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The Effect of Creative Dance on Spatial Thinking, Mental Rotation

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Abstract

Secondary education is an intense and stressful period of education due to its structure, and this period is also the critical developmental stage for adolescents. It is aimed to facilitate their learning in this critical period and support their hormonal, emotional, and social development. Thus, the effect of movement/creative dance on the spatial thinking and mental rotation skills of adolescents was investigated in this study. In this way, it was aimed to raise awareness among students, educators, and parents about the effect of creative dance on the learning and development of adolescents. A mixed-method research model was used for this study. The experimental design with the pretest-posttest control group, which is one of the semi-experimental designs, was employed in the quantitative dimension of the study. The "case study" method was adopted in the qualitative aspect of the study. The study group of the research consisted of students attending the 7th grade at a private school located in the center of Çanakkale Province in the 2018-2019 academic year. One of the five classes in the school was selected as the experimental group and the other as the control group, using the simple random sampling technique. While the number of students in the experimental group was 32, that in the control group was 31. 27 (42.9%) of the students were female and 36 (57.1%) were male. "Creative dance training and spatial thinking/mental rotation skills training" was designed and applied for 6 weeks, 4 hours a week. The data of the study were obtained through the rotation test developed by Vandenberg and Kuse (1978), redesigned by Peters, Laeng, et al. (1995), and adapted into Turkish by the same researchers. MRTA Rotation Test and "semi-structured interview form" prepared by the researcher were used in the study. It was discovered as a result of the study that creative dance education improved students' spatial thinking and mental rotation skills and there was a significant difference between the pre-post test scores of the students and the test scores they obtained from spatial thinking, mental rotation at the end of the experiment, and the time variable. A significant difference was also detected between the spatial thinking and mental rotation measurements carried out at the beginning and end of the experiment in the experimental and control groups. Redesigning the curricula based on movement/dance to promote the cognitive development of students will support their holistic development.

Keywords: Creative dance, spatial thinking, mental rotation skills

Introduction

The act of movement is inherent in the nature of the child. We can assert that imagination and the desire to act intensely are fundamental to the child's social, emotional, physical, and cognitive growth, especially in the early years of development. However, the periods in which the child's development is the fastest coincide with the education years. Due to its structure, the education system can be said to deprive children of movement for a long time and employ activities intensively based on cognitive skills in a certain environment and a certain period. However, another important point is that children use shuttle vehicles to go to school or to reach a place, and this takes a long time in metropolitan cities. It restricts the child's processes of movement during the most critical developmental period in most of the time spent in and out of school.

Field studies provide results indicating that movement positively affects learning, and physiological, emotional, and social development (Cotman, and Berchtold, 2002; Winter, 2007; Roig et al., 2012; Viswesh, Yang, Gupta, 2018). The child, who is instinctively loaded with the act of movement, disrupts the learning process in the classroom or experiences distraction and attention deficit disorder. This situation emerges as a problem in terms of learning and classroom guidance.

In the Turkish Education System, students are subjected to a general exam in the transition to a higher education level during the secondary education process. For this reason, it can be said that students are exposed to a learning life process with challenging assignments and tests to prepare for more intense learning content. In this case, the student, at the secondary education level, may be faced with being more inactive. However, field studies have revealed that there is a significant relationship between movement toward adolescence, in which the brain is being structured, and cognitive development (Esteban-Cornejo, Tejero-Gonzalez, Sallis, & Veiga, 2015; Stroth, Hille, Spitzer, & Reinhardt, 2009; Sibley & Etnier, 2003; Linder, 2002). Studies have shown that there is a significant positive relationship between movement and problem-solving (Bond, Lyle, Tappe, Rogers & D'Zurilla 2002), creativity (Rakusin, 1990), remembrance (Stroth, Hille, Spitzer, & Reinhardt, 2009), long-term coding (Tomporowski, 2003), mathematical thinking (Sibley & Etnier, 2003), comprehension (Stroth, Hille, Spitzer, & Reinhardt 2009), managing emotions (Fox, 1999), socializing (Gilbert 1992), and three-dimensional thinking skills (Emerson & Leigh, 1979; Logan, 1984; D'avella & Lacquaniti, 2013).

Creative Dance/Movement, Spatial Thinking, and Mental Rotation Skills

Creative dance has been defined in different aspects by field experts. For example, while Dimondstein (1971) expressed emotions and thoughts as activating, Hecox, Levine, and Scott (1975) defined it as an individual's social, creative, and physical effectiveness, independent of physical education or exercise. As can be understood from these definitions, the key feature of creative dance/movement can be explained as the individual's self-reflective feeling, that is, the structural movements that s/he performs successively according to his/her individual preferences (Joyce, 1994). In other words, it is the individual's realization of his/her own individual strengths and weaknesses, as well as his/her physical, social, and emotional aspects. These original creative dance moves also teach students:

a. to describe their bodies, perceptions, feelings, and themselves (Emerson & Leigh, 1979),
b. to engage in creative thinking rather than imitation and conscious thinking actions (Rakusin, 1990),
c. to sense visuospatial information with movement (Emerson & Leigh, 1979; Logan, 1984),
d. to become aware of space (Logan, 1984).

It can be stated that adolescence is a process in which the brain is physically structured, hormones work intensively, and physical development is disproportionate. Creative dance can be defined as spatial thinking, mental visualization, and rotation as a means of supporting the individual to realize his/her body, position himself/herself in the environment and provide spatial awareness. Spatial thinking refers to the variety of mental procedures involved in capturing, encoding, and manipulating information within the spatial image, whether two-dimensional or three-dimensional (Clements & Battista 1992). While *spatial thinking* usually involves imagining that objects will appear from a different angle, *mental rotation* refers to the ability to imagine how an object seen from one perspective will look when viewed from a new perspective (Chaney & Kephart, 1986; Johnson & Moore, 2020). There is a fundamental relationship between creative dance, spatial thinking, and mental rotation (Hagedoorn, 2012). The most comprehensive study on this relationship was carried out by Wohlschäger & Wohlschläger (1998), which unveiled a

positive relationship between mental rotation and motor processes. Dance also includes motor skills at its basis. For example, dance choreography is the act of restructuring the body and arranging and visualizing it in more than one geometrical form and associating it with space and featuring it by interacting with other dancers and arranging the rhythm (Emerson & Leigh, 1979; Logan, 1984; Chane & Kephart, 1986; Stinson, 1998; Hagedoorn, 2012). According to this, it can be asserted that creative dancing will affect students' mental rotation and visualization skills. The aim of the study was to enable students to recognize their bodies, emotions, and social developments and gain spatial awareness, as well as support their cognitive development, especially problem-solving, analytical thinking, and numerical and reading skills through creative dance/movement during adolescence. At the same time, it was to provide information to educators about the contribution that the inclusion of dance/movement activities in the instructional design process will have on learning. In this study, the effect of movement/creative dance on the spatial thinking and mental rotation skills of adolescents coinciding with an intense and stressful period of the education system was investigated. In this way, it was aimed to raise awareness among students, educators, and parents about the effect of creative dance on the learning and development of adolescents. The research sought answers to the following questions:

1. What is the effect of creative dance training on spatial thinking and mental rotation in adolescents?
2. What are the students' views on the spatial thinking and mental rotation skills of creative dance?

Method

Research Model

In this study, a mixed-method research model was used in line with its purpose. The mixed method is the use of views of qualitative and quantitative research models related to the research and the researcher and research design approaches together (Merriam, 2013; Creswell & Clark, 2015). The "integrated mixed pattern", in which the data of qualitative and quantitative techniques were collected at the same time and then the interpretation was made together, was used in this study.

The experimental design with the pretest-posttest control group, one of the semi-experimental designs, was used in the quantitative dimension of the study. The main purpose of this design is to determine the effect of the investigated variable on the group. Whether the variable tested with this design was effective or not (the effect of the independent variable on the dependent variable) was determined by testing the significance of the difference between the pre-test and post-test means (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2008; Kıncal, 2010). To collect data, pre-test and post-test were used in accordance with the design.

The "case study" method was used in the qualitative aspect of the study. According to Creswell (2007), a case study is an in-depth examination of a limited system based on large and comprehensive data sets. The focus of the case study is to try to describe an event as it exists. It is the examination of a single unit or a limited system, making intense descriptions and interpreting

depending on the context (Hancock & Algozzine, 2006). The experimental group of the study was used for the case study. A focus group interview was conducted with the case study group to collect data. Observations were made during the implementation process.

Study Group

The study group of the research consisted of students attending the 7th grade at a private school in the city center of Çanakkale Province in the 2018-2019 academic year. One of the five classes in the school was selected as the experimental group and the other as the control group by using the simple random sampling technique. (Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel, 2008). While the number of students in the experimental group was 32, that in the control group was 31. 27 (42.9%) of the students were female and 36 (57.1%) were male. In determining the study group, students who had danced or played sports for a long time were identified in the experimental and control groups. As it was thought that they would vary the data of the study and therefore, these students were not included in the experimental process. At the same time, other factors that may affect the practice, student interests, in-class achievement scores, especially the average score of subjects such as mathematics, science, Turkish, visual arts, physical education, age, and gender distribution rates in classes were taken into account.

Development of Instructional Design

For the application, first of all, "spatial thinking/mental rotation skill training with creative dance education" was designed by the researcher for the experimental group to improve the spatial thinking and mental rotation skills of the students. During the preparation phase, the scientific opinions and guidance of the faculty members of the Department of Educational Sciences and Performing Arts at Mimar Sinan Fine Arts University and Çanakkale Onsekiz Mart University were received. The interests of secondary school students, their social, emotional, and physical development and learning characteristics, as well as the contents and learning outcomes of all 7th-grade instructional programs implemented by the Ministry of Education Training Board in schools, were taken into account while designing the activities. In the control group, the activities proposed by the school within the annual plan were carried out exactly.

Spatial thinking/mental rotation skill instructional design with creative dance training consisted of the contents such as self-concept/subjectivity, space-perception, body perception, body-space awareness, emotion, imagination, and space-imagination relationship. The prepared design was applied every week in the company of professional dancers and during the observation processes. The application lasted for 6 weeks, four hours a week. To follow the pre-application process, guidance teachers of the classes where the application was carried out were given a total of 8 hours of training for 2 weeks on creative dance, spatial thinking, and mental rotation skills. The training was designed in two dimensions. The first dimension covered learning, spatial thinking/mental rotation skills, structure and functioning of the brain, and characteristics and learning processes of adolescents, and the second dimension included creative dance features (hands-on), body awareness, space perception, and imagination.

The prepared design was applied as a pilot study in two classrooms that were in the seventh grade of the school and were not included in the study. The deficiencies in the design have been eliminated through this application.

Experimental Procedures

Experimental procedures of the study were carried out in March, April, and May of the year 2019. In the experimental and control groups, students who had danced or played sports for a long time were identified and these students were not included in the experimental process as it was thought that they would vary the data of the study. Within the scope of the procedures, first of all, the "MRTA Rotation Test (A)" was applied to the experimental and control groups under the supervision of the researcher during the course.

The application of spatial thinking/mental rotation skills instructional design with creative dance training continued for six weeks, in two sessions, and lasted two lesson hours a week during the sports lessons and social activities of the students. One week after the applications concluded, the "MRTA Rotation Test (A)" was applied to the experimental and control groups again as a post-test.

The researcher attended as an observer during the application process. A semi-structured focus group interview was held with 7 volunteer students from the experimental group in the week the application was concluded.

Data Collection Tools and Data Collection

Mental Rotation Test A (MRTA Rotation Test A) was used to collect data in the quantitative dimension of the study, and interview techniques were applied to collect data in the qualitative dimension. Semi-structured interview forms were developed by the researcher.

Mental Rotation Test A: The MRTA Rotation Test A, which was used in the study to measure students' spatial thinking and mental rotation, was developed by Vandenberg and Kuse (1978) and was rearranged by Peters, Laeng, et al. (1995). This test consisted of figures drawn by Shepard and Metzler (1978) and is essentially a version of the Vandenburg and Kuse mental rotation test redrawn by AutoCAD. The test was translated into Turkish by Peters, Laeng et al. (1995) and the Turkish version was used with permission in this study. Since the test only contained figures in the scale, there was no need to engage in the adaptation process. It consisted of 24 items in which three-dimensional (two-dimensional) drawings of geometric figures were compared. In this test, students were asked to match the three-dimensional geometric figure given in each item with its correspondent provided within four options. While the student got a "1" point in case both of the figures given within options are found, he/she got a "0" point in case of finding none or one of the figures. The sum of the scores constituted the students' spatial thinking and mental rotation scores (Caissie, Vigneau, & Bors, 2009). The maximum possible score was 24.

Semi-structured interview form: A "semi-structured interview form", prepared by the researcher, was used to obtain students' views on creative dance application. In this form, there were three questions to determine the students' views on the creative dance application, the

learning outcomes they achieved, and the positive and negative aspects of the application. These were:

1. Has creative dancing had any impact on you in terms of thoughts, emotions, and social and physical dimensions? Please explain.

2. Has creative dancing had any impact on your spatial thinking/mental rotations skills? How?

3. Have you used your spatial thinking/mental rotation skills in your school and out-of-school life? How?

Data Analysis

SPSS 25 statistical software program was used in the analysis of the quantitative data obtained in the study. "Mixed pattern ANOVA" test was used to determine the effect of creative dance on students' spatial thinking and mental rotation skills. For the test, first of all, the assumptions of normal distribution, absence of extreme values, and equality of variances were tested (Büyüköztürk, 2002; 63). Qualitative data of the research were obtained by content analysis.

Ethical Permissions of the Study

In this study, all the rules specified to be followed within the scope of the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were catered to. None of the actions specified under the title of “Actions Contrary to Scientific Research and Publication Ethics”, which is the second part of the directive, were undertaken.

Findings

Findings on Quantitative Data:

What is The Effect of Creative Dance Training on Spatial Thinking and Mental Rotation in Adolescents?

In this study, mixed pattern ANOVA analysis was used to determine the effect of creative dance education on spatial thinking and mental rotation in adolescents. The assumptions of the mixed pattern ANOVA test were checked before the test. First of all, it was determined that the dependent variable (pretest and posttest) showed normal distribution in the experimental and control groups according to the Shapiro-Wilk test result ($p>.05$). In addition, it was observed that there were no extreme values in the data in the controls made with the Boxplot chart. According to the Levene test results, it was shown that the variances of the dependent variable were equal in the experimental and control groups ($p>.05$). The analysis process began after providing the assumptions. For this, first of all, the interaction effect of the time (pretest-posttest) and group (experiment-control) variables and then the simple main effects for both variables were calculated separately.

