Global Citations (GC), Local Citations (LC),

Local citation is the number of times an article is cited by 6498 articles in the dataset retrieved from WoS, while global citation is the number of times a publication is cited in the WoS database. Zawacki-Richter O 2019 article received 100 local citations, Dos Santos DP 2019 article 64, Roll I 2016 article 53, Jordan MI 2015 article 47 and Chen LJ 2020 article 43. Jordan MI 2015 article received 3046 global citations, Kaplan A 2019 article 583, Scouller K 1998 article 416, Zawacki-Richter O 2019 article 302 and Dos Santos DP 2019 article 194.

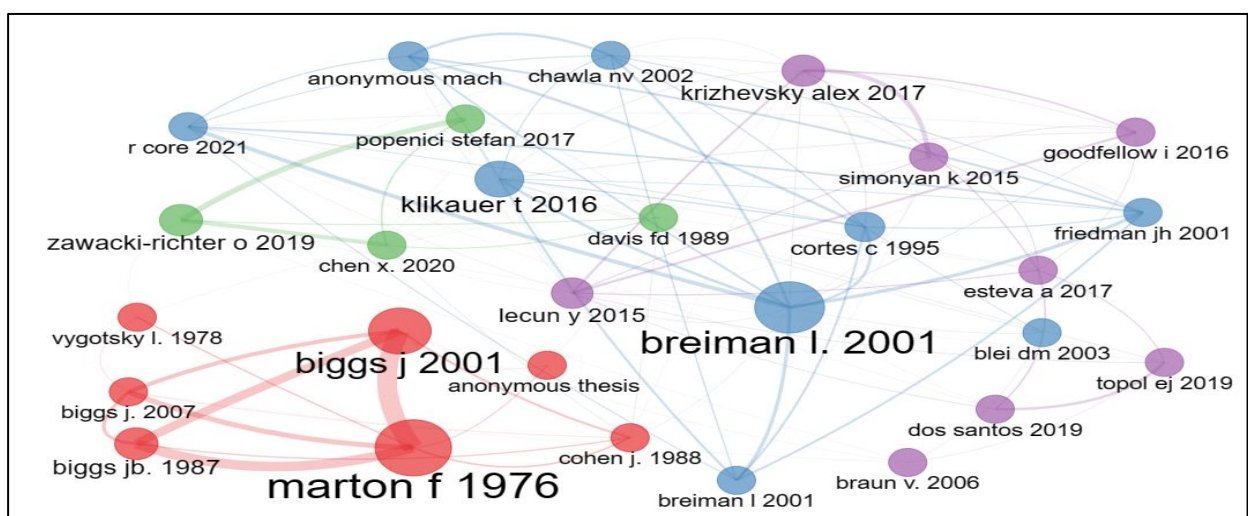
The first publications in the review timeframe have more time to receive citations. On the other hand, publications included in the process at the end of the time interval do not have enough time to receive enough citations. In order to eliminate the negative effects of the short post-publication periods of publications published in the last years of the process and to show the effect of the years in which the articles were published, the definitions of Annual Local Citations (LC/YYP) and Annual Global Citations (GC/YYP) were developed. Zawacki-Richter O 2019 has the highest LC/CYP value (25,000) and Jordan MI 2015 has the highest GC/CYP value (380,750).

Another concept produced for the most cited authors is the Local Citation Percentage. The article with the highest local citation percentage is Hinojo-Lucena FJ 2019 with 42.37%. The local citation percentage is obtained from the ratio of the local citation amount to the overall citation amount. Chane LJ 2020, Sit C 2020, Waheed H 2020 and Chui KT 2020, published in 2020, have been the most influential articles in recent times.

A Paper Co-citation Network analysis was conducted by examining the co-citations of the publications of the Education and Artificial Intelligence literature. The first 28 papers were analyzed using the Louvain algorithm. As shown in Figure 6, the co-citation network is divided into four node clusters consisting of circles. Each circle in the clusters represents an article. The presence of a connecting line between the circles indicates that there is a relationship between them. The thicker the line, the more related they are.

Figure 6

Papers Co-Citation Network



The blue cluster consists of 9 articles, the purple cluster 8, the red cluster 7 and the green cluster 4. Marton F 1976 in the red cluster is the most co-cited article. The other most co-cited articles are Breiman L 2001, Klikauer T 2016 in the blue cluster, Biggs J 2001, Biggs JB 1987 in the red cluster, Zawacki-Richter O 2019 in the green cluster, Krizhevsky Alex 2017 in the purple cluster.

When the thickness of the line between them is analyzed, Marton F 1976 - Biggs J 2001, Marton F 1976 - Biggs JB 1987, Biggs J 2001 - Biggs JB 1987, Zawacki-Richter O 2019 - Popenici Stefan 2017, Marton F 1976 - Biggs J 2017, Biggs J 2001 - Biggs J 2017, Breiman L 2001 - R Core 2021 are the most cited article pairs by subsequent articles.

Authors Keyword Analysis

Keywords are determined by the authors to define the article. Considering that these keywords represent the article, it is considered remarkable to analyze with these words and to identify the current topics and themes of the study area (Zheng et al., 2016). The keyword frequency (amount of repetition) of the field of Education and Artificial Intelligence was obtained using Bibliometrix. The word cloud is a graphical representation of the most recent concepts in the field of Education and Artificial Intelligence. The word cloud makes it easier to identify intertwined fields and analyze the trending words of these fields over the years (Orimoloye, & Ololade, 2020).

The larger the keywords appear, the more frequently they are used in the dataset. The top 50 most frequently occurring keywords identified by the authors of the articles are shown in Figure 7 as a word cloud and the top 40 as a frequency table. In order to analyze all author keywords, word merging was not performed. As seen in the word cloud and frequency table, the most repeated author keywords are Machine Learning, Artificial Intelligence, Deep Learning, Education, Natural Language Processing, Higher Education, Covid-19, Big Data, E-Learning, Medical Education. In addition, the presence of keywords such as Virtual Reality, Social Media, Training, Pedagogy, Neural Networks together with Artificial Intelligence terms draws attention.

Figure 7

Word Cloud



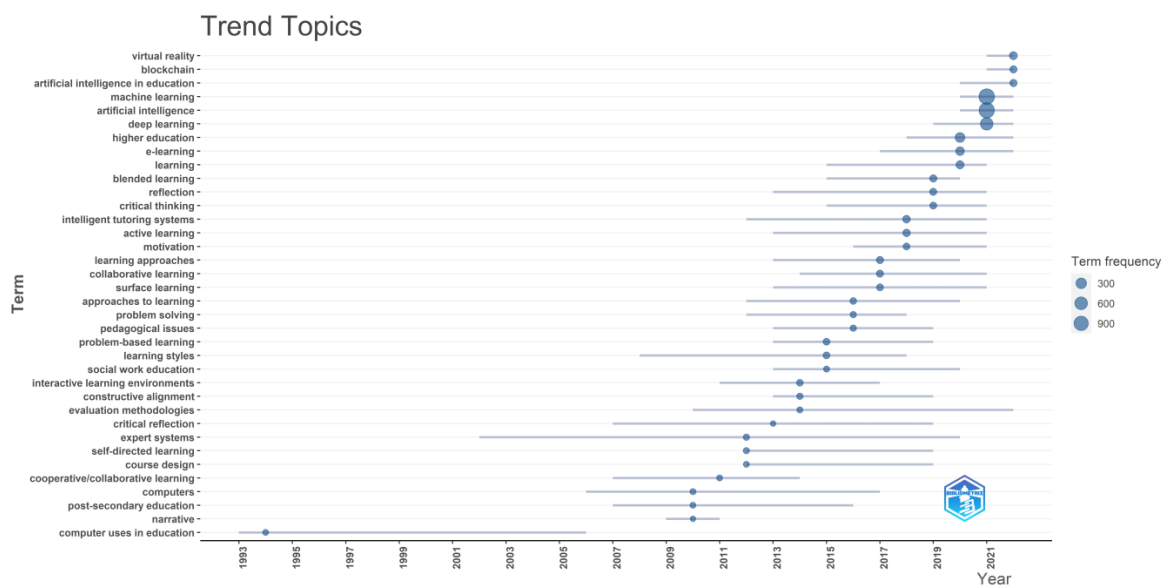
Terms	f	Terms	f	Terms	f	Terms	f
machine learning	1175	data mining	104	prediction	64	sentiment analysis	49
artificial intelligence	1132	learning analytics	104	social media	63	active learning	48
deep learning	568	educational data mining	94	data science	62	engineering education	46
education	484	classification	83	ai	59	pedagogy	44
natural language processing	205	learning	80	internet of things	56	robotics	42
higher education	201	technology	80	random forest	55	text mining	42
covid-19	131	assessment	75	training	53	educational technology	41
big data	117	artificial intelligence (ai)	73	intelligent tutoring systems	51	teaching	41
e-learning	115	virtual reality	69	support vector machine	51	artificial neural network	39
medical education	112	online learning	67	augmented reality	49	neural networks	39

f=Frequency

The graph in Figure 8 shows which of the keywords identified by the authors became popular in which years. The first three keywords used at least five times in each year are visualized.

Figure 8

Trend Topics



While the keywords Computer Uses in Education, Narrative, Post-Secondary Education, Computers, Cooperative/Collaborative Learning, Course Design, Self-Directed Learning, Expert System, Critical Reflection were used more between 1993-2013 in the study of Education and Artificial Intelligence, the keywords Virtual Reality, Blockchain, Artificial Intelligence in Education, Machine Learning, Artificial Intelligence, Deep Learning, Higher Education, E-Learning have become trendier.

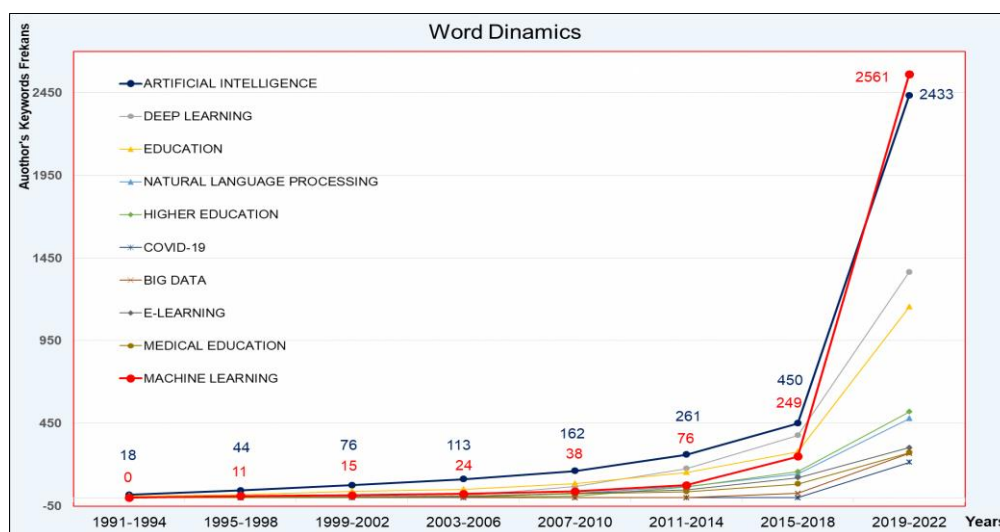
Looking at the size of the circles, Machine Learning, Artificial Intelligence, Deep Learning keywords reached the highest usage volume in 2021, Higher Education, E Learning, Learning keywords in 2020. Figure 8 shows which other keywords were trending in which years. The change of the authors' keywords over time in the process is presented in Figure 9. In order to examine the topic of Education and Artificial Intelligence in different time periods, the 32-year period from 1991 to 2022 was divided into 8 equal time periods of 4 years each (1991-1994, 1995-1998, 1999-2002, 2003-2006, 2007-2010, 2011-2014, 2015-2018, 2019-2022). The first 10 keywords used by the authors were analyzed.

Between 1991 and 2022, the usage of all keywords increased in the process. While Artificial Intelligence keyword was used more prioritized than other keywords until 2015-2018 period, Machine Learning keyword started to be used more than other keywords in 2019-2022 period. In recent studies in the field of Education and Artificial Intelligence, the word Machine Learning has overtaken the word Artificial Intelligence. Along with the keywords Artificial Intelligence and Machine Learning, the keywords Deep Learning and Education also exhibited an upward trend.

While the keyword Artificial Intelligence was used 18 times in the period 1991-1994, it was used 2433 times in the period 2019-2022, and while the keyword Machine Learning was used 0 times in the period 1991-1994, it was used 2561 times in the period 2019-2022.

Figure 9

Word Dynamics



Thematic Analysis

The Strategic Diagram for each sub-period of Education and Artificial Intelligence research generated by Bibliometrix using the top 250 author keywords repeated at least five to three times is presented in Figure 10. The most repeated keywords are grouped into theme clusters. Each cluster is represented by the top three most repeated words. The size of the circles is proportional to the frequency of use of the keyword representing the circle.

In analyses conducted through thematic mapping, research themes are visualized through networks that are resolved over multiple time periods, making it possible to identify their dynamics (Schöggl et al., 2020). A strategic diagram reflects the interactions of factors in a given research topic over time. This diagram is a static description of the network structure of a study area (Shaikevich,1973).

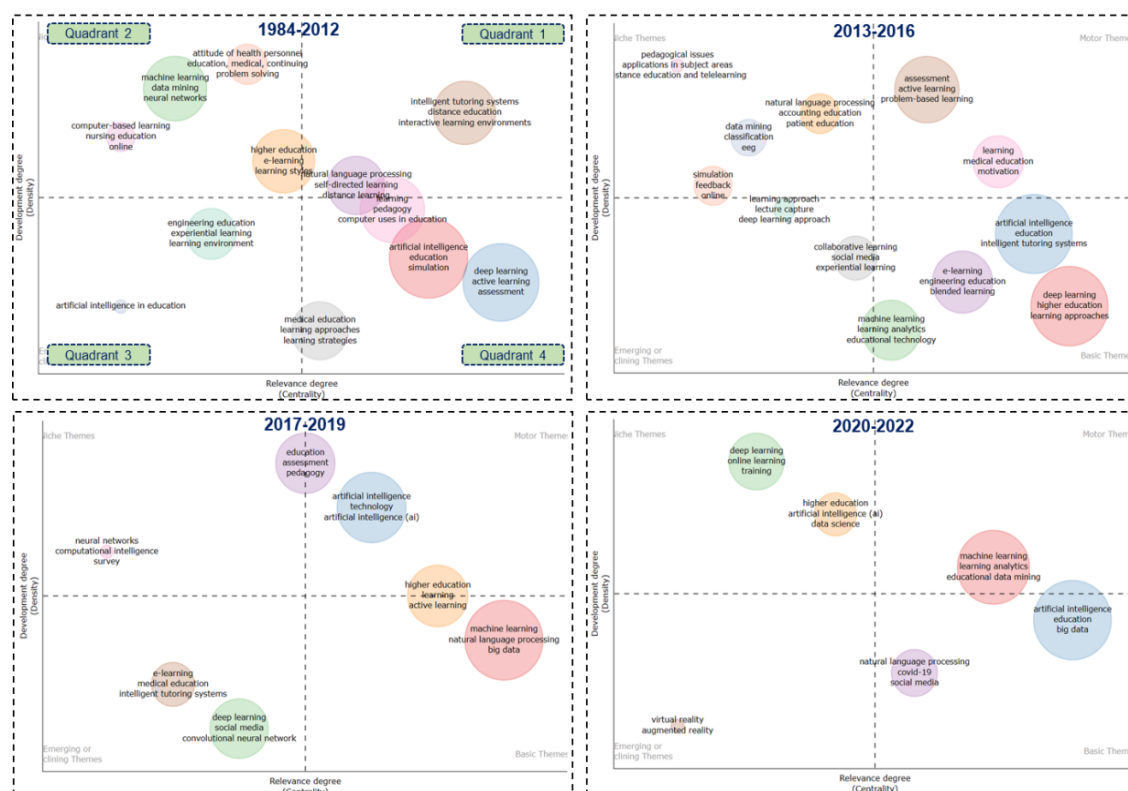
The strategic diagram is divided into four slices expressing themes. Each slice is interpreted in its own way. For this purpose, two parameters including centrality and density were determined. The intensity parameter represents the thematic map as y-axis and the centrality parameter as x-axis. The more central the selected theme is, the more important it is, and the more intense it is, the more developed it is (Nasir et al., 2020).

Between 1984 and 2022, the thematic development of Education and Artificial Intelligence research was analyzed from a dynamic perspective. The research period (1984-2022) is divided into four consecutive sub-periods, taking into account the number of documents and the time window. Although it is more common to define sub-periods with equal time segmentation, the first sub-period is 29 years (1984-2012), the second sub-period

is 4 years (2013-2016), the third sub-period is 3 years (2017-2019) and the fourth sub-period is 3 years (2020-2022) due to limited publications in the early years.

Figure 10

Thematic Map



The Motor Themes, which is developed and expresses the high density and high centrality required for the study area, is the 1st quadrant theme and is located in the upper right part. Niche Themes, which represent highly developed but isolated high density and lower centrality, are the 2nd quadrant theme and are located in the upper left part of the thematic map. Emerging or Declining Themes, which are emerging or declining low centrality and low-density values, are the 3rd quadrant themes and are located in the lower left part of the thematic map. Basic Themes, which have been extensively researched and have well-developed internal links, low intensity and high centrality, are the 4th quadrant themes and are located in the lower right part of the Thematic map (Cobo et al., 2011).

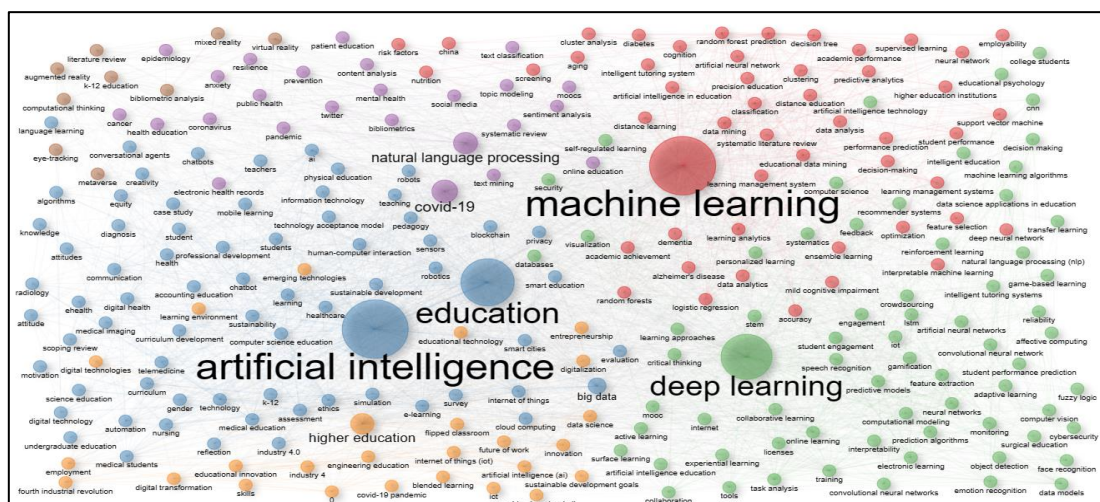
Since motor themes are both very central and very dense, a lot of work has been done on these themes and they have reached sufficient maturity. Niche themes have low centrality and high intensity, so they have not been the main area of study, but have been focused on but

outside the research framework. Rising or falling themes are themes that have neither centrality nor intensity. These themes have been studied but have not received sufficient attention. Core themes are themes with high centrality and low intensity. It is at the center of the study topic, but still not enough work has been conducted in the field. For this reason, themes are the main focus of the Education and Artificial Intelligence research topic.

When the main themes that are active research topics are analyzed, in 1984-2012, the first theme was Deep Learning, Active Learning, Assessment, the second theme was Artificial Intelligence, Education, Simulation, the third theme was Learning, Pedagogy, Computer Uses in Education. In 2013-2016, the first theme was Deep Learning, Higher Education, Learning Approaches, the second theme was Artificial Intelligence, Education, Intelligent Tutoring System, the third theme was E-Learning, Engineering Education, Blended Learning, the fourth theme was Machine Learning, Learning Analytics, Educational Technology. In 2017-2019, the first theme was Machine Learning, Natural Language Processing, Big Data, and the second theme was Higher Education, Learning, Active Learning. In 2020-2022, the first theme was Artificial Intelligence, Education, Big Data, and the second theme was Natural Language Processing, Social Media. Core themes are the most valuable themes for the field. It refers to the themes that are currently being actively studied for the relevant time period. The relationship network of the themes for the 2020-2022 period is given in Figure 11. When the themes between 2020-2022, which is the last period and best represents today, are examined in more detail.

Figure 11

Thematic Network (2020–2022)



The theme of Machine Learning was included under motor themes and there have been enough studies on this theme. Under the Machine Learning theme, the keywords Learning Analytics, Educational Data Mining, Data Mining, Classification, Prediction, Random Forest, Support Vector Machine, Artificial Neural Network, Artificial Intelligence in Education were included. In the network relationships, Machine Learning theme is seen in red color.

Higher Education, Deep Learning themes were included under niche themes. They were intensively studied but could not take place in the center of the field of Education and Artificial Intelligence. Artificial Intelligence (ai), Data Science, 0, Industry 4, Educational Technology, Engineering Education, Machine Learning (ml), Online Learning, Training, Task Analysis, Predictive Models, Feature Extraction, Convolutional Neural Network, Neural Networks, Computer Vision, Convolutional Neural Networks keywords were included under the Higher Education theme. In network relationships, the Higher Education theme was colored orange and the Deep Learning theme was colored green.

The Virtual Reality theme was included under the rising or falling themes and did not create sufficient density and centrality. The keywords Augmented Reality, Metaverse, Mixed Reality, K-12 Education, Computational Thinking, Eye Tracking were included under the Virtual Reality theme. Virtual Reality theme is seen in red color in network relations.

Artificial Intelligence and Natural Language Processing themes were included under the core themes. Education and Artificial Intelligence are the main areas of study as they have high centrality. Under the Artificial Intelligence theme, the keywords Education, Big Data, Medical Education, E-Learning, Technology, Ai, Internet of Things, Assesment, Learning, and under the Natural Language Processing theme, the keywords Covid-19, Social Media, Sentiment Analysis, Text Mining, Online Education, Systematic Review were included. In network relations, Artificial Intelligence is seen in blue and Natural Language Processing keyword is seen in purple.

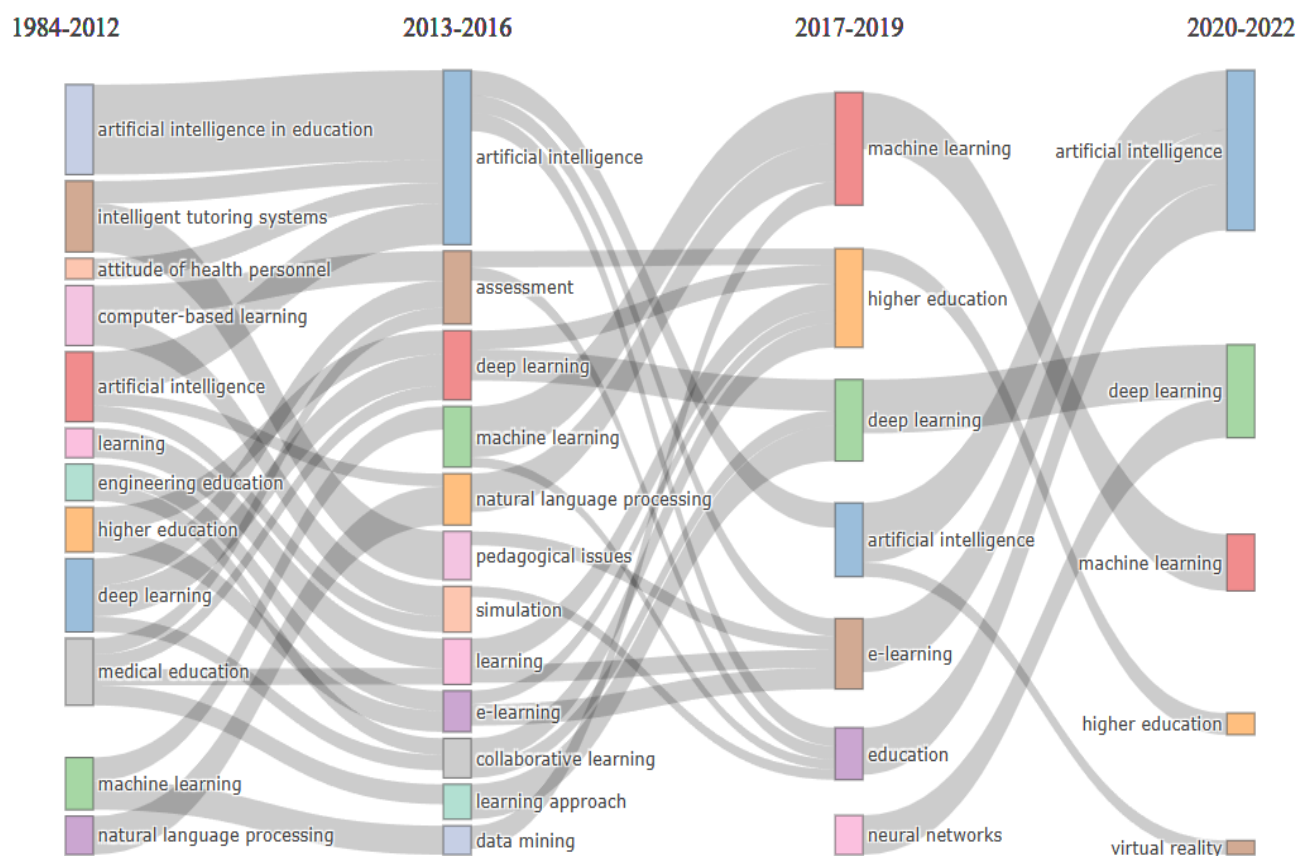
In order to examine the change and development of the Education and Artificial Intelligence themes over the years, in addition to the four-period Strategic Diagram, a four-period Thematic Evolution Mapping, visualized in Figure 12, was created. The size of the nodes indicates the number of keywords and the flow lines between the nodes indicate the direction of evolution of the theme clusters over time. A theme that evolves over sub-periods can be considered a thematic area (Shi et al., 2020). When the diagram is analyzed, there are 12 themes in the first period, 12 themes in the second period, 7 themes in the third period and

5 themes in the fourth period. Artificial Intelligence, Deep Learning, Machine Learning themes were included in all 4 periods.