Table 1. *Descriptive values of spatial thinking and mental rotation measured during the research process*

Time	Group	Mean	Ss	N
Pre-test	Control	11,45	5,150	31
	Experimental	10,22	5,091	32
Post-test	Control	15,00	5,203	31
	Experimental	17,34	2,813	32

According to the spatial thinking and mental rotation score results obtained within the scope of the study, while the mean of the experimental group was 10.22 at the beginning of the experiment, that of the control group was 11.45. At the end of the experiment, the mean of the experimental group increased to 17.34 and that of the control group to 15 (Table 1). It can be observed when the means were examined in general that the rotation test scores increased in both the experimental and control groups. While the scores were similar at the beginning of the experiment, it can be noticed that there was a significant increase in the spatial thinking and mental rotations of the experimental group at the end of the experiment. This difference between the groups can also be seen in Figure 1.

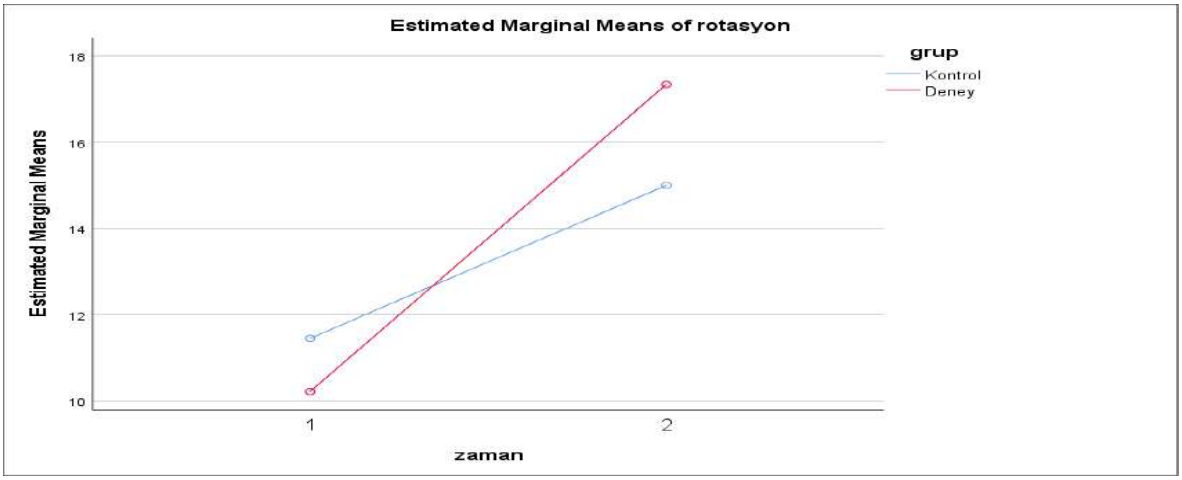

Figure 1. *The effect of creative dance on spatial thinking and mental rotation changes in experimental and control groups.*

Mixed pattern ANOVA was administered to determine the effect of creative dance on spatial thinking and mental rotation in individuals participating in the study. The spatial thinking and mental rotations of the experimental and control groups participating in the experiment were measured twice, at the beginning as well as at the end of the experiment. Analysis results are given in Table 2.

Table 2*. The results of the mixed pattern ANOVA test to determine the effect of creative dance on spatial thinking and mental rotation*

	Sum of Squares	Sd.	Mean of Squares	F	p
Time	896,903	1	896,903	56,485	,000
Error (time)	968,589	61	15,879		
Time * Group	100,713	1	100,713	6,343	,014
Error (time*group)	968,589	61	15,879		

It was determined according to the analysis results obtained that the main effect of time ($F(1\ 61)= 56,485$, $p=.000$) was significant. This result showed that there was a difference between

spatial thinking and mental rotations measured before and after the experiment in the experimental and control groups. The interaction effect of group and time was found to be significant (F(1 61)= 6.343, p=014). According to this result, it was seen that creative dance had a significant effect on spatial thinking and mental rotation (Table 2). Since the interaction effect was significant, simple main effects were calculated for time and group variables to understand the difference between groups. Analysis results were provided in Tables 3 and 4.

Table 3. *Results of simple main effects analysis with dependent groups t-test for the time variable*

		Mean	Sd.	t	p
Control	Pre-experiment	11,45	5,150	3,880	,001
	Post-experiment	15,00	5,203		
Experiment	Pre-experiment	10,22	5,091	6,590	,000
	Post-experiment	17,34	2,813		

According to the results of the simple main effect analysis for the time variable, there was a significant difference between the spatial thinking and mental rotation measurements made at the beginning and end of the experiment in the experimental and control groups (p<.05). While the difference was 2.55 in the control group, it was 7.12 in the experimental group.

Table 4. *Results of simple main effects analysis with dependent groups t-test for group variable*

		Mean	Sd.	t	p
Pre-experiment	Control	11,45	5,150	,955	,343
	Experiment	10,22	5,091		
Post-experiment	Control	15,00	5,203	-2,234	,029
	Experiment	17,34	2,813		

According to the results of the simple main effect analysis for the group variable, while there was no significant difference between the means obtained from the spatial thinking and mental rotation measurements made at the beginning of the experiment between the experimental and control groups, there was a significant difference at the end of the experiment (p<.05). When the results of the interaction effect and simple main effect analyzes were examined together, it can be said that creative dance training in seventh-grade students improved their spatial thinking and mental rotation. The increase in the post-test in the control group might have occurred by chance, or it might have been due to students' remembrance and thinking about the test.

Qualitative Data Findings on the Effect of Creative Dance on Spatial Thinking and Mental Rotation Skills of the Experimental Group

What are the Students' Views on the Spatial Thinking and Mental Rotation Skills of Creative Dance?

Has creative dancing had any impact on you in terms of thoughts, emotions, social and physical dimensions? Please explain.

The results of the interviews with the students who volunteered from the experimental group were given below:

In the Thought Dimension;

"It was good that it was impromptu", "it was difficult to adjust my body by feeling someone else's movements and imagining them in my mind", "imagining someone else's movements in my mind felt like a game and I enjoyed it a lot. It was fun to guess by imagining in my mind", "I first was thinking of what I would do. Then I set my feelings and thoughts free".

In the Emotion Dimension;

"Imagining someone else's movements in my mind felt like a game and I enjoyed it a lot. It was fun to guess by imagining in my mind", "creative dancing was good", "I did not like creative dancing, I was tired of constantly thinking about how to move my body", "I felt free while dancing", "the idea of dancing frightened me at first, but then it made me feel very comfortable, I will continue to dance", "It was not dancing but creative dancing that was nice. It felt good to move my body as I felt it."

In the Social Dimension;

"I was frightened by the idea of dancing with my friends", *"I didn't like dancing with the group", and "It felt good to adjust myself by feeling someone else's movements. It was a relief to find a place for myself in the group", "Even though the idea of creative dancing in the group felt bad, I learned to behave in a relaxed manner among my friends."*

In the Physical Dimension;

"I felt my body in creative dance", "it was difficult to use my body at first, but then I controlled it better", and "it was difficult to adjust my body by feeling someone else's movements and imagining them in my mind", "at first, I had difficulty using my arms", "It was not dancing but creative dancing that was nice. It felt good to move my body as I felt it."

Has creative dancing had an impact on your spatial thinking/ mental rotation ability? How?

According to the results of the interviews with the students who volunteered from the experimental group, their views on the effect of creative dancing on spatial thinking/mental rotation skills were as follows:

"It was difficult to dance without bumping into others", "I had difficulty dancing back-to-back without seeing my friend, but then it was nice to dance by feeling him/her", "at first, I thought I couldn't do it without seeing and feeling my friend while moving together, but later I was happy to succeed", "it was difficult to adjust my body by feeling someone else's movements and imagining them in my mind, then it felt like a game and I enjoyed it a lot, it was enjoyable to guess by imagining in my mind", "I sometimes thought I could not control my body when I had to dance in confined areas, but then I learnt to establish a relationship between space and my body in time", "I made my own body noticeable while I was turning the body up, down, right and left in creative dance and thinking about how to do it; it was funny at first but now it is good to notice my own body", "I was against dancing at first but now it makes me happy when I don't hit anything anymore", "the activity of visualizing the space in my mind with my back turned was difficult. I couldn't do it for a long time, but I did it when I left my body and mind free", "I had a hard time dancing with my back turned and without stepping on the rope between me and my friend. At first, I stepped on the rope as well as bumped into my friend, but then I learned to position the rope in my mind", "I never believed that creative dance could make me feel my surroundings so much, but now I feel the space that I enter as a whole".

Have you used your spatial thinking/mental rotation skills in your school and out-of-school life? How?

According to the results of the interview with the volunteer students from the experimental group, their opinions about using spatial thinking/mental rotation in their lives;

In the School Environment;

"I didn't like painting, but now I can imagine it in my mind more easily", "I use the ability to imagine in my mind in my classes now. This made me relax in mathematics", "I try to imagine in my mind while I am reading something. I think it's fun to read", "I close my eyes and try to guess spaces and their locations at school", "I think I will attend physical education classes".

Out of School Environment*;*

"I adjust my distance with people without difficulty", "I tried to anticipate other people's movements while my back is turned. This sounded like a game to me. I tried to use it at home or on the transport I got on. I think it was good for me. It made me feel good", "I never believed that creative dance could make me feel my surroundings this much, but now I feel the space that I enter as a whole", "my skills of explaining games to my brother have improved", "It seems like I can give directions more easily now".

In the interview, the statements about students' acts of noticing their bodies, making imaginations/visualizations, dreaming, and using them in their lessons and different areas of their daily lives support the problem of the study.

Discussions and Conclusion

It can be said that according to the data of this study that creative dance education improves students' spatial thinking and mental rotation. This could be explained by the fact that while the scores of the students in the test applied at the beginning of the experiment were similar, there was a significant increase in the test scores they obtained from the spatial thinking and mental rotations at the end of the experiment. The effects of creative dance, such as students' thinking about the movements they do or making sense of the movement as they feel by noticing their bodies, self-control, concentration, and focusing skills (Gilbert, 1992; Reinhardt & Stinson, 1998; Tomporowski, 2003; Stroth, Hille, Spitzer & Reinhardt, 2009; Jansen & Pietsch, 2010), physical space, awareness of individual differences (Von Rosseberg- Kempton, Dickinson, & Poole, 1999; Johnson & Moore, 2020), and creating spatial relationships (Logan, 1984; Hagendoorn, 2012; Johnson & Moore, 2020)), can be interpreted as supporting mental thinking skills by improving students' fantasy and imagination skills. Students supported this situation with their views like "*I felt my body in creative dance", "It was difficult to use my body at first, but then I managed to control it better", "It was good that it was impromptu",* and *"I made my own body noticeable while I was turning the body up, down, right and left in creative dance and thinking about how to do it; it was funny at first but now it is good to notice my own body"*. The views of the students also overlapped with the studies carried out in the field. In other words, they stated that their awareness of their own body increased, and their attention, interest, and self-control skills differed through creative dance. In addition, students also expressed that they established the body-space relationship and that they felt the objects or people in the space and turned their position or situation in their minds by statements such as "*it was difficult to adjust my body by feeling someone else's movements and imagining them in my mind, then it felt like a game and I enjoyed it a lot, it was enjoyable to guess by imagining in my mind",* and *"I sometimes thought I wouldn't be able to control my body when I had to dance in a small area. but then I learned to establish a relationship between space and my body. I also tried to use it at home or in the transports I got on. I think it was good for me. It made me feel good"*. When this situation was considered in terms of the individual's spatial thinking, it can be expressed as the situation of imagining objects as they might appear from a different perspective. At the same time, it explained the students' statement "*I imagined it in my mind*" when considering *mental rotation* as the ability to visualize how an object seen from one perspective would appear when viewed from a new perspective (Johnson & Moore, 2020). In their studies, Kaya, Yılmaz (2019), Frick and Möhring (2016), Hagedoorn (2012), Jansen and Pietsch (2010), Soska, Adolph and Johnson (2010), Shadmehr and Moussavi (2000), Shepard (1978) revealed that there was a fundamental relationship between

dance-creative dance and spatial thinking, mental rotation, and imagination. According to the findings of the study and the results of the field research, it can be stated that creative dance influenced students' spatial thinking and mental rotation skills.

The findings of the study on the effect of creative dance and spatial thinking, and mental rotation skills in terms of time, showed a significant difference between the spatial thinking and mental rotation measurements made at the beginning and end of the experiment in the experimental and control groups. It can be asserted when examining the results of interaction effect and simple main effect analyses together that students' creative dance education improved their spatial thinking and mental rotation. Student opinions that support this finding, like "*I thought at first that I would not be able to do it by feeling and moving together without seeing my friend, but then I was happy to succeed", "I sometimes thought I would not be able to control my body when I had to dance in a small area, but then I gradually learned to establish a relationship between space and my body. I tried to use it at home or on the transport I got on. I thought this was good for me and made me feel good",* and *"I was against dancing at first but now it made me happy that I didn't bump into anything",* can be explained that creative dance, spatial thinking, and mental rotation constituted a significant difference over time.

In the studies they conducted, Hecox, Levine, and Scott (1975), Chin (1988). Jansen, Pietsch (2010), Jola (2010), Stevens, Ginsborg, Lester (2011), Gunderson, Gerardo Ramirez, Beilock, and Levine (2013) emphasized the importance of spatial awareness, body representation and time perception in both dance and spatial thinking as well as in mental rotation skills. The study represented a certain period, and it was difficult to make a definite judgment about the effect of creative dance on spatial thinking and mental rotation skills in terms of time. However, it can be stated that there was a difference in supporting them with results from field studies.

As a result, during adolescence, redesigning the curricula based on movement/dance can support the holistic development of students in the process of their social, emotional, physical, and hormonal development, and in the period when they are busy with exams, assignments, and learning intensive content that is the return of the education system. In terms of contributing to the field, it may be recommended to conduct more detailed studies based on neuroscience to support the developmental characteristics of adolescents. Thus, it can contribute to the structuring of the curriculum, the revision of the guidance programs, and the interaction within the family.

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BIOGRAPHICAL NOTES

Contribution Rate of Researchers

Author 1: % 100

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Yaratıcı Dansın Uzamsal Düşünme, Zihinsel Döndürme Becerisi Üzerindeki Etkisi

Giriş

Çocuğun doğasında hareket eylemi vardır. Özellikle gelişimin ilk yıllarında oyun, hayal gücü ve yoğun hareket etme isteği çocuğun sosyal, duygusal, fiziksel ve bilişsel gelişiminde temeldir diyebiliriz. Ancak çocuğun gelişiminin en hızlı olduğu dönemler eğitim yıllarına denk düşmektedir. Eğitim sistemi yapısı gereği, belli bir ortamda ve belli zaman içerisinde çocukları uzun süre hareket eyleminden yoksun bırakarak, yoğun olarak bilişsel becerilere dayalı etkinlikleri işe koştuğu söylenebilir. Okulda geçirilen zamanlarının çoğunda, çocuğun en kritik gelişim döneminde hareket etme süreçlerini kısıtlamaktadır. Alan araştırmaları hareket etmenin, öğrenme, fizyolojik, duygusal ve sosyal gelişimi olumlu etkilediğine dair sonuçlar sunmaktadır (Cotman,, Berchtold, 2002; Winter, 2007; Roig ve ark., 2012; Viswesh, Yang, Gupta, 2018).

Türk Eğitim Sistemi'nde, ortaöğretim sürecinde öğrenciler, bir üst öğrenim kademesine geçişte genel bir sınava tabi tutulmaktadır. Bu nedenle öğrenciler, daha yoğun bir öğrenme içeriğine hazırlanmak, zorlu ödevlerin ve testlerin olduğu bir öğrenim yaşantısı sürecine maruz kaldıkları söylenebilir. Bu durum da orta öğrenim düzeyinde öğrenci, daha hareketsiz kalma ile karşı karşıya kalabiliyor. Ancak alan araştırmaları, beynin yapılandırıldığı ergenlik dönemine yönelik hareket ile bilişsel gelişim arasında önemli bir ilişki olduğunu ortaya koymuştur (Esteban-Cornejo, Tejero-Gonzalez, Sallis ve Veiga, 2015; Stroth, Hille, Spitzer ve Reinhardt, 2009; Sibley ve Etnier, 2003; Linder, 2002).

Yaratıcı Dans/Hareket ve Uzamsal Düşünme, Zihinsel Döndürme Becerisi

Yaratıcı dans, alan uzmanlarınca farklı açılardan tanımlanmıştır. Örneğin Dimondstein (1971), duygu ve düşünceleri harekete geçirme olarak ifade ederken; Hecox, Levine, ve Scott (1975), beden eğitimi ya da egzersizden bağımsız olarak, bireyin sosyal, yaratıcı, ve fiziksel

etkileyiciliğidir biçiminde tanımlamıştır. Yaratıcı dans/ bireyin kendi özgünlüğünde, bireysel güçlü ve zayıf yönlerini ve aynı zamanda fiziksel, sosyal ve duygusal yönünü fark etmesidir diyebiliriz.

Uzamsal düşünme, genellikle nesnelerin farklı bir açıdan görüneceklerini zihinde canlandırmayı içerirken; *zihinsel döndürme*, bir perspektiften görülen bir nesnenin, yeni bir perspektiften bakıldığında nasıl görüneceğini hayal etme yeteneğini ifade eder (Chaney ve Kephart, 1986; Johnson ve Moore, 2020). Yaratıcı dans ile uzamsal düşünme, zihinsel döndürme arasında temel bir ilişki vardır (Hagedoorn, 2012). Bu ilişkiye yönelik en kapsamlı çalışma Wohlschäger ve Wohlschläger (1998) tarafından yapılmış, zihinsel döndürme ve motor süreçler arasında olumlu bir ilişki olduğunu ortaya koymuştur. Buna göre, öğrencilerde yaratıcı dans etmenin onların zihinsel döndürme, görselleştirme becerilerine etki edeceği söylenebilir. Araştırmanın amacı öğrencilerin ergenlik döneminde, yaratıcı dansın uzamsal düşünme, zihinsel döndürme becerilerine etkisi araştırılmıştır. Araştırmada aşağıdaki sorulara cevap aranmıştır;

3. Ergenlerde yaratıcı dans eğitiminin uzamsal düşünme, zihinsel döndürme üzerine etkisi nedir?
4. Yaratıcı dansın uzamsal düşünme, zihinsel döndürme becerisine ilişkin öğrenci görüşleri nelerdir?

Yöntem

Araştırma Modeli

Bu çalışmada, araştırmanın amacı doğrultusunda karma yöntem araştırma modelinden faydalanılmıştır. Karma yöntem, nitel ve nicel araştırma modellerinin araştırmaya ve araştırmacıya ilişkin görüşlerinin, araştırma tasarımı yaklaşımlarının bir arada kullanılmasıdır (Merriam, 2013; Creswell ve Clark, 2015). Bu çalışmada, nitel ve nicel tekniklerin verilerinin aynı anda toplandığı ve yorumlamanın sonrasında birlikte yapıldığı "iç içe karma desen" kullanılmıştır.

Araştırmanın nicel boyutunda, yarı-deneysel desenlerden öntest-sontest kontrol gruplu deneysel desen kullanılmıştır. Bu desenin temel amacı, araştırılan değişkenin grup üzerindeki etkisinin belirlenmesidir. Çalışmanın nitel boyutunda "örnek olay" yönteminden faydalanılmıştır.

Çalışma Grubu

Araştırmanın çalışma grubu 2018-2019 eğitim öğretim yılında Çanakkale il merkezinde özel bir okulun 7. sınıfına devam eden öğrencilerinden oluşmuştur. Okulda bulunan beş sınıftan birisi deney, birisi ise kontrol grubu olarak basit seçkisiz örneklem tekniği ile seçilmiştir. Deney grubunda yer alan öğrenci sayısı 32 iken kontrol grubunda 31'dir. Öğrencilerin 27'si (%42.9) kız, 36'sı (%57.1) ise erkektir. Çalışma grubu belirlemede, deney ve kontrol grubunda daha önce uzun süre dans etmiş veya spor yapmış öğrenciler belirlenmiştir. Çalışmanın verilerini farklılaştırabileceği düşünülmüş ve bu öğrenciler denel işlem sürecine alınmamıştır. Aynı zamanda uygulamayı etkileyebilecek diğer faktörler, öğrenci ilgileri, sınıf içi başarı puanları özellikle matematik, fen, Türkçe, görsel sanatlar, beden eğitimi gibi derslerin puan ortalamaları, yaş, sınıflarda cinsiyet dağılımı oranları dikkate alınmıştır.

Öğretim Tasarımının Geliştirilmesi

Uygulama için öncelikle araştırmacı tarafından, deney grubuna yönelik öğrencilerin uzamsal düşünme, zihinsel döndürme becerilerini geliştirmeye yönelik "yaratıcı dans eğitimle uzamsal düşünme/zihinsel döndürme beceri eğitimi" tasarlanmıştır. Hazırlık aşamasında Mimar Sinan Güzel Sanatlar Üniversitesi ve Çanakkale Onsekiz Mart Üniversitesi Eğitim Bilimleri ile Sahne Sanatları Bölümü öğretim üyelerinin bilimsel görüş ve rehberlikleri alınmıştır. Etkinlikler tasarlanırken, ortaokul çağı öğrencilerinin ilgileri, sosyal, duygusal, fiziksel gelişim ve öğrenme özellikleri ile MEB Talim Terbiye Kurulu'nun okullarda uyguladığı ilköğretim programı 7. sınıf düzeyi tüm öğretim programlarının kazanım ve içerikleri dikkate alınmıştır. Kontrol grubunda okulun yıllık plan dahilinde planlamış olduğu etkinlikler aynen uygulanmıştır.

Denel İşlem

Araştırmanın denel işlemleri 2019 yılı Mart, Nisan ve Mayıs aylarında gerçekleştirilmiştir. İşlemler kapsamında öncelikle deney ve kontrol gruplarına ders içerisinde araştırmacının gözetiminde "MRTA Rotasyon Testi (A)" uygulanmıştır. Yaratıcı dans eğitimle uzamsal düşünme/zihinsel döndürme beceri eğitimi tasarımı uygulanmış ve bir hafta sonra "MRTA Rotasyon Testi (A)" son test olarak tekrar deney ve kontrol grubuna uygulanmıştır. Uygulamanın bittiği hafta deney grubundan gönüllü 7 öğrenciyle yarı yapılandırılmış odak grup görüşmesi yapılmıştır.

Veri Toplama Araçları ve Verilerin Toplanması

Araştırmanın nicel boyutunda veri toplamak için Mental Rotasyon Testi A (MRTA Rotasyon Testi A) nitel boyutunda veri toplamak için ise gözlem ve görüşme teknikleri kullanılmıştır. Yarı yapılandırılmış görüşme formu araştırmacı tarafından geliştirilmiştir.

Mental Rotasyon Testi A: Araştırmada öğrencilerin uzamsal düşünme, zihinsel döndürmelerinin ölçülebilmesi için kullanılan MRTA Rotasyon Testi A, Vandenberg ve Kuse (1978) tarafından geliştirilmiş ve Peters, Laeng ve ark. (1995) tarafından yeniden düzenlenmiştir. Test Türkçeye Peters, Laeng ve ark. (1995) tarafından çevrilmiş ve bu araştırmada izin alınan Türkçe versiyonu kullanılmıştır. Ölçekte sadece figürler bulunduğu için herhangi bir uyarlama çalışmasına ihtiyaç duyulmamıştır.

Yarı yapılandırılmış görüşme formu: Öğrencilerin yaratıcı dans uygulamasına ilişkin görüşlerinin elde edilmesinde araştırmacı tarafından hazırlanan "yarı yapılandırılmış görüşme formu" kullanılmıştır.

Verilerin Analizi

Araştırmada elde edilen nicel verilerin analizinde SPSS 25 istatistik programı kullanılmıştır. Yaratıcı dansın öğrencilerin uzamsal düşünme, zihinsel döndürme becerileri üzerine etkisini belirlemek için "karma desen ANOVA" testinden faydalanılmıştır. Test için öncelikle, normal dağılım, uç değerlerin olmaması ve varyansların eşitliği varsayımları test edilmiştir (Büyüköztürk, 2002; 63). Araştırmanın nitel verileri içerik analizi ile elde edilmiştir.

Araştırmanın Etik İzinleri

Yapılan bu çalışmada "Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi" kapsamında uyulması belirtilen tüm kurallara uyulmuştur. Yönergenin ikinci bölümü olan "Bilimsel Araştırma ve Yayın Etiğine Aykırı Eylemler" başlığı altında belirtilen eylemlerden hiçbiri gerçekleştirilmemiştir.

Bulgular

Nicel Verilere İlişkin Bulgular

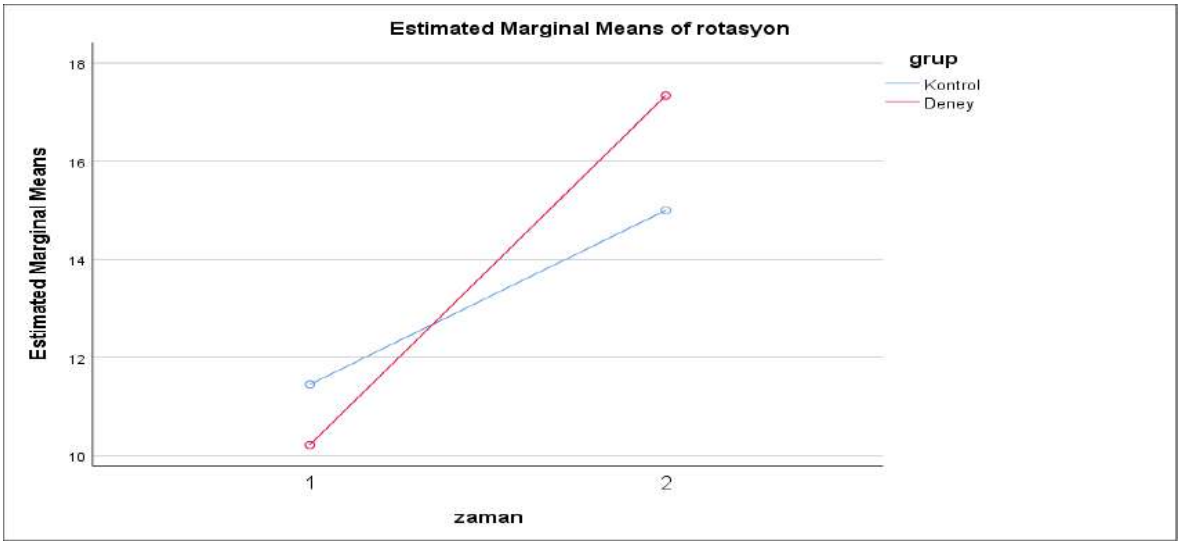
Ergenlerde yaratıcı dans eğitiminin uzamsal düşünme, zihinsel döndürme üzerine etkisi nedir?

Bu araştırmada ergenlerde yaratıcı dans eğitiminin uzamsal düşünme, zihinsel döndürme üzerine etkisini belirlemek amacıyla karma desen ANOVA analizi kullanıldı. Test öncesi karma desen ANOVA testinin varsayımları kontrol edildi. Öncelikle bağımlı değişkenin (ön test ve son test) deney ve kontrol gruplarında, Shapiro Wilk testi sonucuna göre normal dağılım gösterdiği tespit edildi (p>.05). Ayrıca Boxplot grafiğiyle yapılan kontrollerde verilerde uç değerlerin olmadığı görüldü. Levene testi sonucuna göre, deney ve kontrol gruplarında bağımlı değişkenin varyanslarının eşit olduğunu göstermiştir (p>.05). Varsayımların sağlanmasından sonra analiz sürecine geçilmiştir. Bunun için öncelikle zaman (ön test-sontest) ve grup (deney-kontrol) değişkenlerinin etkileşim etkisi ardından her iki değişken için ayrı ayrı basit ana etkileri hesaplanmıştır.