The Artificial Intelligence theme, which is the dominant theme of the 2013-2016 period, was fed by the sub-themes of Artificial Intelligence, Intelligent Tutoring Systems, Attitude of Health Personnel, Artificial Intelligence, and fed the themes of Artificial Intelligence, E Learning, Education. Machine Learning, the dominant theme of the 2017-2019 period, was fed by Machine Learning, Natural Language Processing, Data Mining sub-themes and fed the Machine Learning theme. Artificial Intelligence, the dominant theme of the 2020-2022 period, was fed by Artificial Intelligence, E-Learning, Education sub-themes. In the 2020-2022 period, Deep Learning, Machine Learning, Higher Education, Virtual Reality themes were formed together with the Artificial Intelligence theme.

Figure 12

Thematic Evolution (1984–2022)



Discussion and Results

This study examines the literature on education and artificial intelligence using the science mapping method. The data collection, analysis, relationship identification, visualization and interpretation steps were performed on 6498 articles in the Web of Science database. The analysis using the R-based "Bibliometrix" program was carried out in four sections including basic structure, countries, authors, journals, articles, author keywords and themes. This study aims to understand and visualize the literature in the field of education and artificial intelligence.

This study was conducted by analyzing 6498 articles on education and artificial intelligence. The review period covers the years 1980-2022. These articles were published in 2217 different journals and used a total of 14275 different author keywords. In addition, 246887 articles were used as references in the bibliographies. The annual article growth rate was calculated as 22.68%. This shows that article production has increased rapidly over the years. In single-author articles, 1016 authors contributed with 1079 articles. The top five countries producing the most articles are China, USA, UK, Australia and India, respectively. In addition, by examining the average annual citations, it was seen that in certain years, quality articles received more citations. The analysis identified the most influential authors and journals through indicators such as h-index, g-index and m-index. Furthermore, the study presented results on identifying authors who do not comply with Lotka's Law and considering authors with more than five publications as "core authors".

While this study delved into the extensive analysis of education and artificial intelligence articles, shedding light on various aspects of this field, it is also essential to consider the broader landscape of educational technology research. In this context, Destereci et al. (2023) conducted a notable bibliometric analysis, offering valuable insights into the trends and developments within the application of critical technology areas in educational research. They found that the number of such articles has been steadily increasing since 2015, with keywords like learning analytics, machine learning, and artificial intelligence being frequently used. The study identified key authors, collaborations, and funding sources in this field, highlighting strong international partnerships. The research provides valuable insights into the landscape of educational technology research.

In the pursuit of comprehending the current landscape and trends within the field of Artificial Intelligence in Education, Baek and Doleck (2020) conducted a bibliometric

analysis focused on articles published in the "International Journal of Artificial Intelligence in Education" between 2015 and 2019. This rigorous examination drew from a dataset comprising 135 articles, retrieved from the Web of Science database, and encompassed an exploration of prolific countries, collaborative networks, influential authors, keywords, and the extent of citations received by these articles. The examination of keywords underscored a predominant focus among authors on students and learning, shedding light on the central themes that have captivated the attention of researchers in this field during the specified period.

The investigation into prolific authors and countries revealed the active participation of corresponding authors primarily hailing from the United States, the United Kingdom, Canada, and Germany. This geographical concentration of contributors signals the global reach and engagement of these nations in shaping the discourse surrounding AI in education. Furthermore, Baek and Doleck's findings unveiled an intricate web of international collaboration among researchers and institutions. Notably, a robust collaborative network was identified between the United States and Canada. This collaborative synergy between nations signifies the collective effort to advance research in AI in education, leveraging the strengths and expertise of various institutions and individuals.

The effectiveness of the journals was evaluated by criteria such as h-index, g-index and m-index. In these analyses, Engineering was found to have the highest h-index value. Local and global citations were analyzed to show the impact of the articles. In this context, prominent articles and journals were identified. Document Co-Citation Network and Source Co-Citation Network analyses were used to identify the relationships between articles and sources. Through these analyses, it was seen which links the prominent articles and sources carry.

This study also examined the role and importance of keywords by conducting an in-depth analysis of academic research in the field of Education and Artificial Intelligence. The keywords identified by the authors represent the essence and focus areas of an article. The frequency analysis of these keywords was performed using a tool called Bibliometrix. Through this analysis, it was determined how often certain keywords were used within the articles and which aspects of the field they emphasized.

The paper also uses word clouds to understand the emerging topics and trends of the Education and Artificial Intelligence workspace. Word clouds graphically visualize the most prominent concepts and terms. These visualizations help us understand how different subject

areas intertwine and influence each other. The most frequently used keywords include Machine Learning, Artificial Intelligence, Deep Learning, Education, Natural Language Processing, Higher Education, Covid-19, Big Data, E-Learning, Medical Education. In addition, the presence of keywords such as Virtual Reality, Social Media, Training, Pedagogy, Neural Networks draws attention.

Another important part of the study is the analysis of how keyword popularity has changed over the years. This analysis reveals how certain concepts evolve over time, in which years they become prominent and in which periods they receive less attention. In particular, concepts such as Machine Learning, Artificial Intelligence, Deep Learning increased in popularity in 2021, while concepts such as Higher Education, E-Learning became prominent in 2020.

Building upon this comprehensive review, it is imperative to consider the broader landscape of research in Artificial Intelligence in Education (AIED). In accordance with the comprehensive review and bibliometric study conducted by Prahani et al. (2022) on Artificial Intelligence in Education (AIED), research in this field has experienced a rapid upsurge in recent years. The study aimed to provide a nuanced understanding of the evolving trends within AIED and their developmental trajectories. The specific objectives of Prahani et al.'s investigation encompassed an in-depth examination of various facets of AIED research, including document types, source documents, contributing countries, languages, affiliations, funding sources, source titles, subject areas, research focal points, and the identification of the top 50 cited publications within the field over the past decade. Drawing upon the Scopus database and employing VOSviewer for visualization purposes, Prahani et al.'s analysis scrutinized a dataset comprising 457 documents. The bibliometric outcomes delineated a remarkable and exponential upsurge in the trajectory of AIED research, particularly within the preceding five years. Notably, articles published in academic journals emerged as the predominant document type, reflecting the academic rigor and scholarly discourse surrounding AIED. Furthermore, China emerged as the leading nation in terms of research productivity within the field, underlining its pivotal role in shaping the AIED landscape. The linguistic domain of AIED research was overwhelmingly dominated by the English language, reflecting the global reach and dissemination of research findings in this language. The prolific author Kalles, D., stood out as a significant contributor to the field. Several affiliations demonstrated notable prolificacy, each contributing four publications, and the

National Natural Science Foundation of China and the National Science Foundation were identified as the primary sources of sponsorship funding.

Within the realm of source titles, the "Journal of Physics: Conference Series" held a prominent position, signifying its relevance as a platform for disseminating AIED research findings. Furthermore, Computer Science emerged as the predominant subject area, elucidating the interdisciplinary nature of AIED research and its integration with computational sciences. Holmes, W., emerged as the top-cited author within the AIED domain, attesting to the recognition of their contributions to the field. A comprehensive mapping of research trends over the past decade illuminated several key focal points, including the application of AIED in student education, its relevance to engineering education, innovative teaching methodologies, the evolution of e-learning-based education, the transformation of educational systems, and the infusion of AI into curricula. In conclusion, the insights gleaned from the meticulous bibliometric analysis conducted by Prahani et al. (2022), as presented in their study, underscore the transformative potential of AIED integration within the education system. These findings serve as a crucial foundation for future research endeavors and policy initiatives aimed at harnessing the power of AI to revolutionize education and enhance pedagogical practices for the betterment of learners worldwide.

In the realm of research on the utilization of artificial intelligence in education, multiple studies have explored the bibliometric properties of this field. Talan (2021) conducted a noteworthy investigation in this regard, aiming to provide insights into the literature's characteristics concerning artificial intelligence in education. Talan's study relied on the Web of Science (WoS) database as the primary data source. An extensive search using various keywords was undertaken to retrieve pertinent literature, resulting in the identification of a substantial dataset comprising 2,686 publications spanning the years 2001 to 2021. This comprehensive inquiry unveiled that a significant portion of these studies originated from the United States.

Moreover, the findings of Talan's study highlighted that the most frequently published journals in the domain of artificial intelligence in education included "Computers & Education" and "International Journal of Emerging Technologies in Learning." In terms of institutional contributions, Carnegie Mellon University, University of Memphis, and Arizona State University emerged as the most prolific organizations, based on the number of publications produced. Among the researchers in the field, Vanlehn, K., and Chen, C. M.

were identified as the most influential and productive scholars. Talan's analysis further revealed the co-authorship network structure, which was predominantly characterized by collaborations among researchers from the United States, Taiwan, and the United Kingdom. Additionally, when examining the keywords frequently used in conjunction with each other, it was evident that terms such as "artificial intelligence," "intelligent tutoring systems," "machine learning," "deep learning," and "higher education" were among the most commonly employed, reflecting the key themes and areas of focus within the literature on artificial intelligence in education. Incorporating the findings of Talan's bibliometric study (2021) alongside those of Prahani et al. (2022) in our discussion allows for a broader understanding of the trends and characteristics of research in the field of artificial intelligence in education. These studies collectively contribute to a comprehensive picture of the evolution, key contributors, and notable themes within this rapidly advancing domain, offering valuable insights for future research and policy initiatives.

In addition to keyword analysis, thematic analysis is also an important part of the study. This analysis shows how keywords evolve over time and how they relate to each other. Motor themes represent the most intensively studied topics that are at the center of the field, while niche themes represent topics that have been intensively studied but have received more limited attention. Emerging or declining themes include topics that are not yet of sufficient importance or have lost popularity. Core themes represent the main focal points of the study area.

This study provides a very comprehensive analysis to understand the dynamics and evolution at the intersection of Education and Artificial Intelligence. By deeply examining the evolution of keywords and themes over time, it allows us to understand how these two important fields are integrated and where they stand out. By following these evolutionary trends, the research allows us to better predict the future development directions of the field of Education and Artificial Intelligence.

The findings of this analysis resonate with the conclusions drawn by Hinojo-Lucena, F. J., Aznar-Díaz, I., Cáceres-Reche, M. P., and Romero-Rodríguez, J. M. (2019) in their study titled "Artificial Intelligence in higher education: A bibliometric study on its impact in the scientific literature," published in *Education Sciences*. Hinojo-Lucena and colleagues conducted a comprehensive bibliometric study to explore the impact of artificial intelligence in higher education as reflected in the scientific literature. Their research encompassed a detailed analysis of relevant publications, and it aligns with the present study's findings.

In particular, the popularity cycles of keywords and themes show how trends and priorities change. This perspective provides academic researchers and experts with guidance to understand which topics are growing the fastest, which areas require more focus, and how to go about setting future priorities. It also provides an opportunity to understand the growth of the field in a broader context.

Furthermore, the study conducted an extensive analysis of 6,498 articles within the field of education and artificial intelligence using the science mapping method, encompassing data collection, analysis, relationship identification, visualization, and interpretation of articles in the Web of Science database. This analysis spanned the years 1980 to 2022 and drew from 2,217 different journals, employing a total of 14,275 unique author keywords and referencing 246,887 articles. Notably, the annual article growth rate was calculated at 22.68%, indicating a rapid increase in research output over the years. Furthermore, the study revealed that China, the USA, the UK, Australia, and India were the top five countries contributing to research articles in the field. The analysis also identified influential authors and journals based on indicators such as h-index, g-index, and m-index, while highlighting collaborative networks, including a strong partnership between the United States and Canada. Additionally, thematic and keyword analyses shed light on central themes and emerging trends, with word clouds visually representing prominent concepts like Machine Learning, Artificial Intelligence, Deep Learning, and more. Furthermore, the research examined the evolution of keyword popularity, emphasizing the dynamic nature of research priorities. Overall, this study provides a comprehensive overview of the field, offering valuable insights into the past, present, and future of education and artificial intelligence research, which can guide decision-making for academia, industry, and policy makers alike.

As a result, this study stands out as a valuable resource that not only examines the past and current state of the field of Education and Artificial Intelligence, but also sheds light on future development directions. The findings of the research can guide strategic decision-making for those in academia and industry alike and provide an important vision of how the field of Education and Artificial Intelligence will develop more broadly. This analysis is also extremely valuable in identifying general trends and interests in the academic world. Understanding the development of the field of Education and Artificial Intelligence is critical for both improving learning methods and creating more effective solutions for the technological requirements of the future. Research results can help optimize teaching and

implementation strategies in this field, while also providing guidance to policymakers and stakeholders.

Based on the comprehensive analysis of 6,498 articles spanning the years 1980 to 2022, it is evident that the field of education and artificial intelligence has experienced rapid growth and evolution. To further advance this field, several key recommendations can be made. First, researchers should focus on emerging trends such as E-Learning, Virtual Reality, and Social Media, as these topics have gained prominence and are likely to shape the future of AI in education. Additionally, while the quantity of research output has increased significantly, it is essential to maintain a strong emphasis on the quality of articles. Understanding the factors that contribute to the impact of certain articles can guide future research efforts. Collaborative networks, particularly those involving researchers from underrepresented regions, should be encouraged to enrich the field's diversity and global perspective. Furthermore, exploring the interdisciplinary integration of AI concepts like Machine Learning and Deep Learning with education can lead to innovative approaches in teaching and learning. Policymakers and educators should consider utilizing research findings to inform decisions related to technology integration and curriculum development. Additionally, investigating the sustainability of the rapid research growth in this field is crucial to ensure its long-term impact. Comparative analyses with other fields can provide insights into unique challenges and opportunities. Lastly, core themes within AI in education should be thoroughly examined to understand their long-term significance and evolution. By addressing these recommendations, researchers, policymakers, and educators can collectively contribute to the continued development of AI in education, ultimately benefiting learners worldwide.

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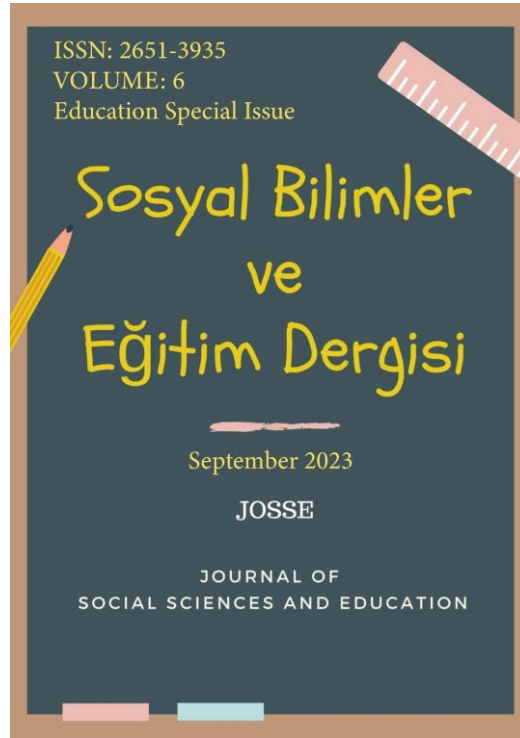
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The Effect of Environment Oriented Science Activities on Secondary School Students' Mental Models Related to Garbage, Waste and Recycling

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ABSTRACT

Research Article

The research aimed to identify mental models related to garbage, waste and recycling and to determine the development of students' mental models following environment-oriented science activities. One-Group Pretest–Posttest experimental design, which is one of the quantitative research methods, was used for the purpose of the research. 14 seventh grade students participated in the research and the research data were collected using open-ended questions. Mental models have been identified by determining the visual and verbal reasoning levels of students on garbage, waste and recycling topics using the developed rubrics. It was determined that the environment-oriented science activities contributed to the development of students' mental models as well as their visual and verbal reasoning about garbage, waste and recycling. Based on the results obtained, teaching activities aiming to improve the knowledge levels of students studying at different grades on garbage, waste and recycling have been suggested. It was further suggested, at the end of the research, to include more environment-oriented activities in the curriculum of all courses other than science.

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Introduction

The number of living creatures on earth is kept in equilibrium by the ecosystem in which they live, without external influences. However, owing to the intelligence bestowed upon him, man has succeeded in getting out of this limitation. While the world population was approximately 1,6 billion in the 1900s, this figure reached 2,5 billion in the 1950s and 6 billion in the 2000s (Çamurcu, 2005). The population has increased rapidly in every period however owing to the recent scientific and technological advances, not only the population growth has accelerated but also the average life span of human beings has increased. By 2023, the world population has reached approximately 8 billion. Increasing needs of human beings in parallel with population growth, industrialization and consumption habits differentiated by urbanization have further increased the benefit of humanity from the environment (Palabıyık & Altunbaş, 2004). Although the environment has the power to renew itself up to a certain level, this regeneration cannot take place after a certain point (Kızılıboğa & Batal, 2012). The growth in the world population further caused the environmental demands of humanity to increase, however natural resources began to deplete before they were given a chance to be renewed. Earth Overshoot Day, defined as the date when humanity's demand for ecological resources and services in a given year exceeds what Earth can regenerate in that year, falls on 2 August by 2023. Türkiye, on the other hand, has already consumed its natural resources as of June 22 (Anadolu Agency, 2023). From this date on, people meet their needs for the rest of the year by borrowing from the next year. The consumption of the yearly offered resources in a much shorter time and the fact that Earth Overshoot Day is brought forward results in the deprivation of the opportunities of future generations to benefit from natural resources. For this reason, it is extremely crucial to convey to individuals the understanding that they should not take away future generations' opportunities to access natural resources while benefiting from the environment (Bruntland,1987; Sander, Jelemenska & Kattman, 2006; Yüzbaşıoğlu & Kurnaz, 2021).

It is of significant importance for individuals to preserve and save natural resources and to reduce the amount of waste while benefiting from the environment both for themselves and for future generations. One of the most important ways to reduce the amount of waste generated and to use the resources economically is recycling and reuse (Tibben-Lembke, 2004). Recycling of waste has environmental, health and economic benefits. Recycling not only reduces environmental pollution, but also reduces the damage to natural resources

(Spiegelman & Sheehan, 2004). The ability of individuals to distinguish between garbage and waste and to understand the significance of recycling further contribute to their sensitivity towards the environment. Effective teaching environments are needed in order to raise individuals who are aware of the concept of recycling and act by paying attention to the separation of garbage and wastes in their daily lives (O'Connor, 1989; Çimen & Yılmaz, 2012). On the other hand, knowing the benefits of recycling is an important achievement that enables individuals to take steps towards recycling (Schultz, Oskamp & Mainieri, 1995). Having knowledge about recycling is an indication that this knowledge can be transformed into behavior (Wright, 2011).

Science course in Turkey plays a significant role in raising individuals who have knowledge about recycling at secondary school level. The science courses' curriculum aims to make students understand the significance of recycling and reuse (MoNE, 2018). Although the students develop positive attitudes towards the environment after the science courses they are provided, they may still experience deficiencies in practices such as purchasing environmentally friendly products, sorting wastes on the basis of recycling activities and donating to environment-friendly organizations (Demir & Atasoy, 2021). Direct interaction of societies with the environment has been decreasing due to the fact that they mostly live in cities. The theoretical knowledge provided to the students within the scope of environmental education will not be sufficient alone, accordingly it is necessary to give more space to activities that include opportunities for direct interaction with the environment (Özdemir, 2010). Activities carried out within the scope of environmental education, in which students take an active role, have been found to increase students' knowledge of the environment and to improve their environmental attitudes positively (Efe, Yücel & Efe, 2020; Stern, Powell & Ardoin, 2008). As a matter of fact, this result is also observed in practical studies. For the purpose of their research Onur, Çağlar and Salman (2016) determined that the knowledge and practical activities provided to the students about the evaluation of wastes resulted in a positive development in the students. Therefore, it is thought that teaching students about the concept of recycling and taking practical steps will contribute to making them more sensitive towards environmental issues and ensure them to be voluntary participants for protecting the environment.

Raising awareness on the events taking place in their environment, discovering the interactions between people, the environment and nature are among the desired acquisitions that students have after the education presented to the students in the teaching environments

(MoNE, 2018). Certain education is presented to students in teaching environments; however, it is important for the learners to structure this education appropriately in their minds. In order for the presented knowledge to be internalized, existing knowledge and concepts should be compatible with newly acquired knowledge and it is necessary for the individuals to mentally process them instead of memorizing (Önen, 2005). Knowing what individuals think about a subject, how they already perceive it and how they mentally structure a certain knowledge is very important in designing an effective teaching environment (Horton, 2007). The cognitive structures that individuals develop by mentally associating the knowledge they have acquired with each other are defined as mental models (Gilbert, 2011). Mental models are directly related to how we understand certain knowledge (Hanke, 2008). Mental model construction takes place in all successful or unsuccessful integration processes of the acquired knowledge (Tversky, 1993). The mental model that an individual has is personal and incomplete. Therefore, mental model development continues as new knowledge is acquired. Considering that mental models are the reflections of knowledge in the minds of individuals, identifying and revealing these reflections will give clues about the quality of learning (Bozdemir Yüzbaşıoğlu & Sarıkaya, 2019; Kurnaz, 2011; Moseley, Desjean-Perrotta & Utley, 2010). Based on these points, this research aimed to identify mental models related to garbage, waste and recycling and to determine the development of secondary school students' mental models following environment-oriented science activities.

Method

One-Group Pretest–Posttest experimental design, which is one of the quantitative research methods, was used for the purpose of the research. Research conducted using the experimental design aims to test the relationship between variables (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2018). One-Group Pretest–Posttest Design, on the other hand, measures the effect of independent variable applied to a group before and after the experiment (Fraenkel & Wallen, 2006). Within the scope of the current study objectives, pre-test and post-test mental models were identified via a teaching practice using environment-oriented activities and the effect of the procedure has been tested.

Study Group

This study, in which the one-group pretest–posttest experimental design was used, was conducted with 14 7th grade students from a secondary school located in the Western Black Sea Region. The inclusion of household garbage and recycling in this grade curriculum caused the conduct of the research with 7th graders.

Convenience sampling, one of the non-random sampling methods, which includes groups of people who are suitable, accessible and ready for the study (Fraenkel & Wallen, 2006) were used in the study.

Teaching Practices

For the purpose of the current research, the mental models of the students were determined before the teaching practices. As the teaching practice would to be implemented within the scope of the science course, the curriculum was examined in advance (MoNE, 2018). Then activities aiming the development of students' mental models on garbage, waste and recycling concepts were designed. In this context, a total of 24 environment-oriented activities that students can actively participate in were determined. The activities implemented are presented in Table 1.