Tablo 1. *Araştırma sürecinde ölçülen uzamsal düşünme, zihinsel döndürmeye ilişkin tanımlayıcı değerler*

Zaman	Grup	Ort.	Ss	N
Deneyin Başında	Kontrol	11,45	5,150	31
	Deney	10,22	5,091	32
Deneyin sonunda	Kontrol	15,00	5,203	31
	Deney	17,34	2,813	32

Araştırma kapsamında elde edilen uzamsal düşünme, zihinsel döndürme puan sonuçlarına göre, deneyin başında deney grubunun ortalaması 10.22 iken, kontrol grubunun ortalaması 11.45'tir. Deneyin sonunda ise deney grubunun ortalaması 17,34'e, kontrol grubunun ortalaması ise 15'e yükselmiştir (Tablo 1). Ortalamalara genel olarak bakıldığında hem deney hem de kontrol gruplarında rotasyon test puanlarının yükseldiği görülebilir. Deneyin başında puanlar benzer iken deney sonunda deney grubunun uzamsal düşünme, zihinsel döndürmelerinde belirgin bir artış olduğu görülebilir. Gruplar arasındaki bu fark Şekil 1 üzerinde de görülebilir.



Şekil 1. Deney ve kontrol gruplarında yaratıcı dansın uzamsal düşünme, zihinsel döndürmesi değişimine etkisi

Araştırmaya katılan bireylerde yaratıcı dansın uzamsal düşünme, zihinsel döndürme üzerine etkisini belirlemek için karma desen ANOVA, yapıldı. Deneye katılan deney ve kontrol gruplarının uzamsal düşünme, zihinsel döndürmeleri deneyin başında ve sonunda olmak üzere iki defa ölçüldü. Analiz sonuçları Tablo 2'de yer alıyor.

Tablo 2. *Yaratıcı dansın uzamsal düşünme, zihinsel döndürme üzerine etkisinin belirlemeye yönelik yapılan karma desen ANOVA testi sonucu*

	Kareler Toplamı	Sd.	Kareler Ortalaması	F	p
Zaman	896,903	1	896,903	56,485	,000
Hata(zaman)	968,589	61	15,879		
Zaman * Grup	100,713	1	100,713	6,343	,014
Hata(zaman*grup)	968,589	61	15,879		

Elde edilen analiz sonucuna göre, zamanın ($F_{(1\ 61)}$= 56,485, p=.000) ana etkisinin anlamlı olduğu tespit edildi. Bu sonuç deney ve kontrol gruplarında, deney öncesi ve deney sonrasında ölçülen uzamsal düşünme, zihinsel döndürmeler arasında fark olduğunu gösteriyor. Grup ve zamanın etkileşim etkisinin ise anlamlı olduğu tespit edildi ($F_{(1\ 61)}$= 6,343, p=014). Bu sonuca göre yaratıcı dansın uzamsal düşünme, zihinsel döndürme üzerine anlamlı etkisinin olduğu görülmektedir (Tablo 2). Etkileşim etkisi anlamlı çıktığı için, gruplar arasında farkı anlama adına zaman ve grup değişkenleri için basit ana etkiler hesaplandı. Analiz sonuçları Tablo 3 ve Tablo 4'te yer alıyor.

Tablo 3. *Zaman değişkeni için, bağımlı gruplar t testi ile yapılan basit ana etki analizi sonuçları*

		Ort.	Ss.	t	p
Kontrol	Deneyin Başında	11,45	5,150	3,880	,001
	Deneyin Sonunda	15,00	5,203		
Deney	Deneyin Başında	10,22	5,091	6,590	,000
	Deneyin Sonunda	17,34	2,813		

Zaman değişkeni için yapılan basit ana etki analizi sonuçlarına göre; deney ve kontrol gruplarında deneyin başında ve sonunda yapılan uzamsal düşünme, zihinsel döndürme ölçümleri arasında anlamlı fark vardır (p<.05). Kontrol grubunda fark 2.55 iken, deney grubunda 7.12'dir.

Tablo 4. *Grup değişkeni için, bağımsız gruplar t testi ile yapılan basit ana etki analizi sonuçları*

		Ort.	Ss.	t	p
Deneyin Başında	Kontrol	11,45	5,150	,955	,343
	Deney	10,22	5,091		
Deneyin Sonunda	Kontrol	15,00	5,203	-2,234	,029
	Deney	17,34	2,813		

Grup değişkeni için yapılan basit ana etki analizi sonuçlarına göre; deney ve kontrol grupları arasında deneyin başında yapılan uzamsal düşünme, zihinsel döndürme ölçümlerinden elde edilen ortalamalar arasında anlamlı fark yok iken deney sonunda anlamlı fark vardır ($p<.05$). Etkileşim etkisi ve basit ana etki analizleri sonuçları birlikte incelendiğinde, yedinci sınıf öğrencilerinde yaratıcı dans eğitiminin onların uzamsal düşünme, zihinsel döndürmelerini geliştirdiği söylenebilir. Kontrol grubunda son testteki artış tesadüfen gerçekleşebileceği gibi öğrencilerin test hatırlaması ve üzerinde düşünmesinden kaynaklanmış olabilir.

Deney Grubunun Yaratıcı Dansın Uzamsal Düşünme, Zihinsel Döndürme Becerisine Etkisine İlişkin Nitel Veri Bulguları

Yaratıcı dansın uzamsal düşünme, zihinsel döndürme becerisine ilişkin öğrenci görüşleri nelerdir?

Yaratıcı dans etmenin sizde, düşünce, duygu, sosyal ve fiziksel boyutlarda bir etkisi oldu mu? Açıklar mısınız?

Deney grubundan gönüllü olan öğrencilerle yapılan görüşme sonuçları aşağıda verilmiştir;

Düşünce Boyutunda;

"doğaçlama olması güzeldi", "başkasının hareketlerini hissederek, zihnimde hayal ederek, bedenimi ayarlamak zordu", "başkasının hareketlerini zihnimde hayal etmek bana oyun gibi geldi ve çok zevk aldım, zihnimde hayal ederek, tahmin etmek eğlenceliydi", "yaratıcı dans ederken önce ne yapacağımı düşünüyordum, daha sonra duygularımı ve düşüncelerimi rahat bıraktım".

Duygu Boyutunda;

"başkasının hareketlerini hissederek, zihnimde hayal etmek bana oyun gibi geldi ve çok zevk aldım, zihnimde hayal ederek, tahmin etmek eğlenceliydi", "yaratıcı dans etmek iyiydi", "yaratıcı dansı sevmedim, sürekli bedenimi nasıl hareket ettireceğimi düşünmekten yoruldum", "dans ederken kendimi özgür hissettim", "dans etme fikri önce korkuttu, ama sonrasında beni çok rahatlattı, dans etmeye devam edeceğim", "dans etmek değil ama yaratıcı dans çok güzeldi, içimden geldiği gibi bedenimi hareket ettirmek beni iyi hissettirdi".

Sosyal Boyutta;

"arkadaşlarımla birlikte dans etme fikri korkuttu", "grupla dans etmeyi sevmedim", "başkasının hareketlerini hissederek kendimi ayarlamak iyi geldi; grup içinde kendime yer bulmak rahatlattı", "grup içinde yaratıcı dans etme fikri kötü geldiyse de arkadaşlarımın arasında kendimi rahat bırakmayı öğrendim".

Fiziksel Boyutta;

"yaratıcı dansta bedenimi hissettim", "bedenimi ilk zamanlarda kullanmak zordu, sonrasında daha iyi kontrol ettim", "başkasının hareketlerini hissederek, zihnimde hayal ederek, bedenimi ayarlamak zordu", "ilk zamanlarda kollarımı kullanmakta zorluk çektim", "dans etmek değil ama yaratıcı dans çok güzeldi, içimden geldiği gibi bedenimi hareket ettirmek beni iyi hissettirdi".

Yaratıcı dans etmek, uzamsal düşünme/ zihinsel döndürme becerin üzerinde etkisi oldu mu? Nasıl?

Deney grubundan gönüllü olan öğrencilerle yapılan görüşme sonuçlara göre yaratıcı dans etmek ile uzamsal düşünme/zihinsel döndürme becerisine etkisine ilişkin görüşleri şöyledir:

"başkalarına çarpmadan dans etmek zordu", "sırt sırta vererek, arkadaşımı görmeden dans etmekte zorlandım, sonrasında onu hissederek dans etmek güzeldi", "arkadaşımı görmeden, hissederek ortak hareket ederken ilk başlarda yapamayacağımı düşündüm, sonrasında bunu başarmaktan mutlu oldum", "başkasının hareketlerini hissederek, zihnimde hayal ederek, bedenimi ayarlamak zordu, sonra bu bana oyun gibi geldi ve çok zevk aldım, zihnimde hayal ederek, tahmin etmek eğlenceliydi", "bazen küçük alanda dans etmem gerektiğinde, bedenimi kontrol edemeyeceğimi düşündüm, ama sonra mekân ile bedenim arasında zamanla ilişki kurmayı öğrendim", "yaratıcı dansta bedeni aşağı, yukarı, sağa ve sola döndürürken, nasıl yapacağımı düşünürken kendi bedenimi görselleştirdim; bu önce komik geldi ama şimdi kendi bedenimi fark etmek iyi geldi", "dans etmeye başta karşıydım ama şimdi artık hiçbir şeye çarpmadığım için beni mutlu etti". "sırtım dönükken zihnimde mekanı canlandırma etkinliği zordu; uzun süre yapamadım ama bedenimi ve zihnimi rahat bırakınca yaptım", "arkadaşımla aramızda bulunan ipe basmadan ve arkam dönük dans etmekte zorlandım; ilk başlarda hem ipe bastım hem de arkadaşıma çarptım; ipi zihnimde konumlandırmayı öğrendim", "yaratıcı dansın çevremi bu kadar hissetmemi sağlayacağına hiç inanmadım; ama şimdi girdiğim alanı bütünde hissediyorum".

Uzamsal düşünme/ zihinsel döndürme becerini okulda ve okul dışı yaşamında kullandın mı? Nasıl?

Deney grubundan gönüllü olan öğrencilerle yapılan görüşme sonuçlara göre uzamsal düşünme/zihinsel döndürmeyi yaşantısında kullanmaya yönelik belirttikleri görüşler;

Okul Ortamında;

"resim yapmaktan hoşlanmıyordum, şimdi zihnimde daha kolay hayal edebiliyorum", "zihnimde hayal etme becerisini artık derslerde kullanıyorum, bu matematikte beni rahatlattı", "bir şey okurken zihnimde hayal etmeye çalışıyorum; galiba okumak zevkli", "gözlerimi kapatıp okuldaki mekanları ve yerlerini tahmin etmeye çalışıyorum", "galiba beden eğitimi dersine katılacağım".

Okul Dışı Ortamda;

"insanlarla mesafemi zorlanmadan ayarlıyorum", "arkam dönükken diğer insanların hareketlerini tahmin etmeye çalışıyorum; bu bana oyun gibi geliyor; bunu evde ya da bindiğim taşıtlarda da kullanmaya çalıştım; bunun kendime iyi geldiğini düşünüyorum, bana iyi hissettiriyor", "yaratıcı dansın çevremi bu kadar hissetmemi sağlayacağına hiç inanmadım; ama şimdi girdiğim alanı bütünde hissediyorum", "kardeşime oyun anlatma becerim gelişti", artık galiba daha kolay yol tarif edebilirim gibi geliyor".

Yapılan görüşmede, öğrencilerin bedenlerini fark etmesi, imgelem/görselleştirme yapması, hayal kurması ve bunları derslerinde, günlük yaşamlarının farklı alanlarında kullanmalarına yönelik ifadeleri çalışmanın problemini desteklemektedir.

Tartışma ve Sonuç

Bu kısımda çalışmanın bulgularından elde sonuçlara ve bu sonuçların benzer çalışmalarla olan Bu çalışmanın verilerine göre, yaratıcı dans eğitiminin öğrencilerin uzamsal düşünme, zihinsel döndürmelerini geliştirdiği söylenebilir. Bu durum öğrencilerin deneyin başında uygulanan testten aldıkları puanların benzer iken deney sonunda uzamsal düşünme, zihinsel döndürmelerinden aldıkları test puanları arasında anlamlı bir artış olması ile açıklanabilir. Öğrencilerin bedenlerini fark ederek, yaptıkları hareketleri düşünmeleri ya da içlerinden geldiği gibi hareketi anlamlandırmaları, kendilerini kontrol etme, konsantrasyon ve odaklanma becerileri

(Gilbert, 1992; Reinhardt ve Stinson,, 1998; Tomporowski, 2003; Stroth, Hille, Spitzer ve Reinhardt, 2009; Jansen ve Pietsch, 2010), fiziksel alan, bireysel farklılıkların farkına varma (Von Rosseberg- Gempton, Dickinson ve Poole, 1999; Johnson ve Moore, 2020), mekânsal ilişki oluşturma (Logan, 1984; Hagendoorn, 2012; Johnson ve Moore, 2020) gibi yaratıcı dansın etkileri, öğrencilerin imgeleme ve hayal etme becerilerini geliştirerek zihinsel düşünme becerilerine destek verdiği biçiminde yorumlanabilir. Bu durumu öğrenci görüşleri de *"yaratıcı dansta bedenimi hissettim", "bedenimi ilk zamanlarda kullanmak zordu, sonrasında daha iyi kontrol ettim, "doğaçlama olması güzeldi", "yaratıcı dansta bedeni aşağı, yukarı, sağa ve sola döndürürken, nasıl yapacağımı düşünürken kendi bedenimi görselleştirdim; bu önce komik geldi ama şimdi kendi bedenimi fark etmek iyi geldi"* ifadeleri ile belirtmişlerdir. Öğrencilerin görüşleri alanda yapılan çalışmalarla da örtüşmektedir; yani yaratıcı dans ile kendi bedenlerinin farkındalıklarının arttığını, dikkat, ilgi ve kendilerini kontrol etme becerilerinin farklılaştığını belirtmişlerdir. Buna ek olarak yine öğrenciler, "*başkasının hareketlerini hissederek, zihnimde hayal ederek, bedenimi ayarlamak zordu, sonra bu bana oyun gibi geldi ve çok zevk aldım, zihnimde hayal ederek, tahmin etmek eğlenceliydi", "bazen küçük alanda dans etmem gerektiğinde, bedenimi kontrol edemeyeceğimi düşündüm, ama sonra alan ile bedenim arasında zamanla ilişki kurmayı öğrendim; bunu evde ya da bindiğim taşıtlarda da kullanmaya çalıştım; bunun kendime iyi geldiğini düşünüyorum, bana iyi hissettiriyor"* ifadeleri ile de beden-mekân ilişkisini kurdukları, mekân içindeki nesne ya da insanları hissederek, onların konum veya durumlarını zihinlerinde döndürdüklerini belirtmişlerdir. Bu durum, bireyin uzamsal düşünmesi açısından ele alındığında, nesneleri farklı bir bakış açısından görünebilecekleri gibi hayal etme durumu olarak ifade edilebilir. Aynı zamanda *zihinsel döndürme*, bir perspektiften görülen bir nesnenin, yeni bir perspektiften bakıldığında nasıl görüneceğini zihinde canlandırma becerisi olarak düşünüldüğünde (Johnson, Moore, 2020) öğrencilerin *"zihnimde hayal ettim"* ifadesini açıklamaktadır.

Araştırmanın yaratıcı dans ile uzamsal düşünme, zihinsel döndürme becerisinin zaman bakımından etkisine ilişkin bulgu deney ve kontrol gruplarında deneyin başında ve sonunda yapılan uzamsal düşünme, zihinsel döndürme ölçümleri arasında anlamlı fark bulunmuştur. Etkileşim etkisi ve basit ana etki analizleri sonuçları birlikte incelendiğinde, öğrencilerin yaratıcı dans eğitiminin onların uzamsal düşünme, zihinsel döndürmelerini geliştirdiği söylenebilir. Hecox, Levine ve Scott (1975), Chin (1988). Jansen, Pietsch (2010), Jola (2010), Stevens, Ginsborg, Lester (2011), Gunderson, Gerardo Ramirez, Beilock ve Levine (2013) alanda yaptıkları araştırmalarda hem dansta hem de uzamsal düşünme, zihinsel döndürme becerisinde mekansal farkındalık, beden temsili ve zaman algısının önemli olduğunu vurgulamışlardır.

Sonuç olarak ergenlik döneminde öğrenciler, hem sosyal, duygusal, fiziksel, hormonal gelişimlerinin olduğu bir süreçte hem de eğitim sisteminin getirisi olan sınavların, ödevlerin ve yoğun içeriklerin öğrenildiği dönemde bilişsel gelişimlerini desteklemek için öğretim programlarının hareket/dans temelli olarak yeniden tasarlanması ile öğrencilerin bütünsel gelişimlerine destek verecektir. Alana katkı sağlaması açısından ergenlerin gelişim özelliklerini desteklemek amaçlı nörobilim temelinde daha ayrıntılı çalışmalar yapılması önerilebilir. Böylece öğretim programlarının yapılandırılmasına, rehberlik programlarının yeniden gözden geçirilmesine ve aile içi etkileşime katkı sağlayabilir.

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The Role of Conceptual Change Texts in Concept Teaching: Active Citizenship Learning Space

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Abstract

The aim of this study is to examine the impact of conceptual change texts in teaching the concepts that are challenging and often misunderstood in the field of active citizenship learning contained in the 6th grade social studies course. A total of 67 sixth graders studying in two different classrooms at the same secondary school participated in this study, in which a quasi-experimental design was used as one of the quantitative research approaches. The experimental group was instructed through conceptual change texts during the implementation, while the control group was taught with the existing curriculum. Data were collected with a concept comprehension test and a concept-related academic achievement test. Descriptive and predictive analytics were used for analysing the data. The students in the experimental and control groups were found to have limited understanding to the extent of not understanding the related concepts. After the activities, it was observed that the final knowledge level of the students in the control group as regards concept comprehension did not show a significant change when compared to their prior level of knowledge, while that of the experimental group showed a considerable increase. A statistical significance was found between the scores of the experimental and control groups in favour of the experimental group in the concept-related academic achievement. In this sense, it can be argued that the use of conceptual change texts to teach the concepts determined in the field of active citizenship learning enables students to learn such concepts more easily and is effective in eliminating students' misconceptions.

Keywords: Conceptual change texts, misconception, social studies course

Introduction

The unit in which two or more entities are grouped together according to their common characteristics as a result of our experiences in the life process and are distinguished from other entities and stored as a way of thinking in our minds is called a concept. Concepts are an abstraction based on general properties of events, situations, objects or ideas, not concrete objects, entities or situations, and there are only examples of concepts in the real world (Akbaş, 2021; Çaycı, 2007; Naish, 1982). People need concepts to understand and make sense of the world they live in besides sharing their experiences. In other words, concepts enrich our life and perception, make it easier for us to communicate with people, learn and remember, apart from playing a critical role in our language development (Doğanay, 2002; Naish, 1982; Martorella, 1996). However, when the concepts are structured correctly in people's minds, they form the basis for understanding the social and physical environment in which people live, and for acquiring the knowledge, skills and values that are desired to be instilled in through lessons in formal education (Akbaş, 2019, p.228). As the basic building block of cognitive structure and the basis of all thinking skills (Martorella, 1996; Ülgen, 2001), concepts, therefore, should be taught correctly. As a matter of fact, in order for students to acquire various skills and values such as decision making, problem solving and critical thinking effectively, their conceptual structures must first be built on the right information and the right network of relationships between concepts. Without this achievement, our understanding of who we are and what the world is really like will be largely limited (Akbaş, 2021; Alkış, 2009). In addition, in the effective teaching of concepts, students' prior knowledge about that concept and their relevant experiences, meanings and knowledge about the concept to be taught are very crucial (Yılmaz & Çolak, 2011; Dove, 2000; Milburn, 1972). This is so important that what children can learn depends on what is in their minds and what kind of learning environment they find themselves in (Platten, 1995). The reason for its significance lies in the fact

that students' prior knowledge and concepts play an important role in the meaningful acquisition of necessary knowledge and skills to achieve intended results by students during the education process. Research has shown that students' prior knowledge of the concepts define the starting point of the learning processes for the educators (Deisenrieder et al., 2022). However, it is often emphasized in the literature that if students have difficulty understanding basic concepts, it makes it even harder for them to learn new information meaningfully during the course and negatively affects new learning (Akbaş, 2021; Dove, 1999; Dove, 2000; Nelson et al., 1992; Platten, 1995). In addition, it is also suggested that unless students' information gap in their prior knowledge are fulfilled, it may lead to the emergence of misconceptions that may hinder further learning (Akbaş, 2021, Dove, 2000). Taking this into consideration, it can be argued that it is necessary to eliminate misconceptions in order to teach the concepts correctly.

Misconception is the contradiction between the cognitive structure that students create in their mind regarding a concept and scientific facts and assumptions (Gilbert & Watts, 1983; Lane, 2008). In other words, incomplete, erroneous, or intuitive information about any subject matter prior to teaching is defined as preliminary concepts, whereas the connotations, ideas and mental models that students form based on alternative and incorrect information to scientific definitions are expressed as misconceptions (Dove, 1999; Schmidt, 1997). It should be noted that students' misconceptions that do not coincide with scientific facts are indeed consistent for them, however, and contain wholeness (Platten, 1995). Since these misconceptions are based on logical reasons for students, they are likely to be conservative in replacing them with scientific facts and inclined to protect them (Driver, 1989; Schmidt, 1997). For this reason, it is not always easy to convince students about their own misconceptions. It is, however, necessary to identify students' misconceptions and to convince them about the misconceptions. In the relevant literature, a number of studies have identified certain misconceptions about the social studies course including those related to geographical terms, such as "*geographic location*", "*climate*", "*maps*", "*deserts*", "*continents*", "*population and settlement*", and "earthquakes"(Cin, Engin & Akbaş, 2005; Çakmak, 2006; Demirkaya & Karacan, 2016; Henriques, 2002; Kuzey & Değirmenci, 2019; Nelson et al., 1992; Pınar & Akdağ, 2012; Turan & Kartal, 2012; Wiegand & Stiell, 1996), those related to citizenship such as "*state*", "*national will*", "*constitution*", "*democracy*", "*public opinion*", "*local governments*", and "*rights*" *(*Akpınar, 2019; Bal & Akış, 2010; Dağdelen, 2017; Kürümlüoğlu, 2019; Şener, 2019), and those related to history such as "*age*", "*century*", "*civilization*", "*conquest*", and "*holy war*"(Kaya & Çiviler, 2012; Şarlayan, 2017). At this point, it is very important to identify students' prior knowledge and eliminate any misconceptions in the effective teaching of a course that includes many abstract concepts from social sciences such as social studies, with a rich concept pool. The relevant literature review has shown that various approaches and techniques are used, unlike traditional approaches, to ensure that the concepts are learned in accordance with their accepted scientific meanings and to eliminate misconceptions. One of these approaches is the conceptual change approach, which is believed to be effective in eliminating misconceptions.

The conceptual change approach, which focuses on eliminating misconceptions, is based on the constructivist learning theory, which takes students' prior knowledge into account, and advocates the understanding that new knowledge is built on previous knowledge/experiences (Duit & Treagust, 2003; Widodo & Duit, 2002). In the conceptual change process, students first need to be aware of their lack of knowledge and mistakes in their own ideas and have an

awareness of changing them. In this process, efforts should be made to enable students to see the contradictions between their own beliefs in their minds and scientific ideas. Unless such a cognitive conflict is created, students will not be able to construct the correct conceptual knowledge in their minds, and therefore their misconceptions will not be eliminated (Chi & Roscoe 2002; Hewson & Hewson, 1984; Hewson & Hewson, 1983; Scott et al., 1992; Posner et al., 1982). The conceptual change process is a challenging and time-consuming process for students, and it is very difficult to accomplish with traditional teaching methods (Duit & Treagust, 2003; Palmer, 2003).

Based on Piaget's principles of assimilation, accommodation and equilibrium (Duit & Treagust, 2003), the conceptual change model was first introduced by Posner et al. (1982). The conceptual change was suggested to take place in four stages. In the *dissatisfaction* stage, which is the first of these stages, students are expected to realize the inadequacy of their own knowledge and mental model; in the second, *intelligibility,* stage, they are expected to regard the new information given to them as understandable/comprehensible; in the third, *plausibility,* stage, they are expected to find the new information (conceptual structure) given to them logical and plausible, and in the last stage, i.e., *fruitfulness,* on the other hand, they should be able to make use of the new concept they have acquired in solving the problems they encounter (Posner et al., 1982). Concept mapping, the Vee diagramming, mind mapping, concept cartoons, analogies and models can be used in classroom teaching practices based on the conceptual change approach (Aydın & Balım, 2013; Novak, 2002). One of these methods is using conceptual change texts (CCT). In these texts, misconceptions about the concept to be taught are emphasized and students are asked questions about the subject in order to activate their prior knowledge and to reveal incomplete or wrong information/contradictions. They are informed about why their misconceptions are wrong, and they are also explained some scientific facts in a meaningful and logical way. In addition, the texts evaluate how students' conceptual schemes are altered (Akbaş, 2021; Aladağ & Yılmaz, 2014; Canpolat & Pınarbaşı, 2002; Chambers & Andre, 1997; Kılıçoğlu, 2020; Köroğlu, 2019; Şarlayan, 2017; Yıldırım, 2016). Research has shown that, unlike traditional texts, the CCTs, which include direct misconceptions and explanations for the purpose of correcting them later with understandable and logical reasons, gives successful results in eliminating misconceptions (Akbaş & Gençtürk, 2011; Chambers & Andre, 1997; Çaycı, 2007; Palmer, 2003). In this context, studies in which the CCTs are used to eliminate misconceptions in social studies teaching have been encountered more frequently in recent years. In these studies, the effectiveness of conceptual change texts in eliminating the misconceptions about the groups of concepts such as "climate, weather, map, continent, location" (Kılıçoğlu, 2011; Köroğlu, 2019), "constitution, republic, independence" (Dağdelen, 2017; Yıldırım, 2016), and "age, conquest, reform" (Şarlayan, 2017) were examined. However, the number of studies seems to be limited in relation to the subject matter in social studies teaching. Given that there are many abstract concepts in the content of the social studies course and that many misconceptions have been identified in the literature, it is clear that more studies are needed on this subject. In this sense, we believe that this study will contribute to closing the gap in the relevant field since we have dealt with the effects of conceptual change texts in eliminating the misconceptions in the field of active citizenship learning. Considering that one of the main purposes of the social studies course is to raise active citizens, it is very important to structure the basic concepts in the minds of the

students correctly and based on scientific facts. This is due to the fact that the most basic building block of a democratic society are individuals who are knowledgeable about the most basic concepts about democracy, rights and freedoms, with democratic consciousness and values (Misco, 2005). In addition, we believe that the CCT samples prepared for the scope of the present study will be a guide for future studies. In this context, answers were sought to the following questions:

1- What is the impact of conceptual change texts in eliminating students' misconceptions?
2- What is the impact of conceptual change texts on students' academic achievement as regards concepts?

Method

Research Design

This study was conducted using a quasi-experimental design with pre-test and post-test control groups, as one of the quantitative research approaches. In experimental designs where a certain variable is affected, at least one independent variable is manipulated to control other related variables and to examine the effect of the independent variable on one or more dependent variables. The main purpose of experimental research design is to examine the cause-effect relationship (Fraenkel et al., 2012; Gay et al., 2012; McMillan & Schumacher, 2014). In this study, a quasi-experimental design was preferred with the aim of determining the effect of conceptual change texts on students' understanding of related concepts and eliminating misconceptions.

Sample Group

This study was conducted with a total of 67 sixth grade students studying in two different classes of a secondary school in Erzurum in the 2021/22 academic year. One of the classes was selected as the experimental group (EG, n= 34) with whom the conceptual change texts were used for teaching purposes, and the other as the control group (CG, n= 33), with whom no conceptual change texts were used. Demographic data about the sample group is presented in Table 1.

Table 1. *Demographic data about the sample group*

Groups	Gender	Frequency	Percentage (%)
EG	Male	18	52.94
	Female	16	47.06
CG	Male	14	42.42
	Female	19	57.58
Total		67	100

Identification of Concepts

In order to determine the concepts, first of all, the concepts in the 6th grade social studies course in the field of active citizenship learning were identified. Then, 15 teachers were interviewed in order to determine the concepts with which students have often difficulty in learning and that are considered to lead to misconceptions. A total of 60 students were administered a concept comprehension test including the concepts in the relevant learning field so as to determine the students' prior knowledge of the concepts in the field of active citizenship learning and whether they have any misconceptions about the said concepts. Based on the teachers' views and the students' responses to the concepts, it was determined that the concepts

that were difficult to learn and were misunderstood include *republic*, *democracy*, *national sovereignty*, *constitutionalism*, *pluralism*, and *constitution*, as well as *legislative*, *executive* and *judiciary powers*. In this sense, this study has focused on teaching the given nine concepts.