Table 1

Activities carried out with the participation of students in line with research purposes

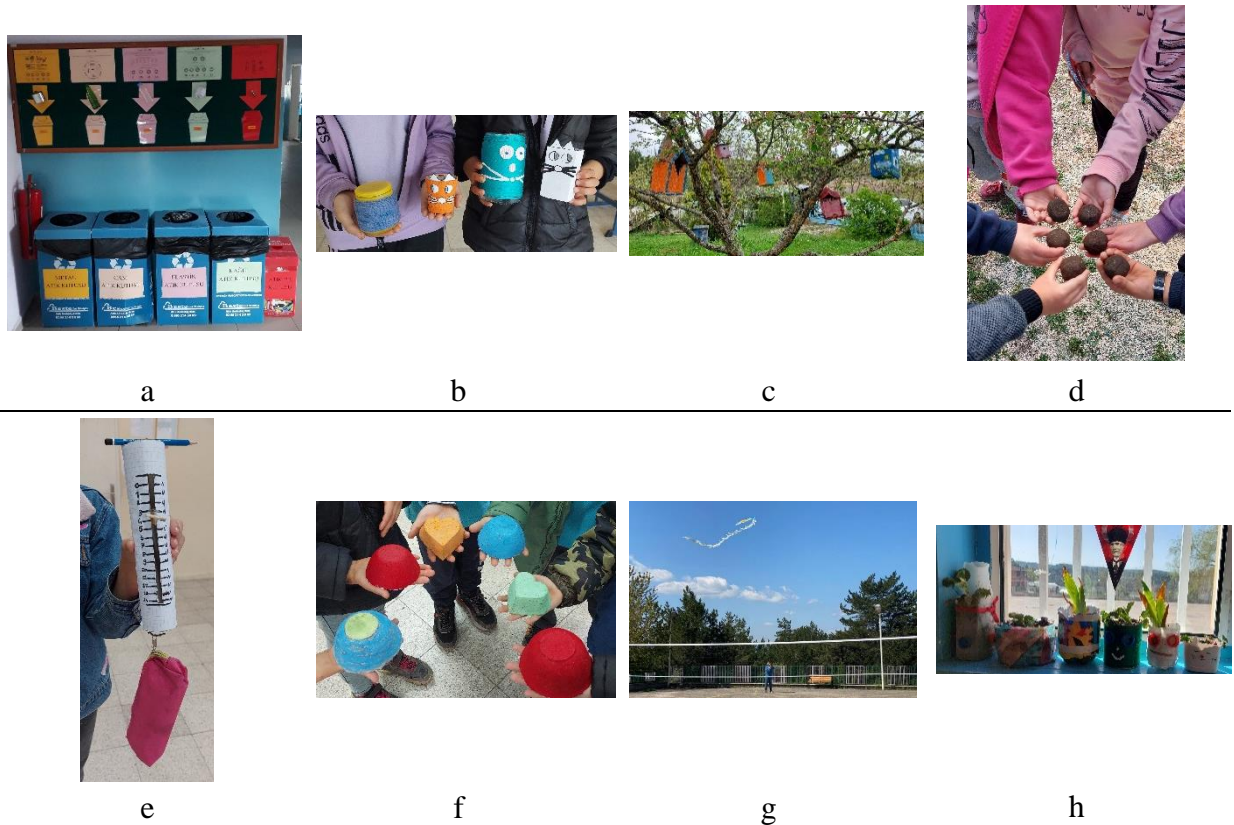
Week	Activity
1	A board on the concepts of garbage, waste and recycling has been created at the school.
2	Waste collection boxes were prepared and placed in appropriate areas in the school.
3	A presentation was made about waste oils and their effects on the environment, and a waste oil collection campaign was started.
4	Faculty members were invited to the school and asked to hold seminars on recycling and its types.
5	Informative presentations were presented about the zero waste project.
6	Planetary models were created from waste materials.
7	Artistic works were designed using waste materials.
8	A model cell was designed from waste materials.
9	A dynamometer was designed using waste materials.
10	A word game on the theme of garbage, waste and recycling was designed and played with the students.
11	A pen holder and piggy bank were designed using waste materials.
12	Kraft pulp was prepared from waste paper and cardboard materials and then pots and pen holders were designed using this pulp.
13	Various school logos were designed from waste materials.
14	Atom models were designed from waste materials.
15	Garbage, waste and recycling themed cartoons were drawn.
16	Recycling themed computer game was developed.

- 17 Original recycling logos were designed using waste materials.
 - 18 Seed balls were prepared from waste papers and released to nature.
 - 19 Flower pots were designed using waste materials and a flower bed was created in the classroom using these pots.
 - 20 A virtual tour was organized to the compost and recycling facility.
 - 21 Compost was prepared and used for planted plants.
 - 22 Birdhouses were designed from waste materials and placed in appropriate places in the school garden.
 - 23 Children's games were designed using waste materials.
 - 24 Kites were prepared from waste materials and flown in the school yard.
-

The activities presented in Table 1 were applied within the scope of the science course together with the students for a total of 24 weeks, each of which was 1 week on average. Exemplary images of the activities carried out with the participation of students are presented in Figure 1.

Figure 1

Exemplary images of the activities carried out with the participation of students



a: Waste collection boxes, b: Pen holder and piggy bank designs, c: Birdhouses, d: Seed balls, e: Model dynamometer, f: Materials designed using pulp, g: Kite, h: The flower bed in the classroom

Active participation of students were ensured in the activities, examples of which are given in Figure 1, and all other activities. The materials required in the activities were provided by the students from the wastes generated in their classrooms, schools and homes

Data Collection and Analysis

A data collection tool consisting of six open-ended questions, developed within the scope of the current research, was used in order to determine the mental models that students have about garbage, waste and recycling. The acquisitions of the related subject in the science course curriculum were examined in detail before the development of the data collection tool. Developed questions were submitted to expert opinion to be evaluated in terms of language, clarity and suitability for the study. The measurement tool, consisting of a total of six questions (three verbal and three visual), was finalized after the expert's opinion.

Questions Asked in the Data Collection Tool

1. What is garbage? Please explain.
2. Please draw the image formed in your mind with regard to the concept of garbage.
3. What is waste? Please explain.
4. Please draw the image formed in your mind with regard to the concept of waste.
5. What is recycling? Please explain.
6. Please draw the image formed in your mind with regard to the concept of recycling.

For the purpose of the data collection phase, data collection tool was applied to the students by giving one class hour before the teaching practices. Then, a total of 24 activities within the scope of the science course were implemented with the participation of the students. The data collection tool was re-applied to the students after the activities were implemented.

A literature review was conducted before analyzing the answers given by the students to the data collection tool. Rubrics were created to determine students' reasoning levels and mental models about garbage, waste and recycling, in line with the purpose of the current research, based on the rubrics used by Yüzbaşıoğlu and Kurnaz (2020) to analyze the open-ended verbal and visual questions. The answers given by the students to the questions in the

data collection tool were analyzed in two separate groups, verbal and visual, by using the rubrics created. The reasoning levels derived from the answers given by the students to the related questions were classified according to the criteria presented in Table 2.

Table 2

The rubric used to determine students' reasoning levels

Level	Code	Score	Criteria related to Verbal Reasoning Levels	Criteria related to Visual Reasoning Levels
No Reasoning	[NR]	0	Questions left blank, vague or incomprehensible answers.	Questions left blank, vague or incomprehensible drawing(s)
Complex Reasoning	[CR]	1	Answers containing non-scientific information.	Drawing(s) reflecting non-scientific information.
Incomplete Reasoning	[IR]	2	Knowing some basic issues besides answers containing partially wrong/alternative ideas.	Drawings that reflect correct knowledge besides drawings that contain partially incorrect/alternative ideas.
Partially Scientific Reasoning	[PSR]	3	Answers that do not contain partially incorrect/alternative ideas, but basic knowledge.	Drawing(s) that do not contain partially incorrect/alternative ideas, but reflecting basic knowledge.
Scientific Reasoning	[SR]	4	Scientific answers (The level expected by the curriculum).	Drawings including scientific answers (The level expected by the curriculum).

The answers provided by the students to the questions, posed within the scope of the study, were evaluated and classified separately on the basis of garbage, waste and recycling issues in line with the criteria presented in Table 2. Next stage aimed to reveal the mental models of the students based on their visual and verbal reasoning levels. The rubric used for identifying mental models is presented in Table 3.

Table 3

Rubric for Identifying Mental Models

Models	Reasoning Levels	Characteristics
Incompatible Model [IM]	$\begin{bmatrix} 0 & 0 \\ 1 & 1 \\ 2 & 2 \end{bmatrix}$	Insufficient visual and verbal reasoning
Verbally Dominant Model [VDM]	$\begin{bmatrix} 0 & 4 \\ 1 & \\ 2 & 3 \end{bmatrix}$	Their visual reasoning is non-scientific, however their verbal reasoning is scientific.
Visually Dominant Model [ViDM]	$\begin{bmatrix} 4 & 0 \\ & 1 \\ 3 & 2 \end{bmatrix}$	Their visual reasoning is scientific, however their verbal reasoning is non-scientific.
Scientific Model [SM]	$\begin{bmatrix} 4 & 3 \\ 3 & 4 \end{bmatrix}$	Both visual and verbal reasoning levels are scientific in nature.

As presented in Table 3, the student's mental model for the relevant subject was classified as "Scientific Model" in case the students' visual and verbal reasoning levels on garbage, waste and recycling were of a scientific nature (if the student's visual and verbal reasoning level score is 4 or 3, mental model was classified as a SM). The student's mental model for the relevant subject was classified as "Visually Dominant Model" in case the students' visual reasoning levels were scientific however their verbal reasoning levels were of non-scientific nature (if the student's visual reasoning score was 4 or 3 and verbal reasoning score was 0, 1 or 2, their mental model was classified as a ViDM). The student's mental model for the relevant subject was classified as "Verbally Dominant Model" in case the students' visual reasoning levels were non-scientific however their verbal reasoning levels were of scientific nature (if the student's visual reasoning score was 0, 1 or 2 and verbal reasoning score was 4 or 3, their mental model was classified as a VDM). The student's mental model for the relevant subject was classified as "Incompatible Model" in case the students' visual and verbal reasoning levels were both evaluated as insufficient (if the student's both visual and verbal reasoning scores were 0, 1 or 2, their mental model was classified as an IM). These processes were repeated independently for the data collected before and after the implementation of environment-oriented activities. An independent researcher was asked to evaluate the answers provided by 5 randomly selected students in the data collection tool for calculating the reliability of the study. Then the codes of the independent researcher were compared with the codes determined within the scope of the current research by using the formula suggested by Miles and Huberman (1994) [Reliability = (Consensus) / (Consensus+Disagreement)]. At the end of the calculations, the percentage of agreement was calculated as 0,94. Studies with a percentage of agreement over 70% are considered reliable (Miles & Huberman, 1994). In order to ensure validity within the scope of the study, direct quotations were included and detailed explanations were made.

Compliance with Ethical Standard

This study received ethics approval from the Kastamonu University Social and Human Sciences Research and Publication Ethics Board (Dated 17.05.2022 and numbered 2022/2/5)

Findings

The answers provided by the students for each question about garbage, waste and recycling before and after the implementation of the environment-oriented activities were analyzed independently of each other. First, the reasoning levels of students were determined in line with the criteria given in Table 2 based on the answers provided by each student. Pre-test visual and verbal reasoning levels of students on garbage, waste and recycling (before the implementation of activities) were presented in Table 4.

Table 4

Pre-test Visual and Verbal Reasoning Levels of Students

Subject	Reasoning Level	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14		
Garbage	Visual	[NR]														√	
		[CR]			√	√	√			√			√				
		[IR]	√	√							√	√		√	√		
		[PSR]						√	√								
		[SR]															
	Verbal	[NR]							√								√
		[CR]				√	√			√	√	√					
		[IR]	√	√	√								√	√	√		
		[PSR]						√									
		[SR]															
Waste	Visual	[NR]		√													
		[CR]												√			
		[IR]										√	√			√	
		[PSR]			√		√	√		√	√				√		
		[SR]	√			√			√								
	Verbal	[NR]		√		√	√			√		√		√			
		[CR]															√
		[IR]	√										√				
		[PSR]			√						√				√		
		[SR]						√	√								
Recycling	Visual	[NR]															
		[CR]				√		√			√	√					
		[IR]												√	√	√	
		[PSR]	√	√	√		√			√				√	√	√	
		[SR]															
	Verbal	[NR]															√
		[CR]				√					√	√					
		[IR]					√										
		[PSR]	√		√			√		√					√		
		[SR]		√					√	√			√	√			

Table 4 reveals that both visual and verbal reasoning levels of the majority of students about garbage were grouped under IR (f=6) and CR (f=5) codes. None of the students provided answers grouped under SR category at both reasoning levels. In both visual and

verbal questions, majority of the students were not clear about garbage. It was further determined that the students generally consider all the materials they do not commonly use as garbage. Visual reasoning levels of the students in the waste concept were mostly classified under PSR code (f=6) whereas their verbal reasoning levels were classified under NR code (f=6). It was determined that students have significant deficiencies in distinguishing between the concepts of waste and garbage. It was found that students more likely classify most of the waste materials they encounter at school and at home as garbage. Visual reasoning levels of the students in the recycling concept were mostly classified under PSR code (f=8) whereas their verbal reasoning levels were classified under PSR code (f=5) and SR code (f=4). Students were determined to be more successful in recycling concept compared to other subjects. It was concluded that students had deficiencies in visual reasoning of the concept of recycling although their verbal reasoning of the concept of recycling was at acceptable levels. It was observed that the deficiencies related to the concepts of garbage and waste further caused problems in reasoning concept of recycling and although the students were able to express recycling verbally to a certain extent, they had deficiencies with regard to visualization. Examples of the answers provided by the students to the data collection tool before the implementation of environment-oriented activities were presented in Figure 2.

Figure 2

Examples of the pre-test answers provided by the students to questions about garbage, waste and recycling

Garbage	Waste	Recycling
		
İnsanlara herhangi Bir ürünü kullandıktan sonra atılan atık maddelere şüphesiz	atık geri dönüştürülebilir o yüzden onlara uygun kutulara atınız	İnsanlara herhangi Bir ürünü kullandıktan sonra atılan atık maddelere şüphesiz

The activities presented in Table 1 were developed considering the visual and verbal reasoning performances of the students presented in Table 4. In the next step, developed

activities were carried out with the participation of the students and the data collection tool was applied again. Reasoning levels of students were evaluated in line with the criteria given in Table 2 based on the answers provided by each student. Post-test visual and verbal reasoning levels of students on garbage, waste and recycling (after the implementation of activities) were presented in Table 5.

Table 5

Post-test Verbal and Visual Reasoning Levels of Students


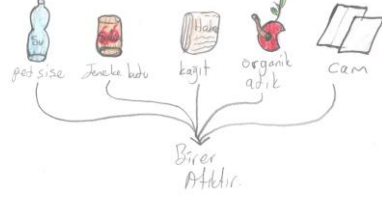

Subject	Reasoning Level	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	
Garbage	Visual	[NR]														
		[CR]														
		[IR]	√		√	√				√					√	
		[PSR]		√				√	√		√	√	√			√
		[SR]					√							√		
	Verbal	[NR]														
		[CR]														
		[IR]			√	√			√							
		[PSR]		√			√						√	√	√	
		[SR]	√					√		√	√	√				√
Waste	Visual	[NR]														
		[CR]														
		[IR]						√	√			√		√		√
		[PSR]	√	√	√	√			√	√	√		√		√	
		[SR]								√	√	√		√		√
	Verbal	[NR]														
		[CR]														
		[IR]				√										√
		[PSR]			√									√		
		[SR]	√	√			√	√	√	√	√	√	√		√	
Recycling	Visual	[NR]														
		[CR]														
		[IR]														
		[PSR]		√		√		√		√		√	√	√	√	√
		[SR]	√		√		√		√		√					
	Verbal	[NR]														
		[CR]														
		[IR]														
		[PSR]				√	√	√								
		[SR]	√	√	√				√	√	√	√	√	√	√	√

Table 5 revealed that the students' visual reasoning levels about the concept of garbage were mostly classified under PSR (f=7) code and their verbal reasoning levels were mostly classified under SR (f=6) and PSR (f=5) codes. Considering both reasoning levels, it was determined that none of the students' reasoning levels were classified under the code CR, which includes non-scientific knowledge, and under the code NR, which represents vague and incomprehensible answers. After the activities implemented, it was determined that majority

of the students were able to characterize the items that cannot be reintroduced into the system and that cannot be reused as garbage. It was determined that both visual (f=9) and verbal (f=10) reasoning levels of the students about the concept of waste were mostly classified under the category of SR, which represents answers at the scientific level. After the activities implemented, it was determined that the students were able to characterize the items that could be re-evaluated, converted into raw materials through various processes and reintroduced into the production process as wastes. It was further determined that students preferred drawing about materials such as used paper, plastic bottles and tin cans that they have commonly used in school activities and frequently encountered in their daily lives. Visual reasoning levels of the students in the recycling concept were mostly classified under PSR code (f=9) whereas their verbal reasoning levels were classified under SR code (f=11). It was concluded that the education provided and the practices implemented, together with the environment-oriented activities, positively contributed to the students' reasoning of the recycling concept. Examples of the answers provided by the students to the data collection tool following the implementation of environment-oriented activities were presented in Figure 3.

Figure 3

Examples of the post-test answers provided by the students to questions about garbage, waste and recycling

Garbage	Waste	Recycling
		
Göp bœri Dœnœstœnœmœyen œtœktœr	atik geridœnœstœnœmlerek tekrœr kœtœnœlœn œnœgœn; atœkœpœl, atœk kaœit birde evœsel atœkœr vœrœ.	Atœklœrœn œœœitli fizœksœl vœya kœmœyœsal œœœœmlœrden œœœœerek tekrœr kœtœnœlœnœbilir hœle œœœœnœlœnœsœdœrœ.

Students' mental models were identified, using the rubric presented in Table 3, based on the students' levels of visual and verbal reasoning about the concepts of garbage, waste and recycling. The pre-test mental models of the students related to garbage, waste and recycling (before the implementation of activities) were presented in Table 6.

Table 6

Pre-test Mental Models of the Students

Subject	Mental Model	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14
Garbage	[IM]	√	√	√	√	√			√	√	√	√	√	√	√
	[VDM]														
	[ViDM]							√							
	[SM]						√								
Waste	[IM]		√								√	√	√		√
	[VDM]														
	[ViDM]	√			√	√			√						
	[SM]			√			√	√		√				√	
Recycling	[IM]				√					√	√				
	[VDM]						√								
	[ViDM]					√									√
	[SM]	√	√	√				√	√			√	√	√	

Table 6 revealed that almost all of the students had mental models categorized under IM (f=12) code with regard to garbage concept before the implementation of activities and very few students had mental models categorized under ViDM (f=1) and SM (f=1) codes. Considering the subject of waste, on the other hand, it was determined that the students' mental models were distributed under IM (f=5), ViDM (f=4) and SM (f=5) codes. It was further determined that more than half of the students had a mental model about the concept of recycling categorized under SM (f=8) code. The rest of the students had IM (f=3), VDM (f=1) and ViDM (f=2) mental models. The post-test mental models of the students related to garbage, waste and recycling (following the implementation of activities) were presented in Table 7.

Table 7

Post-test Mental Models of the Students

Subject	Mental Model	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14
Garbage	[IM]			√	√										
	[VDM]	√							√					√	
	[ViDM]							√							
	[SM]		√			√	√			√	√	√	√		√
Waste	[IM]														
	[VDM]				√										√
	[ViDM]					√	√	√	√	√	√	√	√	√	
	[SM]	√	√	√		√	√	√	√	√	√	√	√	√	
Recycling	[IM]														
	[VDM]										√				
	[ViDM]														
	[SM]	√	√	√	√	√	√	√	√	√		√	√	√	√

Table 7 revealed that more than half of the students had a mental model categorized under IM (f=8) about the concept of garbage and a small number of students had mental models grouped under the categories of IM (f=2), VDM (f=3) and ViDM (f=1). It was further determined that almost all of the students had a mental model categorized under SM (f=12) code with regard to waste concept and other students had a mental model categorized under ViDM (f=2) code. Considering the concept of recycling, it was further determined that the number of students with the mental model categorized under SM (f=13) code was quite high and only one student had the mental model categorized under VDM code.

It was concluded that the activities implemented contributed positively to the mental models of the students. Post-test changes in the mental models of the students were presented in Table 8.

Table 8

Changes in the Mental Models

		Mental Model				
			Incompatible Model	Verbally Dominant Model	Visually Dominant Model	Scientific Model
Garbage	Pre-test	f	12	-	1	1
	Post-test	f	2	3	1	8
Waste	Pre-test	f	5	-	4	5
	Post-test	f	-	-	2	12
Recycling	Pre-test	f	3	1	2	8
	Post-test	f	-	1	-	13

As can be deduced from Table 8, the mental models of the students on garbage, waste and recycling have improved after the implementation of the activities. While the visual and verbal reasoning of 12 students about garbage was insufficient, majority of them switched to scientific reasoning after the implementation of the activities. It was concluded that the students who previously had IM mental models about the concept of waste had mental models categorized under ViDM and SM codes together with the implementation of the activities. Considering the concept of recycling, it was further determined that almost all of the students had the mental model categorized under SM following the implementation of the activities. Significant positive developments were identified in the visual and verbal reasoning levels of the students on garbage, waste and recycling together with the implementation of the

activities. It was determined that the knowledge of all students on the relevant subjects, except for the two students participating in the study, achieved the level of scientific quality expected by the curriculum. Detailed analysis of the answers provided by S3 and S4, which were classified under the “Incompatible Model” category because their visual and verbal reasoning on the concept of garbage concept was insufficient, revealed that students still cannot clearly distinguish between garbage and wastes.

Discussion and Results

In order to prevent garbage and waste from becoming an environmental problem, disposal of garbage and wastes in irregular dumping sites should be prevented; their recycling and proper disposal should be ensured. Therefore, individuals in the society should primarily be ensured to reduce wastes at their source, and should be directed to recycling and finally to appropriate disposal methods (Ministry of Environment and Urbanization, 2020). This aim can undoubtedly be realized with the education of the society. In the current study, certain steps were taken to train students about the concepts of garbage, waste and recycling and the effectiveness of the implemented training activities was examined. In this context, students’ mental models were determined by identifying their visual and verbal reasoning levels on garbage, waste and recycling concepts before and after the implementation of the activities. It was determined that the environment-oriented science activities contributed to the development of students’ mental models as well as their visual and verbal reasoning about garbage, waste and recycling.

It was found that students could not provide scientific answers to visual and verbal questions about garbage before the activities. Vast majority of students did not clearly know the difference between the concepts of garbage and waste and gave waste-related answers to garbage-related questions. Students in the lower age group are known to have insufficient knowledge about the environment, recycling and environmental protection (Onur, Çağlar & Salman, 2016). The inability of the students to clearly distinguish the concepts of garbage and waste further prevents them from performing the separation of wastes and causes inability to carry out recycling activities. In order to raise individuals who care for, understand and protect the environment, it is necessary for the students to experience educational processes in which they can interact with the environment (Ewert, Place & Sibthorp, 2005; Taff et al., 2010). In line with the current research purposes, various trainings were provided to the

students by both their science course teacher and different faculty members (see Table 1). Students were further given the opportunity to perform certain activities in which they are directly involved in order to transform the knowledge they have acquired during the courses into practice. Schools are one of the places where packaging waste is most commonly generated due to the food items consumed by students who spend a large portion of their daily lives at school (Çelik, 2011). For the purpose of the activities, students were required to provide the materials they needed from the waste released in their classrooms and at home. Thus, students had the opportunity to directly observe the garbage and waste found in their living areas. The activities implemented were found to be positively improving the students' reasoning levels about the concept of garbage and it was concluded that the majority of the students had a scientific mental model about garbage.