Data Collection Tools

The Concept Comprehension Test (CCT), consisting of open-ended questions was used to determine the level of students' understanding the concepts in the relevant learning area, and Academic Achievement Test of Concepts (AATC) to determine the effect of the study procedure on concept teaching.

Concept Comprehension Test

In order to determine the knowledge of the students about the concepts in the relevant learning area, the CCT was prepared to consist of open-ended questions containing nine concepts. The students were asked to explain what the concepts in the CCT meant by writing. In order to compare the students' understanding of related concepts before and after the procedure, the CCT was administered to the sample group as pre-test and post-test.

Academic Achievement Test of Concepts

The Academic Achievement Test of Concepts (AATC) was prepared in order to determine the effect of conceptual change texts (CCT) on students' level of understanding of concepts. Figure 1 illustrates the preparation process of the AATC.

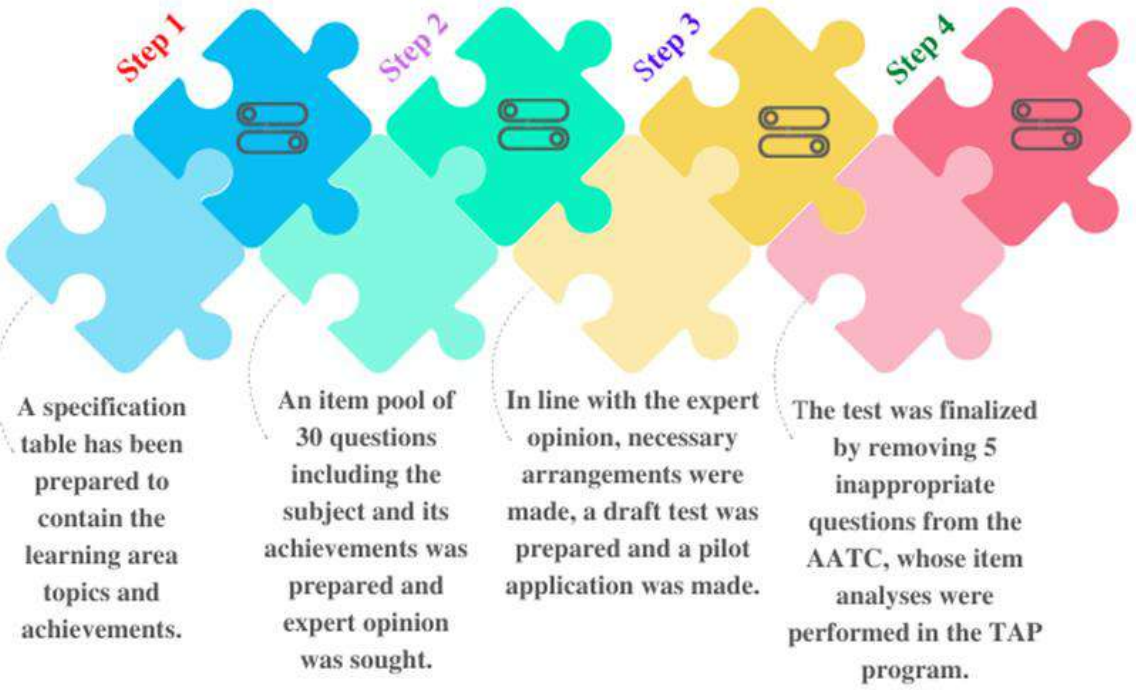


Figure 1. AATC preparation process

The average difficulty of such a test must be around .50, in order to make it more reliable and more distinctive (Tekin, 2000). In addition, it is preferred that the Kuder-Richardson-20 (KR20) value of a test that provides reliable measurements be at least .70 and above (Fraenkel et al., 2012). While the average difficulty index of the prepared academic achievement test was calculated as .51, the KR-20 reliability coefficient was found as .83.

Implementation Procedure

Development of Conceptual Change Texts

The conceptual change texts used in the implementation process had been developed by taking into account the basic stages (inadequacy, intelligibility, plausibility, and fruitfulness) put forward by Posner et al. (1982). In this connection, the students were asked questions for the purpose of determining their prior knowledge and misconceptions about the related concepts. They were also given some hints in order to enable them to express their thoughts about the questions with ease. Then, the misconceptions identified were presented and the students were encouraged to discuss about them. As a result of the discussions, the possible reasons for their misconceptions were elaborated in such a way as to ensure that the students questioned their own misconceptions about the related concepts and realized their lack of knowledge about them, so the first stage of the concept change texts- the inadequacy stage- was completed. In the second stage, the students were presented new concepts related to the subject matter and scientifically accepted ideas, which could be replaced with wrong perceptions. New concepts were supported with examples and presented in an emphatic form in order to ensure that they could be easily understood by the students. In the third stage, the principle of plausibility was taken into consideration and utmost attention was paid to ascertain that new concepts were consistent with the concepts that the students had learned before. In the last stage of the CCT, the new concepts were tried to be taught in a way that would help students to use them in different fields, while enabling the solution of problems arising from their prior knowledge. In addition, “Let's Think Together” section was added at the end of the text in order to enable students to express what they learned about the concept. This way, draft texts were prepared by paying attention to the specified stages. The prepared texts were examined by two expert lecturers and two social studies teachers who had studies on this subject. In line with the feedback from the experts, necessary arrangements were made and the texts were finalized before the implementation procedure.

Implementation

The present study was conducted with a total of 67 students studying in two different classes [Experimental Group (EG) and Control Group (CG)] of a secondary school located in the Palandöken district of Erzurum province in the 2021/22 academic year, lasting for a total of 7 weeks, 3 course hours per week in the experimental and control groups. During the implementation process, the lessons were conducted by the teacher of the lesson in association with the researcher participating in the lesson process as an observer. The first and last weeks of the implementation procedure were reserved for pre-tests and post-tests, and the other 5 weeks for teaching the concepts in the relevant learning area. Figure 2 illustrates the implementation procedure.

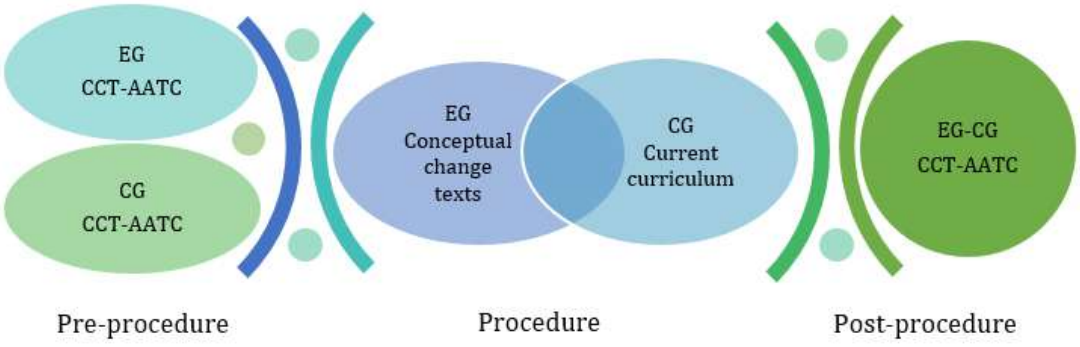


Figure 2. Implementation procedure

In the first week of the implementation procedure, students were informed about the purpose of the study and the implementation procedure, followed by the Concept Comprehension Test and the Academic Achievement Test of Concepts being administered to the students both in the EG and CG as pre-tests. After the pre-tests being applied in the first week, the procedure continued by teaching the students the concepts contained in the field of active citizenship learning, with a special emphasis on those that seemed quite difficult to learn and were thought to be mistaken. The students in the control group were instructed by adhering to the current curricula and no other teaching method was used for teaching the concepts determined in the relevant learning area, while those in the experimental group were instructed through the CCT used for teaching the determined concepts. The students were handed out the CCT of the related concept and asked questions at the beginning of the texts, after which in-class discussions were encouraged. After in-class discussions, the misconceptions in the conceptual change texts were read and the students were asked to give reasons for their possible accuracy. After the explanations of the students, valid explanations/information about the concepts was presented, enabling the students to compare the explanations, justifications and the ideas that were likely to contain errors. After the lesson hour finished in the experimental and control groups, the students in the experimental group were administered the CCT and AATC as post-tests in order to finalize the research process. Figure 3 demonstrates the pictures from the implementation procedure.

Figure 3. Pictures from the implementation procedure

Data Analysis

Analysis of Concept Comprehension Test

In the analysis of the data obtained from the CCTs, the students' levels of comprehension were taken into account. The relevant literature has shown that in order to determine the level of comprehension, some categories are formed as follows: "*understanding*" (statements that can be accepted as true about the concept), "*limited understanding*" (one or several aspects of the expressions that can be considered true about the concept), "*misunderstanding*" (the words that can be considered contradictory to the concept), "*failing to understand*" (rewriting the concept itself or making explanations that are not related to the expression that can be accepted as correct), "*failing to respond*" (leaving unanswered or expressions such as "I don't know") (Akbaş, 2008; Cin, 1999; Harwood & Mcshane 1996). The data obtained from the CCTs was analysed in conformity with the specified categories.

Analysis of the Academic Achievement Test of Concepts

First of all, normality analysis was performed for the data analysis of the AATC. For normality analysis, histogram, normal Q-Q plot, detrended normal Q-Q plot graph, Skewness and Kurtosis values were taken into account to examine whether the data showed a normal distribution (Pallant, 2005). However, Kolmogorov-Smirnov normality test was preferred in the normality analysis since the number of students in the sample groups was over 30 (Ak, 2008). As a result of the normality analysis, since the data showed a normal distribution, the independent samples t-test from the parametric tests was used in the analysis of the data. Before the independent samples t-test was performed, it was checked whether or not the necessary assumptions (normality, equal variance of groups, and each data being independent of the other) for the analysis of the data had been met (Can, 2017). In addition, the effect size value was calculated as a result of the analysis. In general, 0.2 is considered a small, 0.5 a medium, and 0.8 a large effect for the effect size value (Green & Salkind, 2005).

Ethical Approval

This study complied with all the rules specified to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive". None of the actions specified under the title of "General Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, were executed.

Ethics Committee Permission Information:

Name of the committee that made the ethical evaluation= Social and Human Sciences Ethics Committee

Date of ethics review decision =25.03.2022

Ethics assessment certificate issue number = 04/01

Results

The students were administered the Concept Comprehension Test (CCT) consisting of open-ended questions as a pre-test and post-test to in order to determine the students' prior knowledge/misconceptions about the concepts of *national sovereignty*, *republic*, *democracy*, *constitutionalism*, *constitution*, *pluralism*, *judiciary, legislative and executive powers*. The data analysis of the CCT was made according to the categories of understanding, limited understanding,

misunderstanding, failing to responding, and failing to understand, and the students' level of understanding of the concepts was presented in graphics. Figures 4 and 5 present the students' prior knowledge levels as regards relevant concepts.

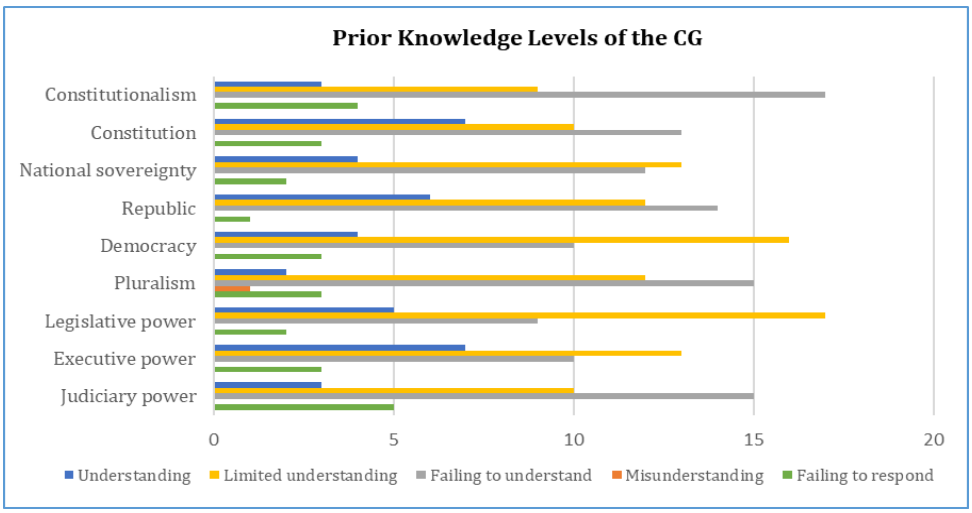


Figure 4. Prior knowledge levels of the CG as regards concepts

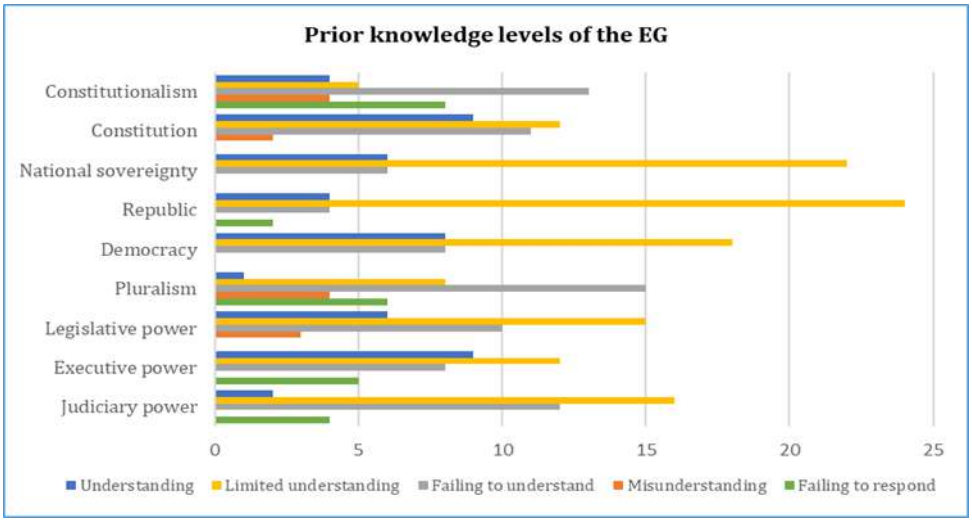


Figure 5. Prior knowledge levels of the EG as regards concepts

As can be seen in Figures 4 and 5, the prior knowledge levels of the EG and CG students to understand the related concepts are quite low. The CG students' answers about the concepts of "democracy", "legislative power", "national sovereignty", and "executive power" fell into the category of *limited understanding*, while the answers they gave about the concepts of "constitutionalism", "republic", "constitution", "pluralism", and "judiciary power" into the category of *failing to understand* (Figure 4). However, the answers of the EG students about the concepts of "constitution", "national sovereignty", "republic", "democracy", "legislative power", "executive power", and "judiciary power" fell more in the category of *limited understanding*, whereas their answers about the concepts of "pluralism" and "constitutionalism" (Figure 5) mostly fell into the category of *failing to understand.* The CG and EG students were administered the concept comprehension test as a post-test after the procedure. Figures 6 and 7 illustrate the students' new level of concept understanding after the post-tests.