Pursuant to the assessment report on environmental problems and their priorities, waste is one of the top three priority environmental problems in Turkey. Main source of the waste problem is observed to be the wild (irregular) storage of household waste and the lack of storage facilities in some provinces (Ministry of Environment and Urbanization, 2020). It is of significant importance to cease the wastes from being an environmental problem, to be separated, stored and recycled in order to economically contribute to society. For this purpose, individuals should be properly trained. The findings in the current research revealed that the students' reasoning levels related to wastes in all categories of visual and verbal reasoning were distributed under low score categories before the implementation of the activities. However, after the implementation of the activities, it was determined that almost all of the students had achieved a scientific mental model. Two students were classified in the ViDM category. It was found that these students considered broken pieces of glass materials as garbage and categorized used syringes, pet cups and wet wipes as recyclable wastes. It was determined that all the students gave place to samples based on materials such as photocopy papers, plastic bottles, glass jars and bottles, metal cans and tools, used batteries that they encountered directly in the school environment and at home and often used for the purpose of activities in their answers to the questions. Supporting the results of the current research, literature review revealed that the students who separate their wastes for recycling purposes mostly preferred to recycle paper, plastics, glass and aluminum cans (Demir & Atasoy, 2021) and that paper wastes are most often disposed into waste collection bins (Çimen & Yılmaz, 2012). Similarly, Kivrak and Uyanık (2020) determined that students studying in the village and students studying in the district included examples about environmental pollution related

to the regions they lived in when they were asked about their mental models. Therefore, it may be possible to conclude that the mental models of individuals are in direct interaction with the environment in which they live. Another point that attracted attention in the current study was the students' interest in the concept of organic waste. While students previously perceived organic wastes as garbage before the implementation of the activities, they have further become aware that these are wastes. After the implementation of the activities, the students gave place to organic wastes and composts in the responses they provided to the questions in the data collection tool. It is known that individuals more easily deal with environmental problems that they can observe directly in their immediate surroundings (Bozdemir Yüzbaşıoğlu, 2020). The findings regarding organic wastes and composts, obtained within the scope of the current research, suggested that students had previously paid attention to the organic wastes released in their immediate surroundings, such as their homes and the school cafeteria, but had considered them as garbage before the implementation of the activities.

The students were able to verbally explain the recycling concept to a certain level in their pre-test responses to the data collection tool before the implementation of the activities, it was found that they had serious deficiencies with regard to drawing visual illustrations. Individuals cannot be expected to exhibit appropriate attitudes and behaviors about recycling without being duly informed about recycling and its significance (Nikolaeva, 2008). Knowing the benefits of recycling is an important achievement that enables individuals to take steps towards recycling (Schultz et al., 1995). In the activities implemented in accordance with the current research purposes, students were informed about the significance of recycling and had the opportunity to implement appropriate activities. The reflections of this conclusion were observed in the answers provided by the students to the data collection tool following the implementation of environment-oriented activities. Both visual and verbal reasoning levels of the students improved and this situation was reflected in their mental models. All but one of the students participating in the study have reached the level of scientific mental model. It was further concluded that the only student who could not achieve a scientific mental model was classified under the verbally dominant model. Detailed analysis with regard to the responses of this student helped to determine that the student's inability to visually express the concept of recycling prevailed. Another remarkable result reached within the scope of the research was that the students mentioned the types of recycling while answering the questions in the data collection tool after the implementation of activities. Whereas the types of recycling are

not included in the 7. grade and lower level curriculum. Moreover none of the students mentioned these concepts while answering the questions in the data collection tool before the implementation of activities. It is known that students mostly acquire their knowledge about recycling from the teaching environment (Çimen & Yılmaz, 2012). It is therefore argued that students got aware of these concepts during the seminars given by the faculty members invited to the school within the scope of the current research and getting to know artists performing recycling art activities further affected students. Students will also be able to carry the information about recycling duly provided in the school environment to their friends and family (Harman & Çelikler, 2016). Considering the grades of the students, the capability of the students to mention the concepts of advanced conversion and downstream processing in addition to the concept of recycling both in the activities they participated in as well as their responses to the measurement tool was concluded to be very valuable output derived in the research.

The materials required in the activities performed during the research were provided by the students from the wastes generated in their classrooms, schools and homes. For this reason, not only they resorted to separating the wastes but they also disposed the released waste into waste collection bins. Thus, students have been given the opportunity to transfer their waste and recycling awareness directly to their daily lives. It is extremely important for students to relate the information they have acquired to their daily lives and use it to figure out problems they may encounter in daily life for ensuring the permanence of knowledge. As a matter of fact, students are required to assume responsibility and use their knowledge and skills in figuring out daily life problems for the purpose of achieving the objectives of the curriculum (MoNE, 2018). The education/trainings provided over a longer period of time contribute positively on the knowledge, awareness (Aksan, 2016) and sensitivity towards the concepts of waste and recycling (Uyanık, 2022). The activities covered within the scope of the current research were implemented throughout approximately one academic year. Pre-test and post-test changes in the mental models of the students supported the results obtained by Aksan (2016) and Uyanık (2022) in their research.

Individuals are expected to plan effective solutions for waste disposal and recycling in the cities where they live collectively (Gil Garcia, Pardo & Nam, 2015). Environment-oriented call of acts and international conventions also emphasize the necessity of waste conversion (Çelikyay, 2021). That is why it is extremely important to educate the younger generations who make up both today and the future of our world. As a matter of fact, students

in the younger age group have been included in the focus of the current research. In order for students to take part in recycling activities, they first need to know the concepts of garbage and waste as well as the differences in between them. In order to carry out recycling practices, waste and garbage should be separated beforehand. If this experience is popularized within the society, the implementation of recycling activities may increase. The activities implemented within the scope of the current research aimed to enable students to have knowledge about garbage and waste, to separate their wastes and to engage in recycling activities. It was concluded at the end of the research that the activities implemented enabled the students to improve their mental models concerning garbage, waste and recycling. In order to maximize the rates of recycling activities in the whole society, garbage and wastes should be separated as much as possible. Therefore, waste collection and garbage bins should be placed in easily accessible places. Failure to place these bins and containers in suitable and easily accessible places will cause the release of garbage and wastes in the nature and environmental pollution. One of the biggest causes of environmental pollution is mentioned by students as leaving garbages to nature (Uyanık, 2017). It was concluded that students in the younger age group are aware of the need to protect the environment and they think that waste collection bins should be placed in different locations (Yaşaroğlu & Akdağ, 2013). Students have a certain level of awareness about not leaving garbages in the nature. Placement of waste collection containers in common and easily accessible locations affects the recycling behavior of individuals (Hansmann et al., 2006). Waste collection bins which will be placed at many different locations such as schools, parks, train stations, bus stops and shopping centers, where individuals are frequently involved in their daily lives, will positively affect the recycling rates in the society (Doğan, 2020). Therefore, it is thought that the widespread use of garbage and waste collection bins will enable students to dispose of their wastes and garbage in appropriate containers in order to reduce environmental pollution. Based on the results obtained, teaching activities aiming to improve the knowledge levels of students studying at different grades on garbage, waste and recycling have been suggested. It was further suggested to include more environment-oriented activities in the curriculum of all courses other than science.

Compliance with Ethical Standard

This study received ethics approval from the Kastamonu University Social and Human Sciences Research and Publication Ethics Board (Dated 17.05.2022 and numbered 2022/2/5)

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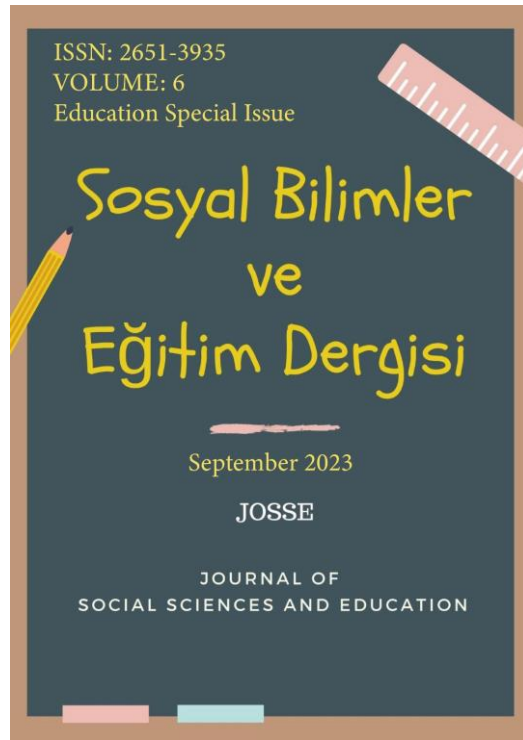
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The Mobility of Legal Education in the Tanzimat Period and Mekteb-i Hukuk-ı Şahane

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The Mobility of Legal Education in the Tanzimat Period and Mekteb-i Hukuk-ı Şahane

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ABSTRACT

Research Article

The law is one of the basic and vital foundations that the human species needs to ensure the order existing in nature between individuals in a “just” manner. Law has been an instrument of education in the context of acquiring and learning the awareness of rights as well as rights acquired from birth. In this study, the mobility of the legal education applied during the Tanzimat period of the Ottoman Empire is explored. The establishment of the Encümen-i Daniş and Darülfünun and the deployment of legal education within the higher education model during the construction of the modern academic system are addressed chronologically. The establishment, curriculum, administration/teaching staff, and student profile of the Mekteb-i Hukuk-ı Şahane, which started its education activities as an independent school, are analysed. The graduates of the school, with their identities as jurists, were involved in many different activities that had significance in the history of Turkish law. In this regard, the lives of many graduates could be analysed as topics that will enrich the research conducted on the history of law. Historical analysis method was used in the study and also the data were obtained by scanning the education and state yearbooks. Document analysis method was used in the analysis of the obtained data.

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Introduction

As a concept as ancient as the history of mankind itself, law, which passed into the Turkish language from Arabic as *hukuk* and is used as the plural of the word “right”, is a concept that can be interpreted within the framework of “having, using, doing, or not doing something” along the axis of individuals’ relationships with themselves and their environments (Işıқтаç, 1998). It is one of the basic and most vital foundations that the human species needs to ensure the order existing in nature between individuals in a “just” manner. Law has been an instrument of education in the context of acquiring and learning the awareness of rights as well as the rights acquired from birth. Political powers have attached importance to law education and jurists in order to establish and maintain order. The establishment of law can be equated with the establishment of order and the establishment of peace and prosperity.

Since antiquity, the political institutions that constitute state order have implemented a variety of laws in order to protect the established order in society in the name of law. These laws have sometimes derived their power from a king and sometimes from a religion. Apart from the diversity of the source of law, the principle of consensus among individuals and society serves as one of the basic elements for the applicability of law. Ancient Greece, Rome, pre-Islamic Turkic states, and Turkic Islamic states were able to maintain their political and military power to the extent of the consensual applicability of the law (Aritürk, 2020). The legal system of the Ottoman Empire was built with an understanding centred on Islamic law. The education of jurists who would establish the law was carried out in madrasas, which were the traditional educational institutions of the previous Islamic states. Sahn madrasas, which were established during the reign of Mehmed II, had a character that can be described as traditional, apart from other specialised madrasas. Legal knowledge was presented in madrasas within the framework of the knowledge of the Holy Qur’an, hadith, and fiqh, which were characterised as “ulum-ı aliye” or the religious sciences. In the madrasas developed during the reign of Suleiman I, courses were held in the specialised faculties of dar al-hadith, medicine, rhetoric, natural sciences, religion, law, and literature. An individual who graduated from one of these madrasas would become a mudarris, or teacher, and could also take on the task of regulating the law as a qadi if desired (Kazıcı, 2021).

Legal education within the educational system of the Ottoman Empire was presented in academic studies [Aritürk, (2020); Koyuncu, (2012); Kansu, (2006); Sakaoglu, (2018)] at

different levels. In the literature, the mobility of legal education in the Tanzimat period has particularly been tried to be understood holistically within the framework of the “Hukuk Mektebi” or Law School, but the “Mekteb-i Hukuk-ı Şahane”, which was named independently during the reign of Abdülhamid II, has not been sufficiently analysed within its own framework. This study aims to provide a brief explanation of the mobility of legal education in the Tanzimat period, which constitutes a short period in Ottoman legal education, and then to introduce the Mekteb-i Hukuk-ı Şahane, which was established independently, from different perspectives. In this context, the establishment process of the school and its founding charter, curriculum, administration and teaching staff, and student and graduate profiles are examined in detail. The study will present the data on the Mekteb-i Hukuk-ı Şahane in a holistic manner. At the same time, the graduates of the school will be published collectively for the first time. In this respect, it will contribute to the diversification of academic studies in the future, especially in terms of analyzing the graduate profile of the school.

Method

Model

Qualitative research in social sciences can be defined as a process based on scientific data that results from the planning of "a qualitative process in which qualitative data collection methods such as observation, interview and document analysis are used to reveal perceptions and events in a realistic and holistic manner in a natural environment" (Yıldırım & Şimşek, 2013). Qualitative research takes place on the basis of theory building and flexibility with the environment in which social phenomena are related (Robson, 2017). In this study, historical research method, one of the qualitative research methods, is used. Historical research is carried out by systematically collecting and evaluating data in order to understand and explain the action or actions that occurred in the past (Fraenkel & Wallen, 2012). Written documents providing data on targeted action and actions are reviewed by data reduction method (Özdemir, 2010).

Data Collection Tools

In this study, in which the mobility of legal education in the Tanzimat period and the activities of the Mekteb-i Hukuk-ı Şahane are analysed, the data sources presented below were used together with the other examined works as described here.

Yearbooks

Education Yearbook 1316/1898.

Education Yearbook 1317/1899.

Education Yearbook 1318/1900.

Education Yearbook 1319/1901.

Education Yearbook 1321/1903.

State Yearbook 1298/1881.

State Yearbook 1299/1882.

State Yearbook 1300/1883.

State Yearbook 1305/1888.

State Yearbook 1309/1892.

Newspapers

Ceride-i Mehakim 1296/1880(44).

Data pertaining to the topic of research were obtained by analysing the yearbooks and newspapers whose imprint information is given above. In this respect, the data obtained by document analysis and document scans were subjected to the data reduction process. Finally, the data were interpreted by giving them certain meanings.

Collection of Data and Analysis

In the analysis of the data in the research, the document analysis technique was applied together with the descriptive analysis technique. This approach adopts the form of evaluating and interpreting the obtained data within the framework of the previously determined theme (Kumar, 2011). All kinds of information, documents, records or statistics that will bring the research to a conclusion constitute data (Yurtseven, Erkul & Kekeç Morkoç, 2013). Document analysis method, which forms the basis of all kinds of document-based research, is a method that is at the center of research beyond being a supporter of research in many social science fields, including educational sciences (Ulutaş, 2015). Due to the nature of qualitative research, social scientists aim to describe data in detail. Such a description is an important element that provides a correct understanding of what is happening in the details of the past and the data (Kuş, 2009). The data of the analyzed documents were translated from Ottoman Turkish into contemporary Turkish and described.

The framework of the research is formed by the mobility of legal education in the Tanzimat period and the introduction of Mekteb-i Hukuk-ı Şahane.

Findings

Mobility of Legal Education in the Tanzimat Period

The general problems related to legal education and the inability of institutions to be sufficiently functional continued to increase in parallel with the problems experienced in other institutions of the state, and in the Tanzimat period, in the context of creating the modernising face of the state, there was a need for institutions and institutional arrangements that would train lawyers outside of the madrasas. In this framework, the Mualimhane-i Nüvvab or Mekteb-i Nüvvab stands out as the institution that trained lawyers for the qadi establishment (Koyuncu, 2012). Following the Tanzimat Edict or Imperial Edict of Reorganisation, the examination requirement imposed on qadi judges by the Tarik-i İlmîye Dair Ceza Kanunnamesi could not be implemented, and it was applied to new qadi judges who were about to start their careers. This school, which was established during the Tanzimat period in order to train judges of sharia based on the concept of “naib” or regent instead of qadi, was opened on 17 August 1855 near Süleymaniye Mosque. When the desired results could not be obtained from the new regulations that had been passed in April 1855, it was established as a school where the training of naibs could be carried out in a short time and it continued its activities as the Mekteb-i Kudat until 1924 when the sharia courts were closed (Yurdakul, 2019). On the one hand, efforts were made to maintain law education and the training of jurists through such structures, but on the other hand, different plans were made for new educational institutions that would be able to compete with modern educational structures. In addition to the nation/millet system that the Ottoman Empire had adopted for many years, in order to preserve its integrity, it also endeavoured to place the understanding of citizenship that had been disseminated with the Tanzimat process on a healthy foundation within the structural system.

As a result of the political, military, and social problems that the Ottoman Empire experienced in the 18th century, the formation and continuity of institutions to train individuals at the level of their international contemporaries with appropriate equipment in the context of the idea of modern innovation in the institutional sense seemed inevitable. In this regard, especially during the reign of Selim III, military higher education institutions were

established to train personnel to meet the needs of military institutions. However, in the 19th century, the transformation of the state only in military terms was recognised as being insufficient for the survival of the state, and the idea of establishing institutions that would strengthen the civil bureaucracy, which had started to develop during the reign of Mahmud II, together with modern civil higher education institutions to meet the bureaucratic personnel needs became a dominant concern. In 1845, the members of the Meclis-i Maarif-i Muvakkat or Provisional Committee for Education, which had convened under the leadership of Sultan Abdülmecit, drafted an education plan that included higher education institutions, and the Meclis-i Maarif-i Umumiye, which convened in 1846, decided to establish a higher education model under the name of Darülfünun. In this respect, a building consisting of 127 rooms located in front of the Ayasofya and Sultanahmet Mosques was completed in 1863 in order to physically mobilise the educational model.

While the aforementioned process was being pursued with a plan that included legal education, the Encümen-i Daniş, which could be considered as the scientific board of the state at that time, was established in 1851 (Gündüz, 2020). This institution focused on determining the courses and books to be taught in the planned higher education model, together with the qualification criteria of faculty members (Bilim, 2002). Within the building completed in 1863, the Encümen-i Daniş started its teaching activities within the framework of free lectures with Hekimbaşı Salih Efendi's biology and Ahmet Vefik Pasha's philosophy of history courses. Although the variety of courses would subsequently increase, inadequate planning and the prejudiced reactions of the madrasa community led to limited interest in the new academic approach. The school building, which was insufficient to accommodate the necessary physical space, was allocated to the Ministry of Finance after some time. The school moved to a mansion in Divanyolu and had to suspend its education as a result of a fire in 1865 (Unat, 1964).

In order to prevent the failure of legal education, it was decided in 1870 to organise a school where civil servants could be educated about laws and regulations, and also a school where the clerks needed for the Ministry of Justice could be trained in a short time. The education duration of this school, referred to as "Kavanin ve Nizamât Dershanesi" in various sources, was planned as one year. An examination was planned to be held after the education processes were completed, and individuals who successfully obtained a diploma were planned to be employed in regular courts and civil servants' offices. In addition, it was desired that current clerks would be obliged to attend the school, receive gradual training in legal

knowledge, and eventually become qualified personnel. It was also deemed appropriate that the salaries of the teaching staff who would teach at this school be paid by the Divan-ı Ahkâm-ı Adliye Nezareti Celilesi. In this context, it can be inferred that the school was not affiliated with the Ministry of Education; rather, it would operate under the Ministry of Justice (Ergin, 1977(III-IV); Ayas, 1948).

In Articles 79-129 of the 1869 Maarif-i Umumiye Nizamnamesi, the status of the Darülfünun was determined in terms of its scientific, administrative, financial, and legal aspects and the missing aspect of higher education, including legal education, was resolved in the planning process. According to the planning, the academy was composed of philosophy-literature, law, and science-mathematics departments. Within the framework of legal education, the curriculum included the following courses: *fiqh*, *usul-i fıkıh* (principles of Islamic jurisprudence), *Roma hukuku* (Roman law), *Fransız medeni kanunu* (French civil code), *usul-i muhakeme* (principles of judgement), *kara ve deniz ticaret kanunu* (land and maritime commercial code), *ceza kanunnameleri* (criminal codes), *usul-i muhakeme-i cinayet* (principles of criminal offences), *idare hukuku* (administrative law), and *milletler hukuku* (international law). The education was planned to last for three academic years and, as can be seen from the range of courses, there was a goal of ensuring that individuals who completed their legal education would be equipped with a background in Western law (İhsanoğlu, 1990). The school started its teaching activities on 20 February 1870 in the building used by the Eminönü District Governor's Office next to the Mausoleum of Sultan Mahmud II with the participation of high-level administrators of the state. However, Jamal al-Din al-Afghani's remarks about industry during a lecture were deemed to be in contradiction with the dominant understanding of religion and a judicial investigation was opened, the principal Hoca Tahsin Efendi was dismissed, and the school was closed in the summer of 1871. It can be said that there was an unspoken defensive stance on the part of traditional state institutions towards the new higher education model, which included legal education, in the city of İstanbul. In this context, a different method was developed in order to remain faithful to the plans of the 1869 Maarif Regulation of the Darülfünun. In 1873, a Darülfünun-ı Sultani was planned for the Darülfünun as a complement to the Sultani and within the Galatasaray Sultani, where education had been carried out since 1868 (Kansu, 2016). In this respect, the same building and boarding house were used for the students of the Darülfünun-ı Sultani, which operated within the Galatasaray Sultani, together with the high school students, but the law curriculum determined in the 1869 Regulation was followed (Unat, 1964). The courses taught in this

context were the principles of Islamic jurisprudence, mecelle (civil code), Roman law, principles of Roman law, criminal law, civil law, commercial law, political law, the beginning of law, economics, Arabic, and logic (Ergin, 1977(III-IV)). The school suspended law education for a while when Abdülhamid II ascended to the throne, the students who would graduate in the 1879-1880 academic year were required to prepare a doctoral thesis, and those who completed their theses were awarded doctoral degrees, while those who failed to complete their theses were awarded bachelor's degrees (Unat, 1964; Gündüz, 2020).

In 1880, Sadık Bey, Belilyan, Bezazyan, Zoryan, Unciyan, Korozyan, and Hristo Foridi graduated from the law department of the Darülfünun-ı Sultani. Sava Pasha, who served as the Minister of Foreign Affairs for a period, and Monsieur Kalitüs, the chief interpreter of the Belgian Embassy, also attended the school's classes (Ergin, 1977(III-IV)). Although it is thought that the school had graduates in 1881, the names of those graduates and details of their law education could not be found. It can be concluded that the Darülfünun Law Department, which was operating in the building of the Galatasaray Sultani, was merged with the current school in the same period because law education started being carried out in a different place and as a different institution under the name of Mekteb-i Hukuk-ı Şahane in 1880. The Mekteb-i Hukuk-ı Şahane continued its legal education activities independently until 1909, after which it was transformed into a faculty within the Darülfünun (İstanbul University) (Cihan, 2014; Topdemir, 2014).

Mekteb-i Hukuk-ı Şahane

Establishment Process

The Mekteb-i Hukuk-ı Şahane officially started its teaching activities in its new building in the corner of the garden of the Ministry of Justice in Ayasofya on 5 June 1880 with the opening speeches of Ahmet Cevdet Pasha, then the Minister of Justice. The idea that the school should be removed from the Galatasaray Sultani and operate independently had been proposed much earlier and the school's charter was drafted independently on 5 November 1878. Ergin argues that the reason why the school started to operate in an independent building with a delay of two years was the time it took to construct the building. The school continued its teaching activities in the specified building until the 1891-1892 academic year and in the building of the abolished Language School (Lisan Okulu) from 1892 until the declaration of the Second Constitutional Era in 1908. In the following period, it

continued its activities in the Zeynep Hanım Mansion located in Vezneciler as a faculty within the Darülfünun. In his opening speech, Cevdet Pasha addressed the students after chronologically describing the movement of legal education to the point that the school had reached: “Gentlemen, the science you will learn is of great value. You know that the Prophet did not come to teach rational sciences such as calculus, geometry, and chemistry; great prophets came to inculcate and communicate the laws of Sharia. I do not see the need for any further evidence in this regard”. With these words, he expressed the importance of legal education to his audience (Ergin, 1977(III-IV)).

Foundation Charter

The founding charter of the school was prepared in 1878, during the phase of building and infrastructure works, within the framework of the law education programme of the Galatasaray Mekteb-i Sultani, consisting of thirty-five articles and seven chapters. The school’s education period was planned to be three years, but it was increased to four years in 1887 after the school was opened (Cevad, 2002). The management of the school was affiliated with the Ministry of Justice in its founding charter, but as of 1886 it was affiliated with the Ministry of Education (Sakaoğlu, 2018). Teaching activities were determined as being daytime only and free of charge. The basic requirements for admission to the school were to be an Ottoman citizen and not to be younger than eighteen years of age. Furthermore, the stages of admission and completion were as follows: “It is obligatory to be able to write in the Ottoman language; to be well versed in the sciences of sarf and nahiv [spelling and grammar], logic, geography, and calculus; to have the necessary knowledge of the history of the Ottoman Empire in general; and to present a certificate bearing the seals of two reputable people stating that [the prospective student] is of good character and good behaviour. Students who have obtained a certificate from other schools, schools of higher education, Sultani schools, and schools of secondary education are admitted without examination. Although the class examinations of the students are held every year, those who have completed their education and will receive a certificate of graduation are also obliged to take a separate public examination. After being employed for three months in the judiciary, three months in the muhakim-i hukukiye, and three months in the muhakim-i nizamiye, the students who have a certificate of graduation from the school are qualified to work in the basic judiciary of the district and the provincial judiciary, in the office of the district attorney, in the office of the

deputy district attorney, and in the office of the deputy attorney general, and they achieve gradual advancement in the judicial service” (Education Yearbook, 1316/1898).

Curriculum

The school’s 1880 curriculum envisaged a total of 20 class hours per week, including 5 hours on the provisions of the mecelle and civil procedure, 4 hours on criminal law, 3 hours on commercial law, 2 hours on land law, 1 hour on the introduction to law and philosophy of law, and 5 hours on French (Ceride-i Mehakim, 1880(44)). The 1898 and 1903 curricula are given in the table below.

Table 1

Curricula (Education Yearbook, 1316/1898: 83-85; 1321/1903: 92)

Year of study	Courses	Weekly Course Hours		Total	
		1898	1903	1898	1903
First year	Mecelle-i Ahkâm-ı Adliye (Civil Code)	3	4		
	Ceza Kanunu (Criminal Code)	3	1		
	Hukuk-u Düvel (International Law)	2	2	11	13
	Hukuk-u İdare (Administrative Law)	2	2		
	Kitabu'n-Nikâh (Marriage Contracts)	1	4		
Second year	Mecelle-i Ahkâm-ı Adliye (Civil Code)	4	4		
	Vesaya ve Feraiz (Custody and Inheritances)	1	1		
	Hukuk-u Düvel (International Law)	2	2	13	13
	Hukuk-u İdare (Administrative Law)	2	2		
	Usul-ü Muhakemat-ı Cezaiye (Principles of Criminal Offences)	4	4		
Third year	Mecelle-i Ahkam-ı Adliye (Civil Code)	4	4		
	Usul-i Fıkıh (Principles of Islamic Jurisprudence)	1	1		
	Usul-i Muhakemat-ı Hukukiye (Principles of Legal Judgement)	3	2	14	12
	Ahkam-ı Evkaf (Law for Foundations)	1			
	Ceza Hukuku (Criminal Law)	2	3		
	İcra Kanunu (Enforcement Law)	1			
	Ticaret-i Berriye Kanunu (Law on Trade and Commerce)	2	2		
Fourth year	Tanzim-i İlamat-ı Hukukiye (Executive Regulation of the Law)	3	3		
	Tanzim-i İlamat-ı Cezaiye (Executive Regulation of the Criminal Code)	3	3		
	Arazi Kanunu (Land Law)	2	2	14	14
	Usul-i Fıkıh (Principles of Islamic Jurisprudence)	2	2		
	Kitabü'd-Diyat (Book of Regimes)	2	2		
	Ticaret-i Bahriye Kanunu (Law on Trade and Maritime Affairs)	2	1		

Mukayese-i Kavanin (Comparative Codes)	1		
Total Course Hours		52	52

The education period, which was planned as three years in the school's foundation programme, was increased to four years after 1887. The course hours of Mecelle-i Ahkâm-ı Adliye (Civil Code), Ceza Hukuku (Criminal Law), Kitabü'n-Nikâh (Marriage Contracts), Ahkâm-ı Evkaf (Law for Foundations), İcra Kanunu (Enforcement Law), and Mukayese-i Kavanin (Comparative Codes) were adjusted and savings were made in terms of teaching integrity. Although there were changes in the numbers of annual course hours of the programme, the total number of course hours for the students remained unchanged. This may indicate that institutional harmony was achieved in the teaching process.

Administration and Teaching Staff

Mehmet Emin Efendi was assigned as the first principal of the school. He had been born in Germany and was originally a German jurist, having worked as a teacher in London and Paris for a while. When he came to İstanbul on one occasion, he became a Muslim and started to use the name Mehmet Emin. During his stay in İstanbul, he first gave law lectures in the Bab-ı Ali (Sublime Porte) translation office. He lived as a single, lonely man and was appreciated in educational circles as an individual with a disciplined character. He served as the principal of the school for about ten years. During this time, the school gained an institutional character thanks to him. He took close interest in the quality of education at the school, followed the lectures given at the school at that time by high-ranking individuals such as Minister of Education Münif Pasha and Kazasker of Rumelia Ali Haydar Efendi, and often criticised those individuals' lectures in terms of formation. In this respect, he may have wanted to improve the quality of teaching. Aristidi Yorgiyadis, who was the valedictorian of the 1877-1878 academic year, was thought to have been the first valedictorian. The media of the time portrayed Emin Efendi as the culprit of some unfair practices. For these reasons, he was dismissed by Cevdet Pasha, the Minister of Justice in that period (State Yearbook, 1298/1881; Ergin, 1977(III-IV); Yörük, 2008). After Emin Efendi, Aziz Bey, the principal of the Mekatib-i Aliye, was appointed as acting principal in 1888 and as principal in 1890. Aziz Bey's principalship can be considered as a continuation of the transition period in terms of administration. He was dismissed in 1891 due to having an excessive number of tasks (Yörük, 2008).

Mehmet Kazım Efendi, who was the principal of the school for many years after Emin Efendi, was from a family originally from Kazan and was born in 1859 in İbradı (Antalya/Akseki). After graduating from the Rüştiye school, he completed his religious studies in Arabic at Süleymaniye Mosque and graduated from the Mekteb-i Hukuk-ı Şahane in 1886 with the 6th degree. In the same year, he was appointed as the deputy director of the school, and in 1891 he was appointed as the director of the school. In addition to his administrative duties at the school, he served as the minute clerk of the second law department of the Dersaadet Bidayet Court (Court of First Instance) and the first-class minute clerk of the law department of the Court of Appeals, deputy chief attorney general of the Court of Appeals in 1890, member of the Maritime Commercial Court in 1893, member of the Second Commercial Court in 1896, and president of the second law department of Beyoğlu in 1898. In addition to his position as a school principal, as a teacher he taught enforcement law, land trade law, civil procedure, and administrative law (Education Yearbook, 1318/1900).

Table 2

School Administrative Staff (1892-1908) (State Yearbook, 1309/1892: 374; 1326/1908: 540, Education Yearbook, 1317/1899: 628; 1321/1903: 93)

Name	Staff
Kazım Efendi	Principal
Şevki Bey	Assistant Principal
Hasan Lütfi Efendi	Inspector
Sait Bey	Clerk
Necati Bey	Accounting Clerk
Hüseyin Hüsnü Ağa	Janitor

Ahmet Faiz Efendi, a member of the education council, was appointed as the second principal. Fevzi Efendi was also appointed as assistant clerk. Kazım Efendi, Şevki Bey, Sait Bey, and Necati Bey continued to serve in the school administration for many years (State Yearbook, 1326/1908).

Table 3

School Teaching Staff (1882-1903) (State Yearbook 1299/1882: 228-229; 1300/1883: 159-161, Education Yearbook 1321/1903: 93-94)

Courses	1882	1883	1903
Usul-i Fıkıh ve Mecelle (Principles of Islamic Jurisprudence and Civil	Abdüssettar Efendi	Haydar Efendi	Ali Haydar Efendi

Code)			
Hukuk-u İdare ve Hukuk-u Düvel (Administrative Law and International Law)	Hasan Fehmi Efendi	Hasan Fehmi Paşa	İbrahim Hakkı Bey
Hukuk-u Düvel ve Uhûd (International Law and Agreements)	Hasan Fehmi Efendi		Hasan Sırrı Bey
Usul-i Muhakemat-ı Hukukiye ve Tanzim-i İ'lamat-ı Hukukiye ve İcra Kanunu (Principles of Legal Judgement and Executive Regulation of the Law and Enforcement Law)	Cevdet Paşa Tahsin Bey	Tahsin Efendi	Kazım Efendi
Ceza Kanunu (Criminal Code)	Kostaki Efendi	Haçaryan Efendi Kostaki Efendi	Nazım Bey
Ahkâm-ı Evkaf ve Arazi Kanunu ve Miyaru'l-Adale (Law for Foundations and Land Law and the Measure of Justice)	Ahmet Hamdi Efendi Ömer Efendi	Şükrü Efendi	Hüseyin Hüsnü Bey
Mecelle (Civil Code)	Abdüssettar Efendi	Haydar Efendi	Haydar Bey
Ticaret-i Bahriye Kanunu (Law on Trade and Maritime Affairs)	Şahbaz Efendi		Yanko Vitinos Bey
Ticaret-i Ber'iyye Kanunu (Law on Trade and Commerce)	Hasan Fehmi Efendi Şahbaz Efendi	Rıfat Bey Şahbaz Efendi	Celal Bey
Usul-i Muhakemat-ı Cezaiye (Code of Criminal Procedure)	İsmail Bey	Kostaki Efendi	Yorgaki Efendi
Hukuk-u Düvel (International Law)	Hasan Fehmi Efendi	Münif Paşa	Tevfik Bey
Mecelle ve Kitabü'n-nikah (Civil Code and Marriage Contracts)	Ömer Efendi		Mahmut Esat Bey
Hukuk-u İdare (Administrative Law)		Said Bey	Tevfik Bey
Ceza Kanunu (Criminal Code)			Aziz Bey
Kitabü'n-nikah (Marriage Contracts)			Süleyman Sırrı Efendi
Kitabü'l-vesaya ve Feraiz (Book of Custody and Inheritances)		Ömer Efendi	Elhac İsmail Hakkı Efendi
Mecelle (Civil Code)	Cevdet Paşa Ömer Efendi	Abdüssettar Efendi	Musa Kazım Efendi
Muallim Muavini (Teaching Assistant)			Saib Efendi
Baş Belletmen (Head Teacher's Aide)			Fevzi Efendi
Belletmen (Teacher's Aide)			Cemal Efendi
Belletmen (Teacher's Aide)			Hasan Basri Efendi
Belletmen (Teacher's Aide)			Kemal Efendi
Belletmen (Teacher's Aide)			Rıza Efendi

In the first year of the school, Cevdet Pasha, the Minister of Justice, and Ömer Efendi, a member of the Mecelle Committee, taught Mecelle-i Ahkâm-ı Adliye and Usul-i Muhakeme-i Hukukiye; Kostaki Efendi, the Chief Prosecutor of the Court of Appeal, taught Criminal Law; Hasan Fehmi Efendi, the Minister of Public Works, taught Commercial Law; Abdüssettar Efendi, a member of the Mecelle Committee, taught Land Law and Land Registry Regulations; and Münif Pasha, the Minister of Education, taught Introduction to Law

and Philosophy of Law (Ceride-i Mehakim, 1880(44); Doğan, 2012). In 1881, Sait Bey and Recai Efendi taught French, Ekrem Bey taught Turkish literature, and Sami Bey taught Arabic literature (State Yearbook, 1298/1881). In 1903, in addition to the other courses, a new course was added and Memduh Bey taught Tanzimat-ı İlamat-ı Cezaiye (Education Yearbook, 1321/1903).

Student Profile

Most students of the school were graduates of idadi or sultani schools. These students were admitted without examination, while those who were not were admitted on the condition that they had two letters of reference and met the qualification requirements (Education Yearbook, 1316/1898). While the number of students was around two hundred at the time of the school's establishment, it reached six hundred in the early 1900s. This reflects an increase in interest due to the growing need for legal education. In the 1887-1888 academic year, the number of first-year students was 95, second-year students 63, and third-year students 77. Thus, although the first-year quotas were high, there was a decrease in the number of students continuing to the next year. Only 28 students graduated from among those 77 students enrolled in the final year of study in the 1887-1888 academic year. Thus, it can be understood that education quality standards were kept at high levels and not every student could graduate. Based on the graduation percentages of non-Muslim students among the graduates, it can also be said that the non-Muslim student population gradually decreased in the following years compared to the first years of the school.

After graduation, the students who studied at this school served their country in the field of law or in other fields. For instance, Mahmut Esat Efendi, who graduated in second place in the 1885 academic year, was from Seydişehir and belonged to the Çopur Kadioğulları family, which was known for its jurist background. He was exceptionally admitted to both the madrasa and the Erkan-ı Harbiye as a civilian by the decision of the commission. While continuing his law studies at the school, he also worked as a Turkish and religious studies teacher at the Gülhane Military School. After his graduation, he served in many positions as a bureaucrat, and in 1915 he was a member of the parliament, representing Isparta (Erdoğan, 2009). More detailed academic studies could be produced on the graduate profile¹ of this school, where many students such as İbnülemin Mahmut Esat Efendi were educated. There is also demographic information on the hometowns of the students. For instance, 17 of the 46

¹ See Appendix: Graduates of the school.

students who graduated in 1885 resided in İstanbul. The other students came from Seydişehir, Edirne, İzmir, Samako, Crimea, Kayseri, İçel, Constanta, Argiri, Eğin, Safranbolu, Akseki, Erzincan, Tripolitania, Tokat, and other regions. Approximately 30% of the students came from İstanbul, while the rest came from different parts of the country. This situation was similar in the other years when the school had graduates (Education Yearbook, 1318/1900).

Table 4

Number of Students (State Yearbook 1305/1888: 231; Education Yearbook 1317/1899: 629-653; 1318/1900: 699-701; 1319/1901: 94-95; 1321/1903: 94-99)

Years	Students			Graduates		
	Muslim	Non-Muslim	Total	Muslim	Non-Muslim	Total
1885				38	8	46
1886				48	10	58
1887				24	8	32
1888			235	20	8	28
1891				42	24	66
1892				14	18	32
1893				25	11	36
1894				28	7	35
1895				49	9	58
1896				44	9	53
1897				43	4	47
1898				50	2	52
1899	611	54	665	44	6	50
1901	582	51	633	87	8	95
1902	612	69	681	66	5	71

A total of 759 students graduated from the school between 1885 and 1902. Some of the graduates passed away shortly thereafter. The majority of the non-Muslim graduates worked as lawyers. The Muslim graduates, on the other hand, held various positions within the judicial organisation of the state, including positions within the court presidency, court membership, judge, chief prosecutor, prosecutor, assistant prosecutor, and minute clerk. The individual duties of the graduates of the first semester can be listed as follows: Sabit Efendi, the valedictorian of 1885, was a member of the Dersaadet Bidayet Court; Süleyman Suphi Efendi, the valedictorian of 1886, was a lawyer for the Şehremaneti; Ahmet Reşit Efendi, the valedictorian of 1887, was the Deputy Governor of Adana; Aristidi Yorgiyadi, the valedictorian of 1888, was a lawyer for the Ministry of Education; the 1891 valedictorian, Hüseyin Hüsnü Efendi, served as the Inspector of Justice in Beirut; the 1892 valedictorian, Ahmet Cevdet Efendi, served as the Proprietor and Chief Writer of the *İkdam* newspaper; and the 1893 valedictorian, Mehmet Sunullah Efendi, died at a young age. Mahmut Refik Efendi, the 1894 valedictorian, worked as a lawyer; Ali Fuat Efendi, the 1895 valedictorian, worked

as the Director of the Letter Department of the Ministry of Justice; Mehmet İzzet Efendi, the 1896 valedictorian, worked as a notary in Üsküdar; Osman Talat Efendi, the 1897 valedictorian, worked as a lawyer; Mehmet Hazım Efendi, the 1898 valedictorian, worked as the Chief Clerk of the Ministry of Justice's Umur-ı Ceza Kalemi (Criminal Affairs Department); and Mehmet Muhlis Efendi, the 1899 valedictorian, passed away. Mehmet Fuat Efendi, the valedictorian of 1901, served as the deputy chief prosecutor of the Gallipoli Bidayet Court. Some graduates were also active as educators in addition to their other professional pursuits. In this context, Mehmet Kazım Efendi, who graduated in 1886, worked as the director of the Mekteb-i Hukuk-ı Şahane; Mehmet Tevfik Efendi, who graduated in 1887, worked as a teacher of the law of nations; Hikmet Efendi, who graduated in 1896, worked as a teacher at the Thessaloniki İdadi School; Mehmet Behram Efendi, who graduated in 1897, worked as a teacher at the Mekteb-i Sultaniye; and Mustafa Mazhar Efendi, who graduated in 1898, worked as a writing teacher at the Mekteb-i Tıbbiye-i Şahane (Education Yearbook, 1318/1900; 1319/1901; 1321/1903).

Discussion and Results

The Ottoman Empire achieved its status as a great state in history by strengthening its organisational structure and successfully implementing social peace through law. Starting from the New Age, developments such as the shifting of the axes of power in the world, the strengthening of the rivals of the Ottoman state, and the influence of intellectual movements on societies led to inevitable changes in the Ottoman Empire in parallel with the changes in the broader world. Following the Ottoman military defeats, starting from the 18th century, the opening of educational institutions modelled after Western education institutions necessitated restructuring in other fields. The administrative and judicial reforms that started with Selim III and Mahmud II were reflected in the legal education movement during the Tanzimat period. Legal education also found a place in the Encümen-i Daniş, which was created as an academy of sciences, and in the educational structure developed by this board.

The desire to meet the need for personnel in various institutions of the state and especially in the Ministry of Justice with trained personnel gave rise to the idea of a law school within the higher education model developed by the Board. In this context, the Darülfünun was intended to be established as a higher education model. However, the fact that the ilmiye class did not yet have a favourable view of an educational institution different

from that of the madrasa delayed both the opening of the Darülfünun and the establishment of an independent law school. The Darülfünun, which was established within the Galatasaray Sultani, continued its activities within the Sultani for some time, and the requirement of writing a thesis was even included in the graduation requirements for students. However, the fact that its graduates were mainly composed of Ottoman subjects and non-Muslims brought the future of higher education and legal education into question. As a result of the need to educate more law students at the level of higher education, the Mekteb-i Hukuk-ı Şahane was established.

This school, which was structurally established as a part of other educational reforms during the reign of Abdülhamid II, was referred to with the adjective “şahane”, meaning “imperial” or “magnificent”, due to the traditions of the period. Since the school had a charter and other similar documents, it was moved during the establishment process from the Galatasaray Sultani to an independent building and became the Hukuk Mektebi (Law School) and then the Mekteb-i Hukuk-ı Şahane. Muslim and non-Muslim students from different provinces of the country were admitted to the school, and the education period was extended from three years to four years. In this way, students would be better equipped for their future careers by receiving more education. While the number of students of the school was in the range of the two hundreds in the early years, it increased to over six hundred towards the 1900s. This can be explained by the fact that the school was popular and also provided employment in an important field such as law. Consequently, thanks to the curriculum based on the principle of training individuals at all levels for the state’s justice organisation, graduates were professionally employed at different levels and positions. When the graduates’ profile is analysed, the ratio of non-Muslim students to the overall number of students in the first years of the school gradually decreased in the following years. This decrease can be viewed as reflecting an effort to introduce a more domestic and national perspective in the fields of legal education and law, recognising these fields of study as critical during the reign of Abdülhamid II. Issues such as revolts among minority groups and wars during the period in which the school was active may have supported these conditions.

As a result, the Mekteb-i Hukuk-ı Şahane, as one of the educational institutions where lawyers were trained for the continuity of the phenomenon of justice and law as one of the most fundamental building blocks for all societies and states, worked in accordance with the purpose of its establishment during its active period. It filled an important gap in the training

of the personnel needed by the Ottoman Empire. It took its place in history as an important part of the tradition of legal education from the Ottoman Empire to the Republic of Türkiye.

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Appendix

Appendix. *Graduates of the school (Education Yearbook 1318/1900: 674-701; 1319/1901: 94-95; 1321/1903: 94-99)*

Years	Students
1885	Sabit, Mahmut Esat, Kostaki Aleksiyadi, Mustafa Nuri, Mustafa Nedim, Nureddin Hikmet, Aziz, Faik, Memduh, Arif, Paskal, Nebil, Kostaki Velikidis, Hasan Tahsin, Hilmi, Ali Rıza, Kirgor Kuluyhyan, Halil Hulusi, Salih Vahit, Abdülğani, Recai, Abdullah, Artin Zilciyan, Abdurrahman Sami, Mahmut Vehbi, Salih Hilmi, Mehmet Sıtkı, Mehmet Fehim, Selahattin, Serkiz Çiğerciyan, Karakin, Hafız Osman, Hüseyin, Halil Halit, Mehmet Sadık, Ahmet Şevki, Ahmet Hilmi, Ali Haydar, Seyyid Mehmet Rüştü, Musa, İbrahim Şemsettin, İsmail Hakkı, Feyzullah, Mercan, Haşık Seraydaryan, Numan Efendiler
1886	Süleyman Suphi, Mehmet Celalettin, İlyas Matar, Ahmet Reşit, Nurettin Misak, Mehmet Kazım, Hamit, Arif, Ahmet Salim, Şevket, Bekir Sami, Hüseyin Remzi, Hüseyin Hüsnü, Mehmet Nuri, Mesut, Mehmet İzzet, Mehmet Necip, Ethem, Vramşabuh Manuk, İsmail Sami, Mahmut Ferit, Süleyman Naim, Mustafa Nail, Arakil Gözübüyükyan, Ahmet Nazif, Ali Rıza, Kapril Neşterciyan, Hasan Fehmi, Mehmet Tevfik, Hasan, Ali Rıza, İlyas, Jorj Yusuf, Osman Remzi, Mehmet Tevfik, Hasan Fehmi, Hasan Tahsin, Kazım, Mümin, Mehmet Şefik, Talat, Bağoshanlıyan, Yusuf Cemal, Mustafa Fevzi, Evhanis Keresteciyan, Ali, Hafız Ahmet, Mahmut Necip, Abdurrahim Ziya, İbrahim, Hafız Mehmet, Yordan, Ahmet Tevfik, Abdurrahman Raşit, Haçik Bedrosyan, Beşir Efendiler
1887	Ahmet Reşit, Mustafa Nazım, Nizameddin, Avramaki Papadopulos, Kirkor Acemiyan, Mehmet Mithat, Mehmet Tevfik, Mustafa Asım, Hüseyin Galip, Rafet, Ali Nail, İsmail Hakkı, Abdullatif, Ömer Lütü, Eyüp Sabri, Yusuf, Mustafa İzzet, Mehmet Sadullah, Rafet, Abdülkerim Nadir, Osman Nazmi, Evhanis Kardaşyan, Esat, Bekaryan, Aleksandır, Pozanet, Mustafa Hazım, Nikolaki Yordan, Mehmet Adil, Mehmet Nazım, Hintar Simonyan, İlyas Efendiler
1888	Aristidi Yorgiyadi, Halis Eşref, Mehmet Emin, Sadık Şehabettin, Mustafa Hasip, Agop Bahri, İbrahim Hayrullah, Mustafa Muzaffer, Kirkor Zakaryan, Ali Fuat, Kirkor Mineciyan, Mihail Latif, Ali Rıza, Ahmet Saip, Hamparsum Boyacıyan, İsmail Necip, Mehmet İhsan, Osman Sacit, Mehmet Asaf, Mehmet Necati, Yakup Nazım, Abdullatif, Aristidi Hıralamidi, Abdurrahman Azmi, Mösyö Ekimidis, Mehmet Enver, Ahmet Tevfik, Mehmet Mazhar Efendiler
1891	Hüseyin Hüsnü, Mehmet Tevfik, Ali Rüştü, Mahmut, Senai, Şevki, Mehmet Zühtü, Osman Zeki, Abdullah Tevfik, Yakup, Mehmet Tevfik, Adil, Kostantin, Ahmet Cemal, Agop Kapamacıyan, Artur, Yuvanaki, Nikolaki, Kigorg Korukyan, İsmail, Hasan Fehmi, Mihran Körpeyan, Abdullah Avni, Misak Makaryan, Ahmet Memduh, Yordan, Yuvan, Karnik Hisarlıyan, Hakkı, Avadis, Serkiz Karakoçyan, Ananyas, Halil Halis, Nasip Yaveryan, Ali Fuat, Muhittin İsmet, Musa Kazım, Osman Saip, Süleyman Sırrı, İbrahim Hakkı, Hakkı, Mehmet Nazım, Kigork Alkisyani, Lütü, Mehmet Vasfi, Mustafa Asım, Kigork Mezduryan, Hasan Rıza, İlyas Fahri, Bedos, Perodormos, İsmail, İlyas, Mehmet Ali, Cemil, Mehmet Hayrettin, Ahmet Vefik, Pertev, Halit, Karabet, Yervant, Corci, Yuvanaki, İbrahim Fevzi, Mahmut, Megerdiç Azunyan Efendiler
1892	Ahmet Cevdet, Selim Hüsnü, Ahmet Şevki, David, Rober, Hidayet, Sani, Hirelambev, Necip, Sait, Samuel, Neşet, Evhanis Baravyan, Hişmi, Aziz, İbrahim Halil, Evhanis Bülbülyan, Kapril, Hamparsum, Nikoğos, Fuat, Zakar Kuyumcuyan, Kigork, Hızaros, Miltiyadi, Filip, Pedros, Kıropesıyan, Megerdiç, Artin, Mehmet Hamit Efendiler