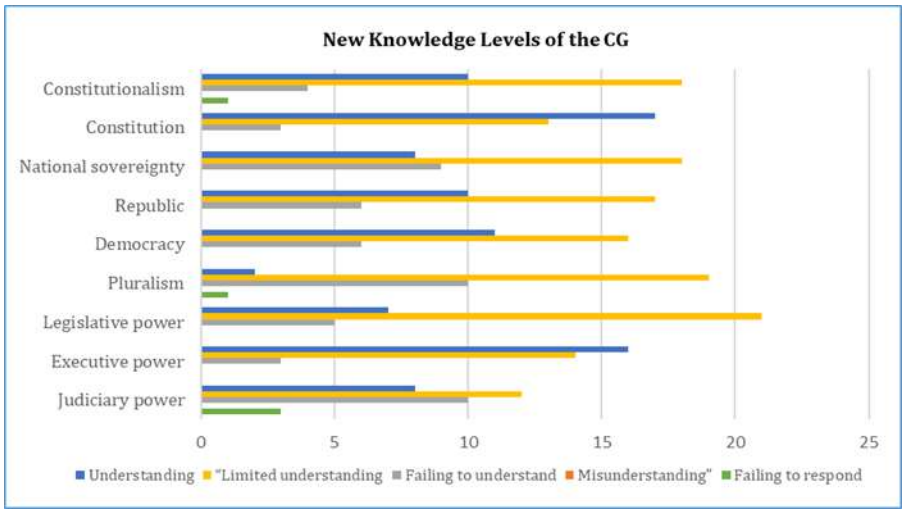


Figure 6. New knowledge levels of the CG as regards concepts

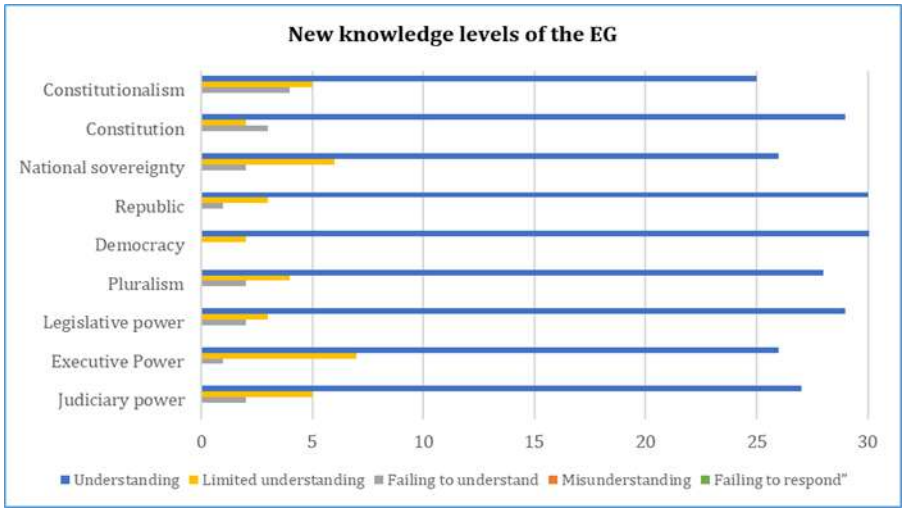


Figure 7. New knowledge levels of the EG as regards concepts

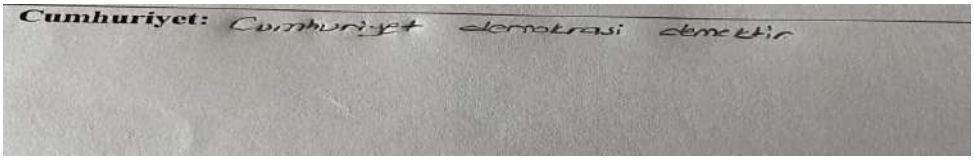
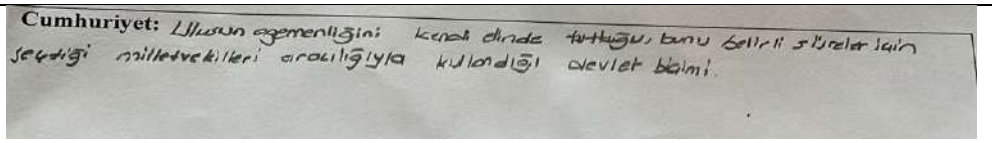
As can be seen in Figure 6, the new knowledge level of the CG students regarding the understanding of related concepts is mostly at the level of *limited understanding*. The students' answers about the concepts of "constitutionalism", "national sovereignty", "republic", "democracy", "pluralism", "legislative power", and "judiciary power" fell into the category of *limited understanding*, while the answers that they gave regarding the concepts of "constitution", and "executive power" mostly fell in the category of *understanding*.

The students appeared to give answers regarding the concepts of "constitutionalism", "national sovereignty", "republic", "democracy", "pluralism", "legislative power", and "judiciary power", which fell into the category of *limited understanding*, while more to the category of *understanding* regarding the concepts of "constitution" and "executive power". Nevertheless, it is noteworthy that the EG students' post-test knowledge level of understanding concepts is mostly at the level of *understanding* (Figure 7). It was also apparent that the students gave answers about the concepts of "constitutionalism", "constitution", "national sovereignty", "republic", "democracy", "pluralism", "legislative, executive and judiciary powers" that all fell into the

category of *understanding* (Figure 7). In this case, it can be assumed that conceptual change texts are effective in eliminating students' misconceptions and in enabling them to learn concepts.

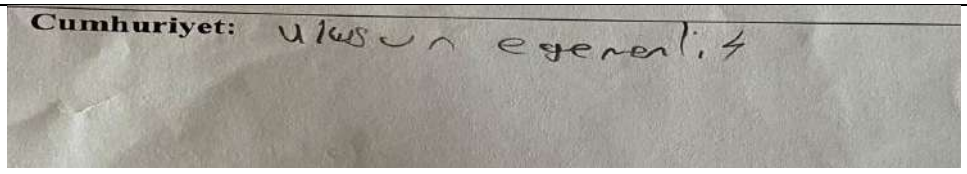
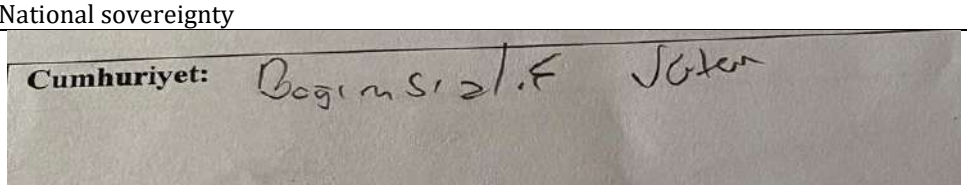
Sample answers related to students' prior knowledge of concepts and post-test knowledge levels are presented below.

Regarding the concept, "Republic"

EG Pre-test (S1) Failing to understand	 Republic means democracy.
EG Post-test (S1) Understanding	 It is a form of state in which the nation holds the sovereignty and uses it through the deputies elected for certain periods.

As can be seen from the answers given by S1, one of the students in the EG, regarding the concept of "republic", which is quite difficult to learn and often misunderstood by many students, it appears that the student could not fully explain the concept of republic and had a misconception about it. It is noteworthy that S1 first responded at the level of *failing to understand* the concept of republic in the pre-test. However, S1 later seemed to have understood that the concept of republic was not the same as the concept of democracy in the post-test, and answered at the level of *understanding*, indicating that the student's level of understanding of the related concept increased.

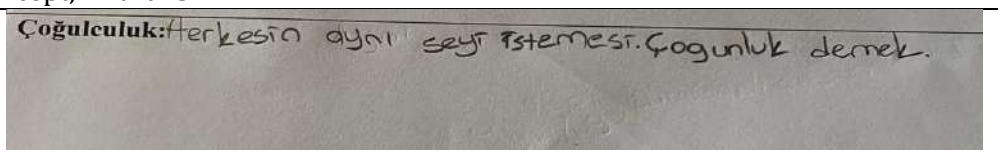
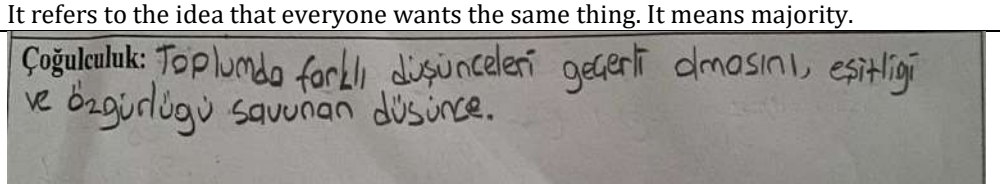
Regarding the concept, "Republic"

CG Pre-test (S1) Failing to understand	 National sovereignty
CG Post-test (S1) Failing to understand	 Independence, homeland

As can be seen from the answers given by S1, one of the students in the CG, regarding the same concept- "republic", it is clear that the student could not fully explain the concept of republic and had a misconception about it too. It is remarkable that S1 answered at the level of *failing to understand* the concept of republic in the pre-test. Besides that, S1 explained the concept of republic with some other concepts like *independence* and *homeland*, in the post-test and answered at the level of *failing to understand*, indicating that the misconception of the student persisted. No change was observed in the level of the student's understanding of the related concept. Another

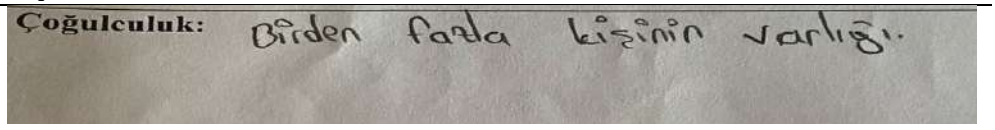
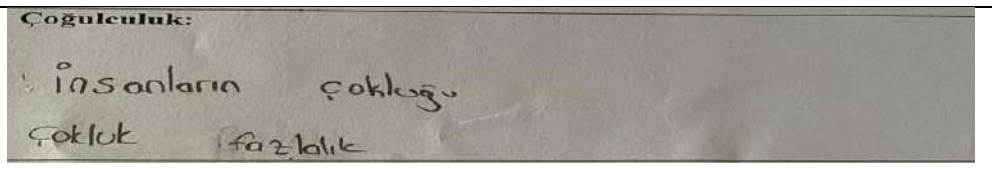
concept that students have often difficulty learning and have misconceptions about is "pluralism", which was explained in the EG and CG as follows.

Regarding the concept, "Pluralism"

EG Pre-test (S5) Failing to understand	 It refers to the idea that everyone wants the same thing. It means majority.
EG Post-test (S5) Understanding	 The idea that defends the validity of different ideas in society, equality and freedom.

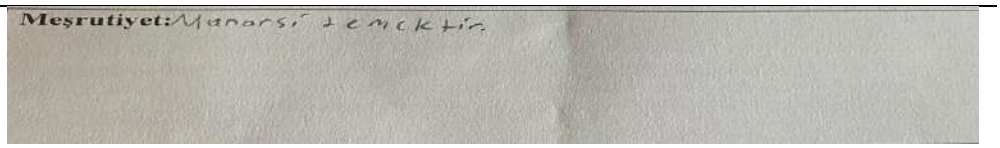
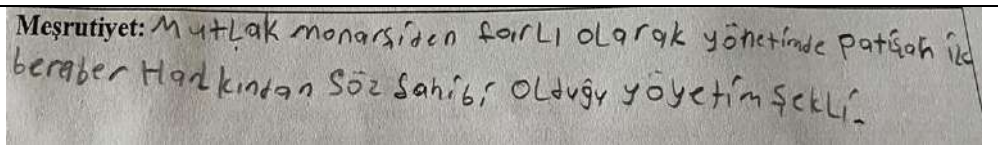
As is seen from the answers given by S5, one of the students in the EG, regarding the concept- "pluralism", it is evident that the student could not fully explain the concept of pluralism and had a misconception about it. It is apparent that S5 answered at the level of *failing to understand* the concept of republic in the pre-test and defined the concept of pluralism as *majority*. However, it seems that S5 understood that the concept of pluralism was not the same as the concept of majority in the post-test and answered at the level of *understanding*. Based on the student's statements, it could be stated that the student's level of understanding of the related concept increased.

Regarding the concept, "Pluralism"

CG Pre-test (S5) Failing to understand	 The presence of more than one person
CG Post-test (S5) Understanding	 Multitude of people, plenitude, excess

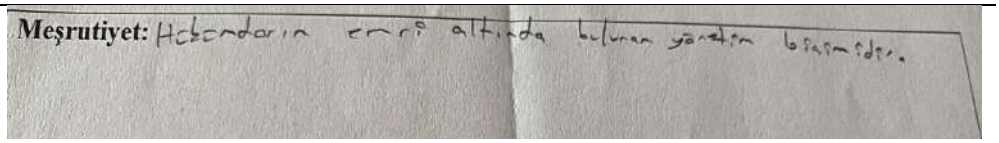
Based on the answers given by S5, one of the students in the CG, regarding the concept- "pluralism", it seems that the student could not fully explain the concept of pluralism and also had a misconception about it. It is apparent that S5 answered at the level of *failing to understand* the concept of republic in the pre-test and defined the concept of pluralism as the *presence of more than one person*. However, S5 defined the concept of pluralism in the post-test as *multitude of people, plenitude, and excess,* and explained it at the level of *failing to understand* as in the pre-test, indicating that the misconception about the concept of pluralism persisted. In this case, no change was observed in the level of the student's understanding of the relevant concept. Another concept that students have difficulty in learning and have misconceptions about is the concept, "constitutionalism", which was explained in the EG and CG as follows.