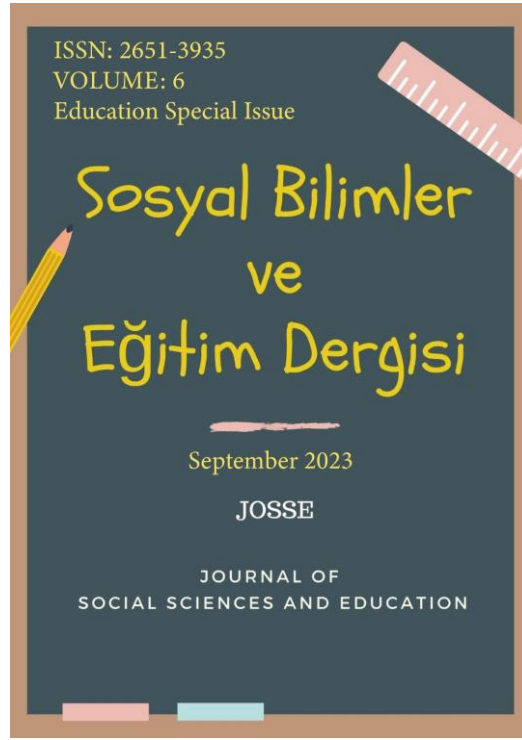
- 1893 Mehmet Sunullah, Agop İzmirliyan, Ziya, Aziz, Mehmet Tevfik, Mehmet Arif, Ahmet Aziz, Hasan Hilmi, İbrahim Ethem, Şaram, Hasan Tahsin, Ahmet Tevfik, Mehmet Muhlis, Mehmet Kazım, Süleyman, Ahmet Ata, Semih, Parsih, Hafız Davut, İbrahim Fevzi, Estepan, Vehbi, Mehmet Rafet, Suat, Mehmet Faik, Yordan, Leon Feraci, Halit, Sinpat, Emil, Rafet, Mihran, Halil Lebip, İbrahim Halit, Maksut Tepanyan Efendiler
- 1894 Mahmut Refik, Musa Kazım, Ali Rıza, Osman Saip, Mehmet Rauf, Mehmet Memduh, Mehmet Cemal, İsmail Vasfi, Osman Kemalettin, Muharrem Muammer, Mehmet Arif, Mehmet Celalettin, Mehmet Bahaeddin, Temestoklu, Mehmet Nazif, Ahmet Cevdet, İsmail Hakkı, Mehmet Cemil, Bekir Sıtkı, Mehmet Sadık, Hüseyin Hüsnü, Ali Haki, Behlül Fazıl, Silosteros, Halil Kamil, Lambiki, Nikola Tokatlıyan, Avram, Abbas Fevzi, Eyüp Sabri, Ahmet Tevhit, Mehmet Emin, Armidi, Dikran Limonyan Efendiler
- 1895 Ali Fuat, Mehmet Cemal, Ahmet Tevfik, Mehmet Celalettin, Ethem, Cafer İlhami, Saip, Ali Şevket, Refet, Mehmet Ali, Muzaffer Gıyasettin, Ali Rıza, Ali Ulvi, Nikolaki, Mehmet İlhami, Ali, Refet, Kısti, Hasan Tahsin, Murat Nikolaki, Şevket, Ahmet Tevfik, Ahmet Muhtar, Osman Sait, Salih, Ehat Rafet, Mustafa Asım, Ali Rıza, Mehmet Nafiz, İbrahim Fevzi, Rafael, Nafiz, Necip Habip, Sami, Mehmet İzzet, Mehmet Eşref, Vahan, Kostanti, Hasan, Mehmet Şerif, Mahmut Hamdi, Talat, Mustafa Nuri, Halil Şaban, Mehmet Sait, Cafer Sadık, Seyfettin, Ahmet Vasıf, İbrahim Necati, Hasan Tahsin, Simon, İbrahim Ethem, Mehmet Besim, Mesut, Süleyman, Ahmet Atıf, Yani Kilyo, Mois Levi Efendiler
- 1896 Mehmet İzzet, Nazif, Mehmet Münir, Mehmet Necmettin, Mehmet Ali, Mehmet Servet, Ahmet Mazhar, Rafet, Yusuf Ziya, Mehmet Kadri, İsmail İsmet, Hasan, Hasan Zühtü, Refet, Hikmet, İbrahim Refik, Mois Zeki, Refet, Ahmet Şükrü, Hayati, Ahmet Hamza, Nesip, Refet, Hafız Halil, Halil, Osman Tevhit, Nafiz, Mustafa Şerif, Hristo, Hüseyin, Aram Apikyan, Mahmut Agah, Mehmet Behçet, Mahmut Macit, Artin, Hasan Asaf, Mahmut Nedim, İhsan, Sebu, Kirgor, Mahmut Şevket, İsmail Hakkı, Miraçyan, Mehmet İsmet, Mehmet Refik, Markaryos, Şevki, Yusuf Feramiz, Ahmet Vasfi, Zaharya, Emin, Mehmet Lami Efendiler
- 1897 Osman Talat, Mustafa Hayri, Diran Arkayanyan, Sait Zeynel Abidin, Yusuf Nuri, Mehmet Şakir, Mehmet Sait, Mehmet Sadık, Mehmet Behram, Ahmet Hakkı, Mustafa Mazhar, Mehmet Şevki, Mehmet Sedat, İbrahim Ethem, Mustafa Haşim, Ahmet Müfit, Mehmet Necip, Hüseyin Avni, Hafız Mehmet Hayri, Osman Süreyya, Mehmet Hulusi, Mustafa Nazmi, İsmail Hakkı, Abdullah, Ahmet Tevfik, İbrahim Hikmet, Ahmet Rüştü, Yervant, Mehmet Mithat, Hasan, Salih Arif, Bedosaki, Hasan Mazhar, Mustafa Nihat, Yordan, Mustafa Hulusi, Mustafa Nuri, Mustafa Nazım, Ali Rıza, Hasan Tahsin, Mehmet Kamil, İlyas, Hüseyin Fikri, Ali Rıza, Mehmet Rüştü, Hasan Fehmi, Ali Haydar Efendiler
- 1898 Mehmet Hazım, Abdülhak Mithat, Mustafa Arif, Mustafa Mazhar, Mahmut Mahir, Ahmet Fuat, İbrahim Evliya, Mehmet Hamdi, Süleyman Mümtaz, Ali Haki, Yusuf Nihat, Osman Cevdet, Salih Sırrı, Abdurrahman Asım, Şahap Sami, Ali Seyfi, Ali Fehim, Ahmet Hasip, Süleyman Faik, Hasan Raci, Mustafa Hüsnü, Mehmet Bahattin, Ali Necati, Yunus Muhsin, Mehmet Asaf, Mustafa Cemalettin, Hüseyin Zihni, Ali Nüzhet, Ali Rıza, Abdullah, Muharrem Harem, Mehmet Ferit, Ahmet Avni, Ali, Hüseyin Vassaf, Musa Kazım, Mustafa Asım, Mehmet Sadettin, Hasan Fehmi, Bekir Sıtkı, Mehmet Rıza, Hasan Tahsin, David, İsmail Hakkı, Ahmet Saki, Mustafa Asım, Mustafa Sıtkı, Ustuyan Telkov, Reşit Rami, Hasan Fehmi, Hasan Şerif, Mehmet Nafi Efendiler
- 1899 Mehmet Muhlis, İsak, Ali Rıza, Ömer Fahrettin, Osman Kemalettin, İlhami Nadiri, Vasilaki, Mehmet Behzat, Ahmet Hamdi, Mehmet Sabri, Mustafa Lütfi, Emanuel Feyzi, Ahmet Şuayip, Ali Faik, Mehmet Cemal, Mustafa Behçet, Mehmet Vehbi, İbrahim Halil, Ali Rıza, Abdullah Enver, Hafız Mehmet Emin, Ahmet Tevfik, Hüseyin Feyzi, Ali Kadri, Abdullah Şevket, Ali Nurettin, Betiyan, Hüsnü Selim, Mustafa Tevfik, Ali Haydar, Mehmet Kudretullah, Ali Saip, Mehmet Vassaf, Salomon, Mehmet Atallah, Ahmet Refik, Mehmet Enver, Ali Fehmi, Hüseyin Fehmi, Hasan Hilmi, Mehmet Fahrettin, Ahmet Cemalettin, Mehmet Fevzi, Abdülkerim, Hamdi Efendiler
- 1901 Mehmet Fuat, Hasan Fehmi, İsmail Sıtkı, Mehmet Talat, Mehmet Müfit, Şekip, Osman Sermet, Mehmet Ali, Mustafa Sıtkı, Mustafa Celalettin, Mustafa Nuri, Hasan Vasfi, Halit Eyüp, Hafız Derviş, Ahmet Nezir, Ahmet Murat, Abdurrahman, Ali Rıza, İbrahim Rauf, Mehmet Halil, Mehmet Sait, Mehmet Emin, İbrahim Hakkı, Mehmet Sadi, Dimitri, Mustafa Cemil, Derviş Taki, Abdülğani, Mustafa Fehmi, İsmail Hakkı, Ahmet Resai, Ahmet Mithat, Mehmet Celalettin, Halil Naci, Hüseyin Avni, Selim Sırrı, Mehmet Rasih, Abdurrahman Şeref, İbrahim Hakkı, Mehmet Şükrü, Numan Naim, Mustafa Neşet, Osman Saip, Mehmet Nusret, Ahmet Şevket, Hafız Mustafa Şevket, Ali Rıza, Hafız Ata, Şerif Osman, Hafız Süleyman Şevki, Hasan Kadri, Salih, Mehmet Emin, Petraki, İsak Metalon, Mahmut, Ahmet Nazif, Mehmet Esat, Hasan Tahsin, Mustafa Ramiz, Osman Nuri, İsmail Hakkı, Mustafa Sadrettin, Bünyamin, Sava, Hüseyin Salih, Yahya Sezai, Ruhi, Ahmet Asaf, Mehmet Daver, Selami, Yakup Rasim, Mehmet Arif, Mehmet Emin, Aziz İhsan, Fuat Sabri, Hasan Fethi, Asım, Hasan

Sabri, Aleksi, Ahmet Şakir, Mehmet Burhanettin, Mehmet Bedrettin, Mahmut Nedim, Yomtov, Hüseyin, Mustafa Vasfı, Hafız Sıtkı, Halil Edip, Bedrettin, Mehmet Şükrü, Cafer, Ladomir, Abdülmecit, İbrahim Saffet Efendiler

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Analytical Rubric Development Study for A2 Level Speaking Skills in Teaching Turkish as a Foreign Language

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ABSTRACT

Research Article

Speaking skill is one of the most important skills in learning a foreign language and realizing the act of communication. The more the student improves in speaking skills, the more self-confidence will increase. In the development of speaking skill, measurement and evaluation of the skill is as important as all the activities carried out during the lesson. It is important for the students to receive feedback on their speaking skill and to know how scoring is done. In this research, it is aimed to develop a rubric that will guide both students and teachers in order to evaluate the speaking performance of students at the A2 level of teaching Turkish as a foreign language. In the study, the validity and reliability studies of the rubric were carried out. A group of four field experts was formed in the study. As a result of the scores made by four experts of the field, the reliability between the raters was calculated according to the Intraclass Correlation statistics in the SPSS 25 Program. According to the feedback from the experts, it has been revealed that it is a tool that both teachers and students can use as an assessment tool. It is thought that the rubric will contribute to the researchers while creating a tool at the same level or at other levels, and will guide the teachers and learners in the stages of measuring and evaluating the A2 level speaking skill of teaching Turkish as a foreign language.

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Introduction

Speaking skill, which is the most important skill for the realization of communication in foreign language teaching, is one of the four basic skills. Reading and listening skills help the person understand themselves and their surroundings, while speaking skills are necessary to express thoughts verbally using language and initiate the communication process (Yorgancı & Baş, 2021, pp. 70). Language skills are described in the Common European Framework of Reference for Languages CEFR (2021) and are used to identify, develop and update the competencies of foreign language teaching for every skill and level.

The most basic principle of foreign language teaching is to teach language for communication. Therefore, the ability to speak among the four basic language skills is the most important (İşisağ & Demirel, 2010, pp. 193). In language education, it is important to give students the skills to understand and explain the target language. The ability to speak is the most widely used skill in everyday life apart from other skills. Therefore, the main goal of learning speech skills in language education is to enable students to express emotions and thoughts fluently using the language they learn (Koçak, 2018, pp. 17). The importance of speaking in any foreign language is important, and evaluating the ability to speak can also be problematic. Measurement and evaluation occupy an important place in the educational process in order for the student to learn about his or her situation, to be able to develop himself, and continue the process as they develop. Field in the assessment and evaluation of language skills in foreign language teaching are an area of research that attracts attention and a need. Speaking skill, in particular, stand out as one of the least studied subjects in Turkish teaching as a foreign language, so it seems that more research on these skills needs to be done in the studies to be conducted (Arıcı et al., 2017). It is of utmost importance to use the analytical section to correctly measure speaking skills in Turkish as a foreign language teaching, so as not to differ from variables such as teachers, institutions studied and used textbooks (Boylu, 2019, pp. 144).

Today, along with the constructivist approach, the dimensions of measurement and evaluation have also changed, replacing traditional techniques with more modern and process-based measuring and assessment techniques (Yılmaz, 2018, pp. 1625) and one of them is rubric. It is divided into two categories, holistic and analytical. (Chase, 1999; Mertler, 2001; Nitko, 2001). Since the assessment of overall performance is key, the overall rating keys are used when the purpose of the performance assessment is summary. As a result of this ranking

of performance tasks with holistic rubrics, the student is given only limited feedback (Mertler, 2000, pp. 1). The analytical rubrics are more comprehensive and important in terms of giving students feedback. The use of analytical rubrics represent assessment at a multi-dimensional level (Mertler, 2001).

Teachers are in a very critical position as those who organize course objectives in educational teaching environments, motivate students and evaluate the measurement with course outcomes (İnal, 2020, pp. 191). The absence of a common rating tool in the assessment of speech skills in the field of teaching Turkish as a foreign language is a missing issue. Failure to use a common analytical rubric among Turkish educational centers can cause reliability and validity problems. In today's assessment practices, a valid analytical rubric is not used. Some institutions use a single evaluator in speech exams, while others use their own rubrics (Kahveci, 2022, pp. 13).

Speaking skill is one of the skills that students have the most difficulty with in foreign language teaching, and how this skill is measured and assessment and evaluation is an important issue for both teachers and learners. Rubrics serve as a guide so that students' performance can be measured more objectively and clearly. It can be said that analytical rubrics are more reliable, especially since they are more detailed and descriptive of each item (Mertler, 2001). In the development of narrative skills (speaking and writing), it is expected that the skills will be realized as practice. As a result of this application, a performance emerges and rubrics (analytic scales, holistic scales and observation forms) are frequently used in performance-based evaluations (Bozkurt & Arıca-Akkök, 2019, pp. 419). In addition, rubrics are a necessity when an adult language learner wants to get comprehensive and detailed feedback on his speaking skill. Rubrics have an important place in the literature and practice in order to not only score the students' speeches, but also to know according to which criteria they are evaluated and to explain a more objective scoring to the students. Assessment and evaluation is an important subject in every field of education and should be evaluated according to every skill level and criteria in foreign language teaching. As Boylu (2019) stated, the arbitrary (based on experience) evaluation of speaking and writing skills by teachers is one of the assessment and evaluation problems.

Rubrics guide us towards our goals as teachers. We use them to clarify our learning goals, design guidelines that address those goals, communicate goals to students, guide our feedback on students' progress toward goals, and judge end products by the degree to which

goals are achieved. Like many teachers, I use the instructions before, during and after teaching and it has many benefits (Andrade, 2005, pp. 27).

Validity, reliability and objectivity are important issues for rubrics. To be valid, a teaching rubric must, at a minimum, comply with reasonable and respected standards and the curriculum being taught. When used by different people, it should pass the reliability test by giving similar ratings (Andrade, 2005, pp. 30). With this research, it is aimed to develop an analytical rubric that can be used in the evaluation of A2 level speaking skills, independent speaking and conversational speaking skills for educators and students in the field of Turkish as a foreign language. In addition, it is thought that a rubric for the A2 level of speaking skill will be developed and its validity and reliability will be revealed, and it will guide future research and its development at other levels.

Method

Research Participants

The participants of the study consisted of Turkish as a foreign language teachers working at the Turkish Teaching Application and Research Center within a state university and foreign students learning Turkish at the A2 level of the same university. The research was carried out with a study group consisting of four field expert lecturers and twenty-four A2 level students.

Data Collection Tools

In this study, A2 Level Speaking Proficiency Exam was created in advance to receive student answers orally. The final versions of the exam questions were given by taking the opinions of four field experts. In addition, A2 Level Speaking Analytical Rubric for Turkish Learners as a Foreign Language was used as a data collection tool to evaluate students' A2 level speaking skills. This rubric has been prepared by reviewing the literature, taking into account the criteria specified in the Common European Framework of Reference for Languages (2021). The rubric is defined separately for independent and conversational skills. The rubric was created in its final form by referring to expert opinions, and validity and reliability analyzes were made.

Research Context

In this study, it is aimed to prepare an analytical rubric to evaluate the speaking skills of students at A2 level of teaching Turkish as a foreign language. The criteria to be included in the rubric were primarily determined according to the A2 level speaking skills of the Common European Framework of Reference for Languages (2021), and were defined separately for independent speaking and conversational skills. Then, the rubric was finalized by taking expert opinions on the rubric items.

The data of the study were obtained by evaluating the video-recorded speeches of twenty-four students by four experts of the field. Rubric items were determined on the basis of literature review, competencies in the Common European Framework of Reference for Languages, and expert opinions. Finally, the content validity index was calculated by submitting the draft rubric to the opinions of field experts.

Scores from 1 to 3 are included in the scale. The created scale was tested on the recorded speeches of A2 level students studying at Yıldız Technical University TOMER. The aim of the research is to develop a rubric for the assessment of A2 level speaking skills for learners of Turkish as a Foreign Language. This rubric was first developed by scanning the relevant literature. Later, CEFR (2021) A2 level competencies were determined. As rubric preparation criteria, the studies of various researchers such as Andrade (1997), Popham (1997), Moskal and Leydens (2000), Mertler (2001), Andrade (2005) were examined. These criteria were combined and rubric preparation steps were applied.

1. Relevant literature review
2. Creating the items to be included in the rubrics
3. Preparation of two separate draft rubrics (Independent speech and conversational)
4. Sending rubrics to expert opinion
5. Use of draft rubrics
6. Getting feedback from experts
7. Editing rubrics
8. Conducting reliability and validity studies of rubrics
9. Finalizing the rubrics

Since the purpose of this research was to create an analytical rubric to evaluate students' speaking skills, A2 level speaking competency criteria of the Common European Framework of Reference for Languages (2021) were used. As a result of the literature review, rubric items were defined separately for both independent and conversational skills.

Afterwards, a rubric was developed by taking expert opinions. After expert opinions, the rubric was finalized and its validity and reliability were examined.

Analysis of Data

The validity of the rubric created in the research was provided in line with the opinions of four experts on the subject. Validity relates to how accurately the measure measures the feature it is particularly interested in, by distinguishing it from other features. In other words, the validity of the measurement results refers to the degree to which the measurement is aimed accurately (Büyükozturk et al., 2020, pp. 111).

In practice, students were asked four questions for independent speaking and they were asked to speak. Five questions were asked to the students for conversational speaking and they were asked to speak. The conversations were recorded with audio and video. In the applications, four experts listened to each participant and evaluated the speeches. Intraclass Correlation coefficient of agreement was used for inter-rater reliability. The concept of reliability generally refers to the level of consistency between analyzes of data sets by different coders in qualitative research (Creswell, 2021).

Compliance with Ethical Standard

The study was approved by the Social and Human Sciences Research Ethics Committee of Yildiz Technical University (Date: 26.08.2022, Session No: 2022.08).

Findings

Findings Regarding the Validity of the Developed Analytical Rubric

In the qualitative research carried out with the participation of four experts, the analytical rubric, which was prepared to measure the speaking skills of Turkish learners as a foreign language, was evaluated by experts and examined in terms of its suitability. Using the Lawshe analysis method (Yurdugül, 2005), the experts were asked to evaluate the items and their contents in the rubric according to triple criteria such as "appropriate", "partially appropriate" and "not suitable/explanation". According to expert opinions, the content validity index of the items is explained in Table 1.

Table 1

Content Validity Index for Independent Speech Items

A2 Level Speaking Skill Independent Speaking Items	A	PA	NS	CVI
Item One (Introduction)	4	0	0	1.00
Item Two (Main Idea)	4	0	0	1.00
Item Three (Conclusion)	4	0	0	1.00
Item Four (Vocabulary)	4	0	0	1.00
Item Five (Grammar Mistakes)	4	0	0	1.00
Item Six (Fluency)	4	0	0	1.00
Item Seven (Pronunciation)	4	0	0	1.00
Item Eight (Stress and Intonation)	4	0	0	1.00
Item Nine (Gesture and Mimics)	4	0	0	1.00
Item Ten (Speaking Speed)	4	0	0	1.00
Number of Experts	4			
Content Validity Index (CVI)	1.00			

A = Appropriate, PA = Partially Appropriate, CVI= Content Validity Index

Four field experts state that the items in question are appropriate in terms of content validity. This shows that the measurement tool is reliable in terms of content validity and will be effective in measuring the skills it aims at.

Table 2

Content Validity Index for Conversation Items

A2 Level Conversation Skills Conversation Items	A	PA	NS	CVI
Item One (Introduction)	4	0	0	1.00
Item Two (Main Idea)	4	0	0	1.00
Item Three (Conclusion)	4	0	0	1.00
Item Four (During Speaking)	4	0	0	1.00
Item Five (Vocabulary)	4	0	0	1.00

Item Six (Grammar Mistakes)	4	0	0	1.00
Item Seven (Fluency)	4	0	0	1.00
Item Eight (Pronunciation)	4	0	0	1.00
Item Nine (Stress and Intonation)	4	0	0	1.00
Item Ten (Gesture and Mimics)	4	0	0	1.00
Item Eleven (Speaking Speed)	4	0	0	1.00
Item Twelve (Maintaining Communication)	4	0	0	1.00
<hr/>				
Number of Experts	4			
Content Validity Index (CVI)	1.00			

A = Appropriate, PA = Partially Appropriate, CVI= Content Validity Index

Four field experts state that the items in question are appropriate in terms of content validity. This shows that the measurement tool is reliable in terms of content validity and will be effective in measuring the skills it aims at.

Findings Regarding the Reliability of the Developed Analytical Rubric

Consistency of evaluation scores is an important factor affecting the reliability of measurement. In a reliable test, a student expects the same result regardless of the time their answers are scored and the evaluator. However, in an unreliable exam, the student's score may change depending on factors other than the objectives of the exam (Moskal & Leydens, 2000, pp. 4). During the rubric development process, the exams of 24 participants were evaluated separately by four different field experts, and the inter-rater consistency coefficients were calculated for each item for the data obtained. The consistency of the assessments made by the raters on the student papers for each item was tested with the Intraclass Correlation analysis. The Intraclass Correlation coefficient is used to measure the repeatability of a measuring instrument and whether measurements made by different gauges or at different times give the same results. Therefore, high values of the Intraclass Correlation coefficient indicate that the measuring instrument is reliable. The Intraclass Correlation coefficient takes values between 0 and 1. Values less than 0.5 indicate poor reliability, values between 0.5 and 0.75 indicate moderate reliability, values between 0.75 and 0.9 indicate good reliability, and values greater than 0.90 indicate excellent reliability (Koo & Li, 2016). The obtained

consistency coefficients show the reliability of the relevant rubric. The inter-rater reliability coefficient for each item is presented in Table 3 and Table 4.

Table 3

Inter-Rater Reliability Intraclass Correlation Coefficients of Independent Speech

Items	Measurement	Inter-Rater Correlation	%95 Confidence Interval	
			Lower Bound	Upper Bound
1	Single Measurements	.940 ^a	.893	.971
	Mean Measurements	.984 ^c	.971	.993
2	Single Measurements	.923 ^a	.863	.962
	Mean Measurements	.979 ^c	.962	.990
3	Single Measurements	.896 ^a	.819	.948
	Mean Measurements	.972 ^c	.948	.987
4	Single Measurements	.884 ^a	.799	.942
	Mean Measurements	.968 ^c	.941	.985
5	Single Measurements	.926 ^a	.868	.963
	Mean Measurements	.980 ^c	.963	.991
6	Single Measurements	.916 ^a	.868	.964
	Mean Measurements	.980 ^c	.964	.991
7	Single Measurements	.853 ^a	.750	.925
	Mean Measurements	.959 ^c	.923	.980
8	Single Measurements	.871 ^a	.779	.935
	Mean Measurements	.964 ^c	.934	.983
9	Single Measurements	.921 ^a	.860	.961
	Mean Measurements	.979 ^c	.961	.990
10	Single Measurements	.908 ^a	.838	.954
	Mean Measurements	.975 ^c	.954	.988

As a result of the reliability analysis, it was determined that the reliability level of all items was in the category of "excellent".

Table 4

Inter-rater Reliability Intraclass Correlation Coefficients of Conversational Speaking

Items	Measurement	Inter-Rater Correlation	%95 Confidence Interval	
			Lower Bound	Upper Bound
1	Single Measurements	.940 ^a	.893	.971
	Mean Measurements	.984 ^c	.971	.993
2	Single Measurements	.923 ^a	.863	.962
	Mean Measurements	.979 ^c	.962	.990
3	Single Measurements	.896 ^a	.819	.948
	Mean Measurements	.972 ^c	.948	.987
4	Single Measurements	.924 ^a	.865	.963
	Mean Measurements	.980 ^c	.962	.990
5	Single Measurements	.884 ^a	.799	.941
	Mean Measurements	.968 ^c	.942	.985
6	Single Measurements	.926 ^a	.868	.963
	Mean Measurements	.980 ^c	.963	.991
7	Single Measurements	.926 ^a	.868	.964
	Mean Measurements	.980 ^c	.964	.991
8	Single Measurements	.853 ^a	.750	.925
	Mean Measurements	.959 ^c	.923	.980
9	Single Measurements	.871 ^a	.779	.935
	Mean Measurements	.964 ^c	.934	.983
10	Single Measurements	.921 ^a	.860	.961
	Mean Measurements	.979 ^c	.961	.990
11	Single Measurements	.908 ^a	.838	.954

	Mean Measurements	.975 ^c	.954	.988
12	Single Measurements	.917 ^a	.853	.959
	Mean Measurements	.978 ^c	.959	.989

As a result of the reliability analysis, it was determined that the reliability level of all items was in the category of "excellent".

Discussion and Results

Analytical rubrics in foreign language teaching are tools that help teachers to objectively evaluate their students' written and oral performances and to improve students' language skills by giving feedback. Analytical rubrics allow students to analyze in detail their performance on specific language skills (eg grammar, vocabulary, expression, pronunciation, etc.). This tool helps teachers identify their students' strengths and weaknesses and improve their skills by giving students appropriate feedback (Ulker, 2017; Vercellotti & McCormick, 2021). Analytical rubrics also help teachers analyze and grade students' written and oral performances in detail.

In this study, an analytical rubric was developed to evaluate the speaking skills of A2 level students learning Turkish as a foreign language. The validity and reliability of the developed rubrics were also examined within the scope of the research. The developed rubric includes ten criteria in independent speaking to measure the speaking skills of A2 level students; It includes twelve criteria in conversation. It should be noted that the rubric is a rubric that can be used for A2 level, since the developed rubric criteria are created according to the CEFR (2021) A2 level and the competencies in the books used in teaching Turkish as a foreign language. The analytical rubric was used to evaluate students' speaking skills in detail. The rubric provides an objective measurement of students' speaking skills by scoring the criteria under different categories separately. The developed analytical rubric has been tested with validity and reliability analyzes. According to the results of the validity analysis, the rubric accurately measures the speaking skills of the students. In addition, the results of the reliability analysis show that the rubric has a high reliability in scoring. These findings show

that analytical rubric is an effective tool for objective and reliable evaluation of speaking skills of students learning Turkish as a foreign language.

With the developed rubric, teachers can benefit from the evaluation of students' performance and exams, and students can develop an awareness of speaking skill processes. In order to evaluate students themselves, educational rubrics should be written in a language that students can understand, that is, they should be understandable, describe the quality of the work, include general weaknesses and how to avoid them, and be used as a guide by students (Andrade, 2001, pp. 1). Analytical rubrics help teachers teach and evaluate specific skills to enable students to achieve their learning goals. As a result, analytical rubrics are an effective tool in foreign language teaching that helps teachers to objectively evaluate their students' performances and improve their skills by giving feedback.

Assessment and evaluation is also an important issue in teaching Turkish as a foreign language and various studies have been conducted (Boylu, 2019; Gedik, 2017; Karagöl, 2020; Kesici, 2022), but assessment tools for skills and levels are limited. In this context, it is important to create separate rubrics for each skill and for each level in order to make measurement and evaluation more objective. It is noteworthy that more practice will be beneficial in teaching Turkish as a foreign language, especially in evaluating and developing speaking skills, and it is thought that the developed analytical rubric will contribute to future studies.

Recommendations

- The developed analytical rubric can contribute to both teachers and students in assessing speaking skills more objectively.
- The rubric can serve as a guide for other Turkish language teachers to conduct effective assessments.
- The rubric can be employed to track students' progress in speaking skills. Teachers can enhance student motivation by providing regular feedback and clearly communicating goals.
- The rubric opens doors for new research in the field of Turkish language teaching such as exploring speaking skills measurement and assessment further by using the rubric as a foundation.

- The rubric can be applied internationally for assessing Turkish language proficiency.

Compliance with Ethical Standard

The study was approved by the Social and Human Sciences Research Ethics Committee of Yildiz Technical University (Date: 26.08.2022, Session No: 2022.08).

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Additional 1

Yabancı Dil Olarak Türkçe Öğrenenler için A2 Düzeyi Bağımsız Konuşma Becerisi Dereceli Puanlama Anahtarı

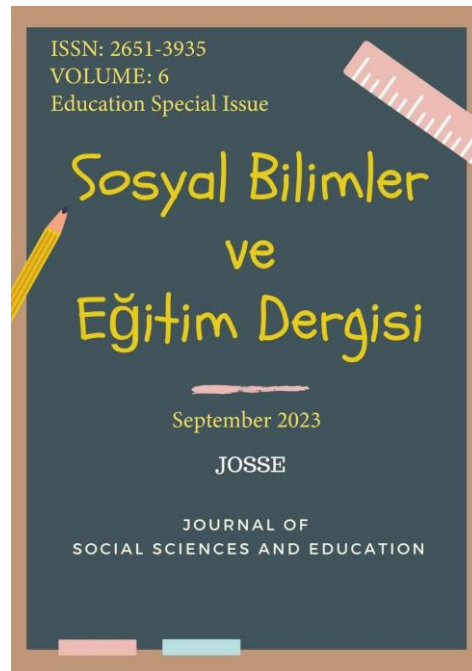
	Maddeler	1	2	3
Konuşmanın İçeriği	Başlangıç	Konuşmaya uygun ifadelerle başlamamıştır.	Konuşmaya kısmen uygun ifadelerle başlamıştır.	Konuşmaya uygun ifadelerle başlamıştır.
	Ana Düşünce	Konuşmasında ana düşünceye yer vermemiştir.	Konuşmasında ana düşünceye kısmen yer vermiştir.	Konuşmasında ana düşünceye yer vermiştir.
	Bitiş	Konuşmayı sonlandıracak ifadeleri kullanmamıştır.	Konuşmayı sonlandıracak ifadeleri kısmen kullanmıştır.	Konuşmayı sonlandıracak ifadeleri kullanmıştır.
Söz Varlığı	Kelime Hazinesi Durumu	Kelime hazinesi yetersizdir.	Kelime hazinesi sınırlıdır.	Kelime hazinesi yeterlidir.
Konuşmanın Şekilsel boyutu	Dilbilgisel Hatalar	Konuşurken hatalı dilbilgisel yapılar kullanmıştır (Yaptığı konuşmasının anlaşılmasını etkilemektedir.)	Konuşurken hatalı dilbilgisel yapılar kullanması konuşmasının anlaşılmasını kısmen etkilemektedir. (Konuşurken dil bilgisel hataları vardır ancak ne söylemek istediği anlaşılmaktadır.)	Konuşurken hatalı dilbilgisel yapılar kullanımı yok denecek kadar azdır. (Konuşurken anlaşılmasını etkileyecek dil bilgisel hatalar yapmamıştır.)
	Akıcılık	Konuşması akıcı değildir. Çok fazla gereksiz duraklamalar ve kelime seçimlerinde tereddütler yaşamıştır.	Konuşması kısmen akıcıdır. Kısmen daha az duraklama ve tereddüt yaşamıştır.	Konuşması akıcıdır. Konuşurken gereksiz duraklamalar yapmamıştır.
	Telaffuz	Telaffuz hataları çok fazladır. Telaffuzu anlaşılır değildir.	Telaffuz hataları göreceli daha azdır. Telaffuzu kısmen anlaşılırdır.	Telaffuz hataları yok denecek kadar azdır. Telaffuzu anlaşılır ölçüdedir.
	Vurgu ve Tonlama	Konuşma esnasında vurgu ve tonlamaları tamamen hatalıdır.	Konuşma esnasında vurgu ve tonlamaları kısmen hatalıdır.	Konuşma esnasında vurgu ve tonlamaları iyidir.
	Jest ve mimikler	Konuşurken konuşmasını destekleyecek jest ve mimiklere yer vermemiştir.	Konuşurken konuşmasını destekleyecek jest ve mimiklere kısmen yer vermiştir.	Konuşurken konuşmasını destekleyecek jest ve mimiklere yer vermiştir.
	Konuşma Hızı	Konuşmanın doğal akışını bozacak ölçüde yavaş konuşmaktadır.	Konuşmanın doğal akışını kısmen bozacak ölçüde yavaş konuşmaktadır.	Konuşma hızı normaldir.

Additional 2

Yabancı Dil Olarak Türkçe Öğrenenler için A2 Düzeyi Karşılıklı Konuşma Becerisi Dereceli Puanlama Anahtarı

	Maddeler	1	2	3
Konuşmanın İçeriği	Başlangıç	Konuşmaya uygun ifadelerle başlamamıştır.	Konuşmaya kısmen uygun ifadelerle başlamıştır.	Konuşmaya uygun ifadelerle başlamıştır.
	Ana Düşünce	Konuşmasında ana düşünceye yer vermemiştir.	Konuşmasında ana düşünceye kısmen yer vermiştir.	Konuşmasında ana düşünceye yer vermiştir.
	Bitiş	Konuşmayı sonlandıracak ifadeleri kullanmamıştır.	Konuşmayı sonlandıracak ifadeleri kısmen kullanmıştır.	Konuşmayı sonlandıracak ifadeleri kullanmıştır.
	Konuşma Esnası	Konuşma esnasında belirgin problemler yaşamıştır ve konuşmanın karşılıklı akışı bozulmuştur.	Konuşma esnasında daha az problem yaşamıştır ve konuşmanın karşılıklı akışı kısmen etkilenmiştir.	Konuşma esnasında problem yaşamamıştır ve konuşmanın karşılıklı akışı devam etmiştir.
Söz Varlığı	Kelime Hazinesi Durumu	Kelime hazinesi yetersizdir.	Kelime hazinesi sınırlıdır.	Kelime hazinesi yeterlidir.
Konuşmanın Şekilsel Boyutu	Dilbilgisel Hatalar	Konuşurken hatalı dilbilgisel yapılar kullanmıştır (Yaptığı konuşmasının anlaşılmasını etkilemektedir.)	Konuşurken hatalı dilbilgisel yapılar kullanması konuşmasının anlaşılmasını kısmen etkilemektedir. (Konuşurken dil bilgisel hataları vardır ancak ne söylemek istediği anlaşılmaktadır.)	Konuşurken hatalı dilbilgisel yapılar kullanımı yok denecek kadar azdır. (Konuşurken anlaşılmasını etkileyecek dil bilgisel hatalar yapmamıştır.)
	Akıcılık	Konuşması akıcı değildir. Çok fazla gereksiz duraklamalar ve kelime seçimlerinde tereddütler yaşamıştır.	Konuşması kısmen akıcıdır. Kısmen daha az duraklama ve tereddüt yaşamıştır.	Konuşması akıcıdır. Konuşurken gereksiz duraklamalar yapmamıştır.
	Telaffuz	Telaffuz hataları çok fazladır. Telaffuzu anlaşılır değildir.	Telaffuz hataları göreceli daha azdır. Telaffuzu kısmen anlaşılırdır.	Telaffuz hataları yok denecek kadar azdır. Telaffuzu anlaşılır ölçüdedir.
	Vurgu ve Tonlama	Konuşma esnasında vurgu ve tonlamaları tamamen hatalıdır.	Konuşma esnasında vurgu ve tonlamaları kısmen hatalıdır.	Konuşma esnasında vurgu ve tonlamaları iyidir.
	Jest ve mimikler	Konuşurken konuşmasını destekleyecek jest ve mimiklere yer vermemiştir.	Konuşurken konuşmasını destekleyecek jest ve mimiklere kısmen yer vermiştir.	Konuşurken konuşmasını destekleyecek jest ve mimiklere yer vermiştir.
	Konuşma Hızı	Konuşmanın doğal akışını bozacak ölçüde yavaş konuşmaktadır.	Konuşmanın doğal akışını kısmen bozacak ölçüde yavaş konuşmaktadır.	Konuşma hızı normaldir.
Konuşmayı devam ettirebilme	İletişimi sürdürebilme	Sorulan soruyu anlamamıştır ve karşılıklı konuşmak için yeterli alıcı dil becerilerine sahip değildir.	Sorulan soruyu anlamıştır ve karşılıklı konuşmayı sürdürülebilmek için kısmen yeterli bir konuşma performansı göstermiştir.	Sorulan soruyu anlamıştır ve karşılıklı konuşmak için yeterli performansı göstermiştir.

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Technological Approaches in Mathematics and Science Education: Microlearning * - **

* This research with the ID number 121G202 was conducted as part of the project titled "Detection and Elimination of Neuromyths in Biology Education: Developing and Evaluating Argumentation Contents with Digital Storytelling in an Educational Context."

**The project was supported by Pınar Köseoğlu and funded by The Scientific and Technological Research Council of Turkey (TÜBİTAK) under the 3005 Program. The findings of this study were presented as a poster at the 15th Conference of the European Science Education Research Association (ESERA) in 2023, which took place in Cappadocia from August 28th to September 1st, 2023.

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Technological Approaches in Mathematics and Science Education:

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ABSTRACT

Microlearning is regarded as a novel approach to meeting many learning demands, including individual learning, lifelong learning, and work-based learning. A learning strategy called microlearning focuses on giving students enormous amounts of (macro) material in manageable chunks over a little period of time. These little segments, also known as micro-content, help students retain the knowledge quickly without subjecting them to voluminous material. It is believed that breaking up the knowledge into manageable chunks helps learners better adapt to the information-processing process and acquire new material. With all of this in mind, it may appear that activities that allow students to actively engage in math and scientific studies, make connections to the real world, work in groups, support both their internal and external goals, and get lucid and insightful feedback are crucial. This study aims to investigate the design and implementation of microlearning, one of the technological approaches to math and science instruction, in informal, formal, and non-formal settings. It also explores the characteristics of micro content and how it relates to mobile learning using examples.

Keywords: Microlearning, micro content, mobile learning

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Introduction

The period in which educational activities were carried out within certain patterns has evolved into a student-centered learning process with the introduction of digital technologies. In the philosophy of lifelong learning, individuals in need of continuous renewal have become more accessible to knowledge by using open and distance learning systems. Education, with the presentation of instructional materials in digital formats, has transcended time and space constraints, turning learning into a regular process for the masses. In addition to the ease of access to content, new approaches have emerged to make learning faster and more efficient in a cognitive context. One of these approaches is called "microlearning." Microlearning is considered a new way to respond to various learning needs such as lifelong learning, work-based learning, and individual learning (Jomah, Masoud, Kishore, & Aurelia, 2016). Microlearning is an approach that centers on presenting large (macro) learning content in small chunks and within a short time frame. These small chunks, known as micro content, allow learners to absorb the presented information in a short period without overwhelming them (Hug, 2005; Bruck, Motivvalla, and Förslér, 2012; Redondo, Kodriguez, Escobar, and Vilas, 2020). Presenting content in this way is believed to better align with individuals' cognitive processing of information and result in more effective learning (Bruck et al., 2012).

Although microlearning may seem like a new educational paradigm, its origins date back to the 1960s. However, it became widespread in the early 2000s with the emergence of Web 2.0 technologies that provided suitable platforms for creating, sharing, and using learning content (Redondo et al., 2020). Other factors contributing to the proliferation of microlearning include wireless network technologies that have changed individuals' interaction and communication methods (Coccoli et al., 2011) and, consequently, the increasing use of digital technologies that allow learning anytime and anywhere throughout their lives (Bruck et al., 2012; Wang et al., 2020). Additionally, microlearning has become more popular due to its learner-centered, cost-effective, and interactive features (Jomah et al., 2016).

In the delivery of microlearning content, besides traditional technologies like television, radio, and personal computers, today's portable (mobile) devices such as smartphones and tablet computers can also be used. Portable devices offer more accessible means of accessing content anytime and anywhere. From this perspective, it can be said that the microlearning approach is inseparable from mobile learning, which relies on the use of

portable devices for flexible and accessible learning on the go. According to Hug (2010), microlearning overlaps with the concept of mobile learning in theory and practice. Content designed using rich media formats can be delivered to individuals through different devices, providing just-in-time education. The microlearning approach can be considered an opportunity for individuals to use their "dead time," such as travel time, work breaks, more efficiently and effectively throughout the day without the need to create special time or preparation for learning. Based on this context, the study aims to investigate the design and implementation of microlearning, one of the technological approaches to math and science instruction, in informal, formal, and non-formal settings. It also explores the characteristics of micro content and how it relates to mobile learning using examples.

In this study, our primary objective is to delve deep into the design and execution of microlearning in various educational settings, namely informal, formal, and non-formal. Recognizing the intertwined nature of microlearning and mobile learning, particularly in the light of emerging portable devices, we emphasize the uniqueness and significance of this research. By analyzing the characteristics of micro content and drawing parallels with mobile learning through illustrative examples, we aim to highlight the transformative potential of leveraging "dead time" for efficient learning, specifically in math and science instruction. This exploration not only underscores the pivotal role of technology in contemporary education but also accentuates the untapped potential of intertwining microlearning with daily routines.

Background

Microlearning and Micro Contents

The microlearning approach aims to address the learning needs of individuals from all age groups and backgrounds within the framework of lifelong learning, and it can be applied in various formal, informal, and non-formal settings. Particularly in the 21st century, where knowledge continues to grow rapidly, individuals are required to adapt to new contexts and keep pace with the ever-evolving information landscape. Traditional education, with its lengthy and restrictive nature, may not always be suitable for meeting these learning needs (Souza et al., 2015; Redondo et al., 2020).

Today's education system often struggles to adequately meet the demands of the job market. As a result, individuals increasingly prefer immediate application and utilization of

knowledge and skills over passive learning or reading extensive textbooks. They seek opportunities for learning that are not confined to school hours or specific locations but are available anytime and anywhere. It is in light of these observations that the ability to learn and the pace of learning have become crucial factors, not only for students and adults but also for enhancing individual quality of life. In this regard, lifelong learning has become a characteristic feature of the knowledge society. It is essential to recognize that technologies are continuously advancing, learning never ceases, and individuals, whether students or professionals, constantly require new knowledge, filling knowledge gaps, and storing learning materials (Buhu & Buhu, 2019). Hence, the creation of learning environments that offer lifelong learning opportunities to individuals is of paramount importance. Informal learning environments that enable self-directed learning are gaining prominence beyond traditional structured learning methods. In these informal learning settings, individuals voluntarily engage in a learning environment based on their interests and needs (So et al., 2018). The microlearning approach aligns with the fast-paced and task-focused learning and working models of today, making informal learning possible through small, socially interactive steps and micro content units (Souza et al., 2015). Microlearning does not require separate learning sessions; instead, it integrates into individuals' daily activities. By breaking down long-term learning activities into smaller units, learning efficiency can be improved, and individuals can utilize their time outside of work or school more effectively. While microlearning may not be suitable for all forms of learning, it can be seen as complementary to other learning methods (Bruck et al., 2012).

In today's world, the widespread use of mobile devices, personal computers, and other technologies has led to an increase in the use of short-form content. Consequently, it is believed that people's attention spans have been decreasing, and their capacity to focus on a single topic has diminished (Redondo et al., 2020). Therefore, presenting information in small, digestible chunks has become increasingly important (Wang et al., 2020). Microlearning delivers information through micro content, as it is an approach that focuses on short-term learning activities. The first element in creating a microlearning environment is the content. When content is divided into smaller pieces, it is believed that individuals can learn more effectively (Bruck et al., 2012). Micro content is a small digital information unit, containing only limited but essential information, compared to regular content (Jonah et al., 2016).

To effectively facilitate learning, micro content needs to be designed meticulously. So et al. (2018) emphasize that designing micro content differs from traditional instructional design and content development. The nature of content delivered through microlearning tends to be dynamic, up-to-date, and focused on specific interests. The essential characteristics that micro content should possess can be grouped under six headings (Souza et al., 2015; Redondo et al., 2020):

- **Focus:** Micro content should concentrate on a single idea or topic.
- **Structure:** A micro content unit should comprise various metadata such as title, subject, authors, date, and tags.
- **Self-sufficiency (Autonomy):** Micro content should contain all necessary information without the need for additional information search and should be independent.
- **Indivisibility:** Micro content should not be divisible. In other words, breaking it into smaller pieces should not compromise its meaning.
- **Format:** Micro content should be designed in a short, easily perceivable format.
- **Ease of Access:** Micro content should be easily accessible and discoverable.

These characteristics of micro content enable it to be seamlessly integrated into individuals' daily activities and selected according to their specific needs and interests (Redondo et al., 2020). Micro content can be designed in various formats, including text, video, audio, images, infographics, and can be delivered in different environments.

Microlearning Approach and Its Application

It can be said that various Web 2.0 applications, such as social networks, microblogging sites, blogs, wikis, podcasts, video-sharing platforms, and news applications, predominantly offer micro content (Redondo et al., 2020). Web 2.0 environments have increased individuals' tendency to engage with micro formats by providing them with the opportunity to both create and consume content (Redondo et al., 2020). A prominent example of a microlearning environment accessible to everyone is Twitter, a micro-sharing platform. Twitter allows the sharing of not only 280-character text messages but also various media formats such as videos, audio, and images (Bruck et al., 2012), fostering a learning community around these contents (Aitchanov, Satabaldiyev, and Ututa, 2013). Sites like YouTube, TED, and Khan Academy can be regarded as microlearning platforms where videos are presented. YouTube enables individuals to create their own educational content when they want to quickly acquire new skills or knowledge (e.g., cooking, repairs, etc.). TED

is based on the web platform for short informative talks by international or local experts. Khan Academy, on the other hand, is a non-profit educational organization founded by Salman Khan, a graduate of MIT and Harvard University. Its primary goal is to provide structured information in the form of short lessons or presentations on specific topics (Redondo et al., 2020).

Regarding the duration of microlearning activities, there is no universally accepted criterion. Research tends to focus more on the duration of videos, suggesting that they should not exceed 15 minutes. Additionally, studies indicate that shorter videos tend to have higher viewership (Redondo et al., 2020).

The microlearning approach can be applied not only within the framework of lifelong learning but also in formal and non-formal settings, allowing individuals of all age groups to access content from various sources tailored to their needs. In these settings, the core idea behind microlearning is to present course materials in short, manageable, and easily accessible segments for students to consume. Microlearning pedagogy primarily focuses on short-term and informal learning activities or just-in-time learning when the learner needs information to solve a problem or perform a task (Bruck et al., 2012). The microlearning approach can be employed to guide students in self-directed learning, problem-solving, practical application of knowledge, or connecting with others according to their needs. It is often used to reinforce or complement formal learning environments, aiming to encourage deeper learning and engage students in thinking and working on course/content-related topics in their daily lives (Skalka & Drlik, 2020). By presenting information in small, digestible portions, microlearning helps make knowledge more permanent without overloading learners cognitively (Major & Calandrino, 2018). Microlearning has found extensive use in professional and higher education settings related to dentistry, pharmacy, epidemiology, psychiatry, and other healthcare services, as it sparks student interest and expands learners' cognitive boundaries in an innovative way (Wang et al., 2020).

When implementing the microlearning approach, the most crucial consideration is designing and creating an effective digital microlearning environment. The design and delivery of the microlearning environment should select the most suitable method based on the structure of the course. The more compatible and applicable the microlearning experience is with the learning objectives, the more effective and meaningful the students' experience becomes (Major & Calandrino, 2018). Accessibility of microlearning environments is essential, as a student should be able to access the microlearning environment or content

anytime, using any available device (Major & Calandrino, 2018). When considering micro content as part of the subject, it can be identified as educational micro content (Polasek & Javorcik, 2019). Educational micro content combines the bisectonal nature, self-sufficiency of content, and the technologies that can produce and deliver sound, speech, graphics, drawings, photos, or audio and visual content, aiming to focus on specific learning outcomes (Souza et al., 2015). Preparing a learning scenario is the most critical step in the creation of microlearning. Deficiencies in content delivery can lead to student failure (Skalka & Drlik, 2020). In addition to designing educational micro content, attention should be paid to how content is sequenced and the design of microlearning activities. Contents should be provided to students gradually (Redondo et al., 2020). Moreover, delivering micro content to students at the right time is also a crucial aspect of microlearning design. Bruck et al. (2012) propose four key features for designing and developing microlearning solutions:

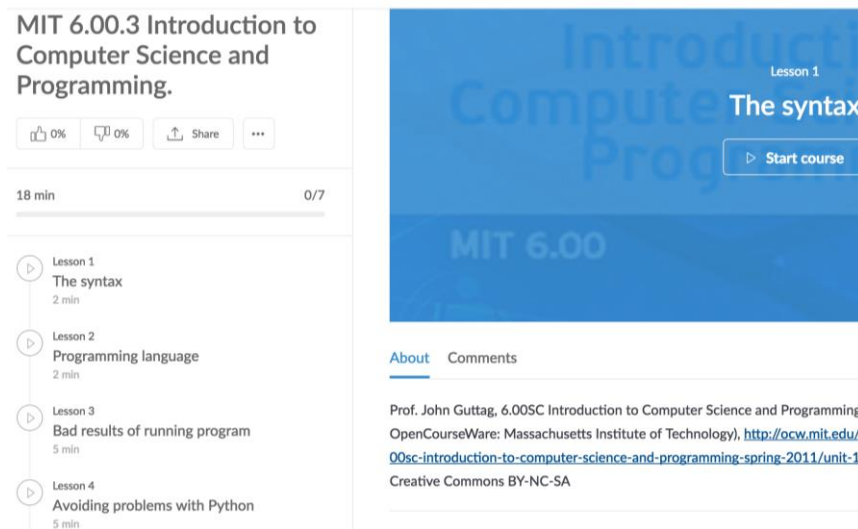
- Content repetition for learning retention.
- Continuity in repetition activities.
- Assessment before moving to the next unit.
- A well-structured and hierarchical content organization that supports information retrieval.

In the context of mathematics and science education, microlearning has emerged as a powerful pedagogical strategy, leveraging succinct content delivery to optimize learning outcomes. The evolution of specific platforms tailored to this approach, as discussed below, underscores its rising significance. In the realm of microlearning, selecting the right technological tool tailored to the nuances of microlearning is vital. Currently, popular microlearning platforms encompass Coursmos, Grovo, and Panopto.

Coursmos, as detailed in their 2017 release, stands out as an online hub facilitating the crafting of concise courses encompassing miniature lessons complemented by quizzes. As depicted in Figure 1, each course can host up to seven bite-sized lessons, each not exceeding 5 minutes. One of Coursmos' distinctive features is its intelligent course recommendation engine, suggesting courses authored by different educators that align with the user's current content. This platform weaves together various micro-courses to create a knowledge nexus and offers seamless sharing capabilities across social media platforms and websites. It's a nimble learning instrument, enabling students to swiftly navigate through lessons via their mobile gadgets, while granting educators the facility to monitor attendance and academic progression.

Figure 1

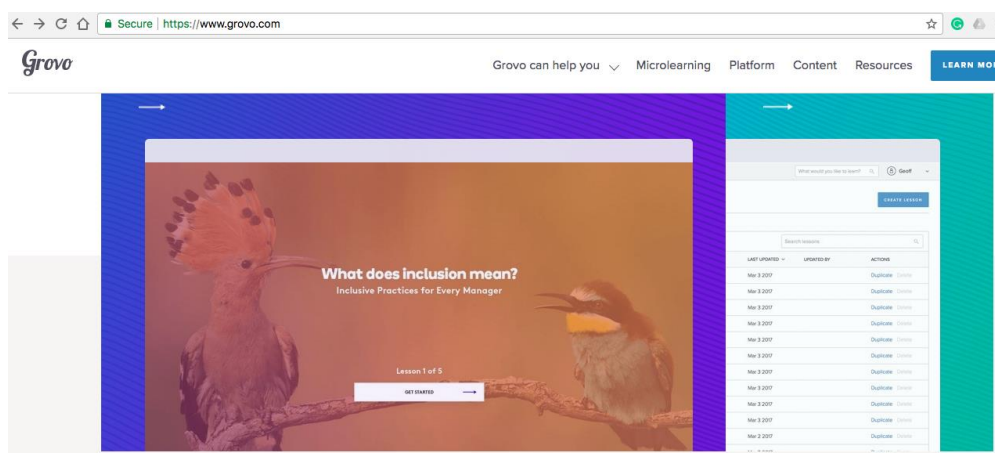
Coursmos



Grovo (Grovo, 2017), depicted in Figure 2, stands out as an online microlearning ecosystem where mini-lessons, typically no longer than 90 seconds, are designed to facilitate swift course completion. These lessons incorporate a blend of videos, gifs, quizzes, and other interactive elements to ensure sustained learner engagement. Notably, Grovo offers seamless integration with various Learning Management Systems (LMS) and boasts pre-fabricated templates for content creation. The platform empowers educators with analytical tools to monitor learner progression, spotlighting students potentially at risk, and visualizing data analytics via intuitive graphs.

Figure 2

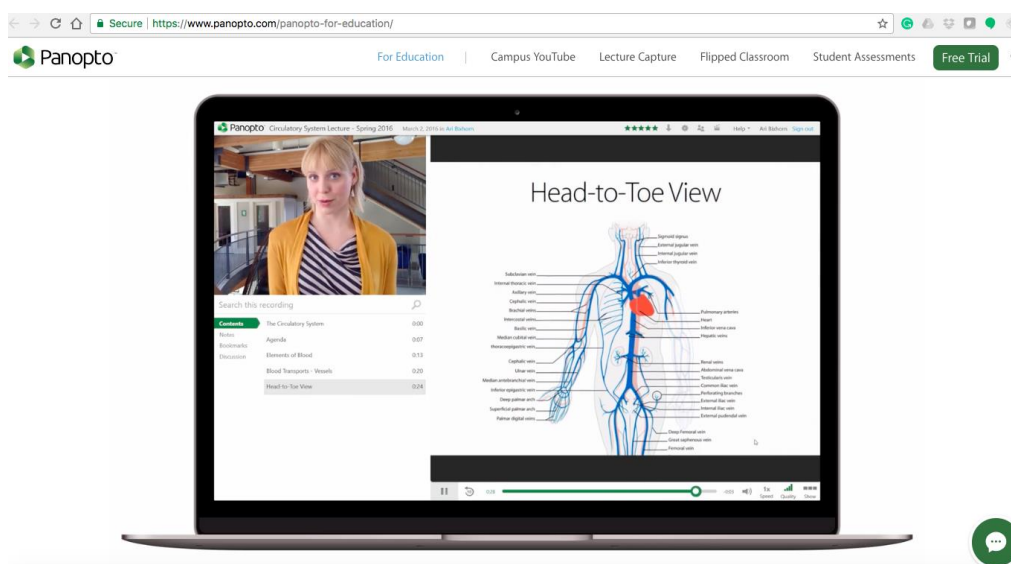
Grovo



Panopto (Panopto, 2017), illustrated in Figure 3, is positioned as a video-centric content management ecosystem. It furnishes features such as lecture capturing, screencasting, and dynamic video streaming, thereby curating a conducive microlearning ambiance. Panopto's framework integrates seamlessly with LMS platforms, facilitating both educators and students. Instructors can effortlessly transcribe their videos, enhancing accessibility, and craft interactive video quizzes. The platform's robust analytics provides insights into student engagement metrics and highlights areas commanding predominant student focus.

Figure 3

Panopto



Today's classroom technology is increasingly gravitating towards mobile compatibility, reflecting the surge in students accessing course materials via handheld devices. Consequently, it becomes imperative for digital microlearning platforms to be mobile-responsive, catering to learners' propensity to engage in spur-of-the-moment learning sessions. Hug (2010) delved into the symbiotic relationship between mobile devices and microlearning. He accentuated several reasons underscoring the indispensability of mobile devices for microlearning: (1) these devices inherently display microcontent, (2) they cater to shorter attention spans and limited time slots, (3) their screen size, being smaller, demands concise content presentation, (4) they enable micro-staged learning in both formal and casual settings, (5) they metamorphose the learning environment into one that is mobile, tangible, and social, and (6) their inherent alignment with microplatforms.

Effectiveness of Microlearning and Its Implementation

Another essential aspect regarding the effectiveness of microlearning is the appropriate duration of activities. Cole and Torgerson (2017), as cited by Major and Calandrino (2018), recommend microlearning activities to be at least 2 minutes long, up to a maximum of 10 minutes. Redondo et al. (2020), on the other hand, suggest that microlearning sessions (micro content) should be designed by combining the introduction, activity, and outcomes, with each not exceeding 15 minutes. Microlearning activities should be designed to be directly managed by students, promoting their active participation. The materials used in microlearning should focus on very specific and clear aspects of the subject matter. Additionally, students should be encouraged to participate directly in the production of micro content. Platforms that allow the creation of micro content (such as YouTube, Twitter, etc.) can facilitate student-centered learning through students' own content creation (Senningson et al., 2015).

Various platforms and tools can be used to deliver microlearning activities. The selection of platforms or tools largely depends on the discipline to be taught and the learning objectives. The microlearning approach can be delivered not only through Web 2.0 technologies and social media but also within traditional learning management systems (LMS) (So et al., 2018). While acknowledging the presence of some autonomous solutions for student management and interaction with micro content, Redondo et al. (2020) emphasize the existence of an existing learning platform as a starting point and recommend the following as microlearning environments: (i) a widely used modular LMS like Moodle (<https://moodle.org>); or (ii) a Massive Open Online Course (MOOC) platform designed specifically for non-formal education and capable of managing a large number of students, such as Open edX (<https://open.edx.org/>). Advantages of using these learning platforms include user familiarity, the ability to maintain user profiles and other information, and the possibility of updates and improvements for security and functionality (Redondo et al., 2020).

Microlearning and Mobile Learning

Mobile technologies enable individuals to access any kind of information, person, place, data, event, and location directly. With a mobile device, individuals can actively participate in their learning processes and engage in experiential learning pedagogy (Semingson et al., 2015). As previously mentioned, microlearning holds great potential for learning on mobile devices. Most of today's technologies are mobile-compatible, and people

are increasingly accessing content through mobile devices. Therefore, microlearning environments should be mobile-friendly, allowing individuals to complete learning activities on the go (Alqurashi, 2017). Hug (2010) emphasizes the importance of mobile devices in creating microlearning environments as follows: (1) Content displayed on mobile devices is often in the form of micro content, (2) people's attention spans on mobile devices are relatively short, (3) the screen size of mobile devices is smaller than that of other devices, (4) mobile devices allow the design of micro steps in formal and informal learning environments, (5) mobile devices allow the mobile, physical, and social nature of the microlearning environment, and (6) mobile devices are often associated with micro platforms.

When designing and producing micro content within the scope of mobile learning and microlearning, the competencies and usability features inherent to mobile devices should be taken into account. In other words, features such as screen size, touch keyboard, lack of a mouse, connection speed, and connection cost should be considered (Souza et al., 2015). Nowadays, many popular platforms like YouTube, Twitter, Instagram, have mobile applications compatible with all mobile devices. Content created on these platforms can easily be accessed on mobile devices within the context of daily life. Additionally, numerous mobile applications suitable for the microlearning approach are also available (Semingson et al., 2015).

The Role of Technology in Microlearning

Technology plays a crucial role in microlearning. When used effectively, it can engage students outside of the classroom. However, one of the challenges of technology is that it is a rapidly growing industry. Sometimes, educators may find it challenging to keep up with all their non-instructional responsibilities. While this can be a technology challenge that comes with microlearning, it is considered to have great potential (Alqurashi, 2017).

Microlearning environments may need to be professionally organized and applied like a learning curriculum. Currently, online learning platforms like Khan Academy, Udemy, Coursera, and massive open online course (MOOC) providers like edX, created by the Massachusetts Institute of Technology and Harvard University, offer thousands of micro-courses from hundreds of partner institutions worldwide. Additionally, digital flashcards can be used to enhance knowledge transfer (Steinbacher & Hoffman, 2015).

In microlearning, the appropriate choice of technology is crucial for designing based on microlearning characteristics. Alqurashi (2017) introduces some of the most common microlearning tools used today as Coursmos, Cirovo, and Panopto.

- **Coursmos:** Coursmos is an online platform that allows the creation of micro-courses used to create mini-lessons and then conduct exams. Micro-courses can contain up to seven micro-lessons, each lasting up to 5 minutes. Coursmos has an intelligent and personalized course recommendation system that suggests other courses created by other instructors for learners to follow regarding their course content. It is a rapid learning tool that enables students to complete micro-lessons using their mobile devices, and instructors can monitor student engagement and learning progress.
- **Cirovo:** Cirovo offers micro-lessons typically lasting 90 seconds, allowing students to quickly complete a mini-course assigned to them. Each lesson combines videos, gifs, quizzes, and other engaging activities to keep students engaged. The platform can be integrated into various Learning Management Systems for easy access and includes ready-made templates for creating micro-content. Instructors can track student progress and identify at-risk students.
- **Panopto:** Panopto is a video content management system that provides recording, screen capture, and video streaming for creating a microlearning environment. The system integrates with Learning Management Systems for both instructors and students. Panopto enables turning videos into text with a single click, making them accessible and allows the creation of interactive video quizzes. It also provides detailed reporting on student progress and performance, identifying how much time students spend reviewing content (Alqurashi, 2017).

Additionally, **Voscreen** (Voscreen, 2021) is another microlearning platform that focuses on improving English language skills with short videos, aiming to be both free and fun. This application offers playlists with customizable playback modes for registered users. It creates a social environment where progress of the added friend group is observed, including socialization. Dictionary platforms like Reddit or Ekşisözlük can also be considered as microlearning environments where registered users share knowledge through various media such as text, audio, and video, and non-registered users acquire information through search methods, with short content predominating.

Advantages and Limitations of Microlearning

With the increasing use of technology in education, learning approaches have started to change and evolve. Each new discovery aims to make learning more lasting and the process easier and more accessible. Microlearning has emerged as a learning model that can provide support in transferring knowledge to learners with the help of technological devices.

Microlearning can be distinguished from traditional e-learning in three main ways (Bruck et al., 2012). Firstly, it involves reducing the volume of content and presenting information in small units. This method, also known as microcontent, is a didactic approach that allows learners to access information more easily. Microlearning focuses on short and visually interactive content, enhancing the level of engagement in the learning experience (Kedondo et al., 2020). The second aspect is the redesign of learning processes and environments according to the paradigm of small learning units (Bruck et al., 2012). This model not only benefits the learners but also instructors and content creators by requiring fewer resources and less time during the content development process. For example, translating and adapting a small amount of data into different languages can be done in less time. Additionally, the ease of updating the curriculum can be considered another advantage. Microlearning environments provide a flexible content development power for both learners and content designers (Redondo et al., 2020). The third aspect is that learners can progress at their own pace, choosing the time, place, and speed of their learning (Bruck et al., 2012). It is unlikely that a learner would remain indifferent to a platform that caters to their learning needs.

Microlearning has been observed to be a common approach for formal education systems, where learners drop out, fall behind, or disconnect from the system (Redondo et al., 2020). However, this situation should not only be considered for formal education but also for informal or non-formal platforms that provide learning environments. Microlearning helps keep individuals actively engaged in the lifelong learning process and ensures that the learning process remains continuous without disconnecting from the context. By designing microlearning environments that meet the needs of working individuals or those with learning requirements, learning can become more enjoyable and fun (Surahman et al., 2019). When considering the non-formal trend model, microlearning is more suitable for non-formal learning, where individuals seek to acquire new skills and keep their knowledge up-to-date in their free time, rather than aiming for comprehensive knowledge in a discipline (Souza et al., 2015).

Microlearning attracts students' attention through its focus on smaller and specific learning objectives. The short-term microlearning content reduces the mental fatigue caused by longer lessons (Shail, 2019). Since microlearning activities are consistent with short-term memory, which is estimated to manage no more than four elements simultaneously, they support learning and retention. Providing time for the material learned to be processed and indexed in long-term memory, microlearning tends to make students complete the entire course faster as they interact more with the content. In short, microlearning prevents central nervous system fatigue or mental fatigue, also known as central fatigue (Shail, 2019). Microlearning is compatible with learning techniques that emphasize intermittent repetition at an adequate frequency, various formats and contexts for the same concepts and elements, and the blending of different elements to facilitate the transfer and acquisition of new knowledge (Redondo et al., 2020). It is also believed that microlearning content not only expands short-term memory capacity but also easily captures learners' attention and motivates them to learn (Lopez and Ruiz, 2018).

However, despite all these advantages of microlearning, there are limitations. Even if micro content is designed and made available according to its purpose, it may not be suitable for all learning environments, especially when the concept to be learned is complex. Microlearning activities are more suitable for strengthening skills through repetition and practice. Additionally, for learners who believe that microlearning activities need to be blended, it can be misleading. This is because the purpose of microlearning is different. It should be noted that completing all the activities of a micro lesson may not directly affect the acquisition of concepts, just as in all other teaching techniques. Despite many advantages, it is stated that microlearning does not perform well in learning complex and abstract concepts and in multidisciplinary fields (Redondo et al., 2020). Since each individual's brain works at its own pace for learning and cognitive processing, it cannot be said that there is a specific time for learning. Therefore, individuals with learning difficulties or those with psychological and psychiatric disorders may not benefit from all the advantages of microlearning (Shail, 2019).

Discussion and Results

When examining the academic literature in Alanya, it is evident that the majority of studies related to microlearning focus on theoretical, conceptual, and technical developments

(So et al., 2018). There are relatively few studies that assess the effectiveness of microlearning. In this section, we will provide an overview of a few of these studies.

Bruck et al. (2012) conducted a study where they developed microlearning applications for mobile devices in the context of microlearning and investigated student satisfaction. To achieve this, they utilized the KnowledgePulse (KP) system, which provides micro content on mobile devices, enabling learning anytime and anywhere. The results of the study indicated that this system had a high adoption rate among students, and they expressed a high level of satisfaction.

Aitchanov et al. (2013) examined the use of Twitter as a microlearning technique for educational purposes. This study was conducted in the context of the CS205 Advanced Programming C++ course at Süleyman Demirci University in Kazakhstan. Data collected from students showed that students enjoyed learning when course materials were presented in small portions via Twitter.

Kedondo et al. (2020) conducted a study to assess the views and approaches of distance education experts and professors in higher education institutions regarding microlearning. In their survey-based study, participants generally believed that microlearning could complement face-to-face learning and be beneficial for both undergraduate and lifelong learning, as well as corporate training. Participants also thought that the microlearning paradigm could be used for instructional activities and considered it a suitable approach for students. Most participants believed that microlearning could enhance student engagement, knowledge accumulation, and self-assessment. However, they also identified the preparation of new content, visuals, videos, interactive materials, etc., as the primary challenge in adopting this new paradigm.

So et al. (2018) investigated the perceptions of adult students in the fields of technology and science regarding microlearning. According to the study's results, there was no common definition of microlearning from the perspective of adult students. However, small-sized content characterized by quick access and currency was considered the most critical feature of microlearning.

Polasck and Javorcik (2019) presented the results of a pilot microlearning course designed for students in the Faculty of Humanities' Information and Communication Technologies Department at Ostrava University. The effectiveness of this microlearning course, conducted over a semester, was evaluated by comparing an experimental group with access to the microlearning version of the course materials to a control group with access to

traditional electronic course materials. The results of the pre-test indicated no statistically significant difference between the experimental and control groups. However, the post-test results at the end of the semester showed that the experimental group, with access to the microlearning version of the course, performed significantly better than the control group with access to the original course materials.

In conclusion, learning activities have evolved into a process that transcends the constraints of time and space. Alongside traditional methods of acquiring knowledge, functional digitized approaches have emerged, introducing various learning paradigms. Microlearning is one such paradigm that offers affordable, convenient, enjoyable, and enduring learning experiences at a micro level. It has become a necessity for learners to access information at their own pace, place, and through their preferred sources, rather than a luxury. Consequently, finding professional solutions to meet this need has become a fundamental task for institutions, companies, and educational providers (Dolasinski and Reynolds, 2020). The concept of accessing information from a single device or portal has become a thing of the past. Microlearning aligns with these expectations by breaking down learning into manageable fragments, whether through textual, auditory, or video materials, thus ensuring micro-content delivery. Microlearning offers several advantages, including cost-effectiveness, content availability, and the removal of time and space constraints, particularly in employee training.

In the context of math and science education, the microlearning framework ensures sustained engagement with digital content beyond the confines of the traditional classroom. While its efficacy in fostering concentrated learning for easily distracted learners is evident, there remains a need for further research to discern its implications on perceived learning outcomes and overall satisfaction. As educators adopt this approach, it's paramount to view microlearning not in isolation but within the broader educational landscape, ensuring seamless integration between out-of-class micro-content absorption and in-class application and knowledge synthesis. By holistically embracing the trifecta of microlearning components - content, pedagogy, and technology - the potential to amplify student engagement, elevate satisfaction levels, and enrich the overall learning journey is considerable.

Recommendations

1. **Promotion of Microlearning Effectiveness Assessment:** Given the scarcity of studies assessing the effectiveness of microlearning, there is a clear need for further research in this area. Academic institutions, educational researchers, and policymakers should encourage and fund studies that specifically investigate the impact and outcomes of microlearning. These studies should encompass various subject areas, learner demographics, and delivery methods to provide a comprehensive understanding of microlearning's effectiveness.
2. **Integration of Microlearning in Educational Practices:** The positive outcomes observed in the study by Bruck et al. (2012) regarding the use of microlearning applications for mobile devices suggest that educational institutions should consider integrating microlearning into their teaching practices. Educators should explore how microlearning can enhance the learning experience, improve student satisfaction, and promote engagement. Workshops and training programs can be organized to educate educators about effective microlearning design and implementation.
3. **Exploration of Alternative Microlearning Platforms:** Aitchanov et al. (2013) highlighted the use of Twitter as a microlearning technique. This opens the door to explore various social media platforms and emerging technologies as potential tools for microlearning. Educational institutions should invest in research and development to identify innovative platforms and technologies that align with microlearning principles and can cater to diverse learning needs.
4. **Support for Distance Education and Lifelong Learning:** Kedondo et al. (2020) emphasized the potential of microlearning in complementing face-to-face learning and supporting both undergraduate and lifelong learning, as well as corporate training. Educational institutions, particularly those offering distance education and professional development programs, should consider incorporating microlearning strategies into their curricula. These strategies can cater to the needs of diverse learners and enhance their learning experiences.
5. **Professional Development for Content Creation:** As highlighted by participants in Kedondo et al.'s study, content creation is a significant challenge in adopting microlearning. Institutions should invest in professional development opportunities for educators and instructional designers to create effective microlearning content. This

includes training in designing visually engaging materials, interactive content, and concise yet informative resources.

6. **Exploring Microlearning in Formal Education Settings:** Polasck and Javorcik (2019) demonstrated the effectiveness of a pilot microlearning course in higher education. Educational institutions should consider conducting similar experiments to assess the suitability of microlearning in formal education settings. Comparative studies can help evaluate the impact of microlearning on student performance and engagement.
7. **Embracing the Advantages of Microlearning:** As concluded in the discussion, microlearning offers several advantages, including cost-effectiveness, content availability, and flexibility. Educational institutions, organizations, and training providers should actively embrace these advantages and incorporate microlearning into their strategies for employee training, professional development, and education delivery.

In summary, the adoption and exploration of microlearning should be an ongoing priority for educational institutions and organizations. This includes supporting research efforts, providing professional development opportunities, and adapting to the evolving landscape of educational technology. Microlearning's potential to enhance learning experiences, improve knowledge retention, and overcome traditional constraints of time and space make it a valuable asset in contemporary education and training contexts.

Compliance with Ethical Standard

Ethical approval of the research was granted by Hacettepe University Ethics Committee on April 17, 2023, E-35853172-000-00002802182. It was taken as a result of the decision no. Hacettepe University, 17 April 2023, No: E-35853172-000-00002802182.

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