Regarding the concept, "Constitutionalism"

EG Pre-test (S16) Failing to understand	 It means monarchy.
EG Post-test (S16) Understanding	 Unlike absolute monarchy, it is a form of government in which the people have a say together with the sultan.

As seen from the answers given by S16, one of the students in the CG, regarding the concept- "constitutionalism", it is clear that the student first attempted to define it at the level of *failing to understand*. Besides that, S16 explained the concept of republic with another concept, *monarchy*, indicating a misconception. However, it turned out that S16 understood that the concept of constitutionalism was not the same as the concept of monarchy in the post-test and answered later at the level of *understanding*. Based on the student's statements, it could be considered that the student's level of understanding of the related concept increased.

Regarding the concept, "Constitutionalism"

CG Pre-test (S16) Failing to respond	 I don't know.
CG Post-test (S16) Failing to understand	 The form of government under the command of the ruler

As can be seen from the answers given by S16, one of the students in the CG, regarding the concept of "constitutionalism", which is quite difficult to learn and often misunderstood by many students, it appears that the student could not fully explain the concept of republic. It is noteworthy that S16 had first answered at the level of *failing to respond* in the pre-test. However, it can also be seen in the post-test that S16 tried to define the concept of "constitutionalism" as *the form of government under the command of the ruler*, which is an indication of the level of *failing to understand*. In this case, it can be stated that there is no significant change in the student's level of understanding the relevant concept.

In general, the sample answers related to the students' prior knowledge and post-test knowledge levels as regards the concept showed that the prior knowledge levels of the students in the CG and EG were at the same level before the implementation procedure. After the implementation procedure, however, no significant change was observed in the CG with respect to the students' levels of understanding related to the concepts, whereas those levels in the EG turned out to have remarkably increased compared to the pre-procedure. This finding shows that conceptual change texts exert a positive influence on students in terms of learning the concepts and eliminating previous misconceptions.

In order to determine the effect of conceptual change texts (CCTs) on students' concept comprehension levels, the participants were administered the Academic Achievement Test of Concepts (AATC) as a pre-test and post-test, in addition to the Concept Comprehension Test (CCT). Table 2 presents the analysis results of the independent samples t-test and of descriptive statistics performed to determine whether or not the effect of the CCTs on students' academic achievement was significant.

Table 2. *Independent sample t-test results on pre-test & post-test data of AATC*

AATC	Groups	N	$\overline{X}$	ss	sd	t	p
Pre-test	EG	34	57.76	16.60	65	-.226	.82
	CG	33	58.67	16.05			
Post-test	EG	34	80.24	6.52	65	5.286	.00
	CG	33	70.18	8.89			

As shown in Table 2, the descriptive statistics of the pre-test data of the AATC demonstrate that the mean score *(EG;* $\overline{X}$ *=57.76; CG;* $\overline{X}$ *= 58.67)* of the students in the EG and CG appears to be close to each other. Table 2 also shows that there is no statistically significant difference between the groups in terms of academic achievement *(*$t_{(65)}$*= -.226, p> 0.05)*. Taking this into account, it can be considered that the academic achievements of the students in the EG and CG before the application were close to each other related to the given concepts. In addition, the data obtained from the AATC administered to the experimental and control groups as a post-test (Table 2) indicate that the mean score of the students in the EG *(EG;* $\overline{X}$ *= 82.24)* was higher than that of the students in the CG *(CG;* $\overline{X}$ *= 70.18)*. Such difference between the mean scores of the students was found statistically significant *(*$t_{(62)}$*= 5.286, p<0.05*).. As a result of the analysis, the effect size value was calculated as *d* = 1.29, indicating a high level of effect.

Conclusion, Discussion and Recommendations

This study aimed to examine the effect of conceptual change texts on teaching the concepts (republic, democracy, constitutionalism, national sovereignty, pluralism, constitution, as well as legislative, executive, and judiciary powers) that are difficult to learn and leading to misconceptions in the field of active citizenship learning (generally includes concepts specific to social sciences such as political science and law) in the sixth grade social studies course. Taking into account the advantages of conceptual change texts in the concept teaching process, this study tested the effect of using conceptual change texts based on a process through a quasi-experimental design by integrating conceptual change texts into the teaching process in order to eliminate the misconceptions of students in the field of active citizenship learning and to teach the particular concepts that are difficult to learn. The use of different conceptual change texts within the process of five weeks revealed a result in favour of the experimental group students in learning the concepts specific to the social studies course and eliminating misconceptions (Table 2). This significant change was clearly presented in the concept definitions that the experimental group students made directly in their own writings. Similar results have been obtained in different studies in the literature conducted on conceptual change texts that contribute positively to the learning of the concepts in the field of active citizenship learning in the social studies course (Akbaş, 2008; Kılıçoğlu, 2011; Aladağ & Yılmaz, 2014; Yıldırım, 2016; Çelikkaya & Şarlayan, 2019; Kürümlüoğlu, 2019; Köroğlu, 2019; Sel & Sözer, 2019). There are important effects of conceptual

change texts in the background of the conceptual change and development experienced by the students in the field of active citizenship learning in the social studies course. In the conceptual change process, students first need to be aware of their lack of knowledge and mistakes in their own ideas and be aware of the necessity to alter them. To this end, students should make an effort to clearly see in their minds the contradictions between their own beliefs and scientific ideas (Duit & Treagust, 2003). After the misconceptions have been identified, appropriate environments should be created where students can discuss the misconceptions so that they can feel that these thoughts are incomplete, inadequate, and inconsistent. Furthermore, students should be provided with specific evidence proving that their ideas are erroneous, and they should finally be presented with the necessary and relevant scientific information on the subject matter (Akbaş, 2008). For this reason, different methods that emphasize thinking, questioning, and developing a critical approach are needed instead of traditional knowledge transfer in the concept teaching process. The conceptual change approach, which is the focus of this study, is a student-centred approach with a focus on students' prior knowledge, advocating the understanding that new knowledge is built on previous knowledge/experiences. By including this approach in the learning process, students were given the opportunity to actively participate in the activities and express their thoughts freely. In-class discussions on concepts such as republic, democracy, national sovereignty, pluralism, and constitution led students to socialize, to be aware of the ideas and opinions of their friends, and to construct knowledge. Moreover, in-class discussions over conceptual change texts proved effective in students' active participation in the process, enabling them to have the opportunity to test their ideas, and distrusting their wrong ideas. In doing so, students were naturally encouraged to think, search, and examine different ideas on the learned concept. Thus, in the process, the misconceptions about the concepts in the field of active citizenship learning, which carried social life into the classroom environment, were eliminated and the concepts were learned effectively.

Having integrated conceptual change texts into the teaching process of abstract concepts such as legislative, executive, judiciary powers, constitutionalism, and sovereignty, Kürümlüoğlu (2019) emphasized the effect of the conceptual change texts on eliminating the misconceptions specific to the social studies course and learning the concepts in accordance with their scientific nature. In another study focusing on concept teaching through conceptual change texts, Köroğlu (2019) dealt with various geographical concepts (map, scale, geographical location, mathematical location, special location, continent and ocean), which are included in the social studies course and considered to be difficult for students to understand. As a result of that study, conceptual change texts proved very efficacious in increasing students' understanding of concepts and eliminating misconceptions. As another example, Yıldırım (2016) included conceptual change texts in the teaching process of five different concepts (e.g., management, public opinion, national sovereignty, national independence, democracy) in the social studies course to the fourth grade students, whereas Aladağ and Yılmaz (2014) included conceptual change texts to identify and eliminate existing misconceptions about concepts such as *culture, national culture,* and *value* contained in the fourth grade social studies curriculum. Both Yıldırım (2016) and Aladağ and Yılmaz (2014) reported that the process carried out through conceptual change texts enabled students to learn the concepts correctly. In a different study focusing on conceptual change texts, Şarlayan (2017) added such texts to the process of eliminating misconceptions about *age,*

aesthetics, conquest, holy war, reform and *settlement*, and teaching them in conformity with their conceptual meanings, emphasizing that conceptual change texts were effective in teaching related concepts as a result of the process. Having integrated the conceptual change texts into the teaching process about the misconceptions about such concepts as *mukhtar (a local authority), local government*, and *election* in the social studies course, Sel and Sözer (2019) pointed out that the conceptual change texts were effective in eliminating the misconceptions about these concepts and in learning in accordance with the scientific definition. Using the conceptual change texts to eliminate the misconceptions about the concepts specific to the social studies course, Kılıçoğlu (2011) stated that the use of texts revealed a significant result in eliminating the misconceptions of the students about the concepts of *maps, scales, location, climate,* and *weather conditions* and learning these concepts correctly. The holistic evaluation of the findings of different studies focusing on different class levels and different concepts through conceptual change texts brought to the conclusion that the studies were effective in eliminating the misconceptions about the concepts specific to the social studies course and teaching such concepts in accordance with the scientific content. In the context of active citizenship, this study can be considered to meet at a similar point with the other relevant studies in the literature.

Integrating different social science fields with an interdisciplinary approach, the social studies course aims to raise individuals who are literate in social studies by gathering rich content, skills, and values under its umbrella (Başcı-Namlı, Kayaalp & Meral, 2021). In order for this knowledge, skill and value cycle included in the social studies course to function properly and effectively, first of all, students' conceptual structures specific to the social studies course should be based on the right information and the right network of relations between the concepts. Given this requirement, this study has confirmed the positive effect of conceptual change texts, which is a student-centred approach, in teaching concepts that are often difficult to learn and cause misconceptions in the field of active citizenship learning in the sixth grade social studies course. In the light of the findings obtained from this study, the following recommendations can be made:

This study found out that concept teaching through concept change texts is concentrated in the field of science education, with very little use in other disciplines. Concept change texts can be included more in the social studies course, which includes many concepts from different disciplines.

This study was conducted in the field of active citizenship learning in the sixth grade social studies course. Similar studies can be carried out in the future in different classrooms and learning areas.

This study concluded that concept change texts were effective in detecting misconceptions. Concept change texts can be included especially in subjects and learning areas where misconceptions seem to be intense.

This study determined to what extent the CCTs were effective in teaching certain concepts through quasi-experimental design. With qualitative or mixed studies, researches can conduct further studies on why conceptual change texts are effective in teaching concepts or detecting misconceptions.

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Kavramsal Değişim Metinlerinin Kavram Öğretimindeki Rolü: Etkin Vatandaşlık Öğrenme Alanı

Giriş

Yaşantı sürecindeki deneyimlerimiz sonucunda iki ya da daha fazla varlığı ortak özelliklerine göre bir arada gruplayıp, diğer varlıklardan ayırt ederek zihnimizde bir düşünme biçimi olarak depolama birimine kavram denir. Kavramlar somut eşya, varlık veya durum değil; olaylara, durumlara, nesne veya fikirlere ait genel özelliklere dayalı bir soyutlamadır ve gerçek dünyada kavramların ancak örnekleri bulunmaktadır (Akbaş, 2021; Çaycı, 2007; Naish, 1982). İnsanlar yaşadıkları dünyayı anlamak, açıklamak ve deneyimlerini paylaşmak için kavramlara ihtiyaç duyarlar. Bir başka ifadeyle, kavramlar hayatımızı ve algımızı zenginleştirir; insanlarla iletişim kurmamızı, öğrenmemizi, hatırlamamızı kolaylaştırır ve dil gelişimimizde önemli rol oynarlar (Doğanay, 2002; Naish, 1982; Martorella, 1996). Bununla birlikte kavramlar, bireylerin zihinlerinde doğru olarak yapılandırıldığı zaman, yaşanılan toplumsal ve fiziki çevrenin anlaşılmasına; örgün eğitimde dersler yoluyla verilmek istenen bilgi, beceri ve değerlerin kazanılmasına temel oluşturmaktadırlar (Akbaş, 2019, s.228). Dolayısıyla bilişsel yapının temel yapı taşı ve tüm düşünme becerilerinin temeli olarak (Martorella, 1996; Ülgen, 2001) kavramların öğretiminin doğru bir şekilde yapılması oldukça önemlidir. Nitekim karar verme, problem çözme ve eleştirel düşünme gibi çeşitli becerilerin, değerlerin öğrencilere etkin biçimde kazandırılması için, öncelikle öğrencilerin kavramsal yapılarının doğru bilgiye ve kavramlar arasındaki doğru ilişkiler ağına sahip olması gereklidir. Bu kazanım olmadığı zaman, kim olduğumuzu ve yaşadığımız dünyanın nasıl bir yer olduğunu anlamamız büyük ölçüde sınırlandırılmış olacaktır (Akbaş, 2021; Alkış, 2009). Bunun yanı sıra, kavramların etkili öğretiminde öğrencilerin o kavram hakkındaki ön bilgilerinin ve öğretimi yapılacak kavrama ilişkin sahip oldukları deneyimler, anlamlar ve bilgiler oldukça önemlidir (Yılmaz & Çolak, 2011; Dove, 2000; Milburn, 1972). Öyle ki çocukların ne öğrenebileceği zihinlerinin içinde ne olduğuna ve kendilerini nasıl bir öğrenme

ortamında bulduklarına bağlıdır (Platten, 1995). Çünkü öğrencilerin sahip oldukları ön bilgi ve kavramlar eğitim sürecinde öğrencilere kazandırılmak istenilen bilgi ve becerilerin anlamlı öğretiminde önemli bir rol oynarlar. Nitekim öğrencilerin ön kavramlarının öğrenme süreçlerinin başlangıç noktası olarak kabul edildiği vurgulanmaktadır. (Deisenrieder vd., 2022). Bununla birlikte, alanyazında öğrencilerin temel kavramları anlamada eksiklikleri varsa ders sürecinde yeni bilgileri anlamlı olarak öğrenmelerini zorlaştırdığı ve yeni öğrenmeleri olumsuz etkilediği sıklıkla vurgulanmaktadır (Akbaş, 2021; Dove, 1999; Dove, 2000; Nelson vd., 1992; Platten, 1995). Ayrıca öğrencilerin ön bilgilerindeki eksikliklerinin düzeltilmediği takdirde daha fazla öğrenmeyi engelleyebilecek kavram yanılgılarının ortaya çıkmasına neden olabileceği belirtilmektedir (Akbaş, 2021, Dove, 2000). Bu bağlamda, kavramların doğru bir şekilde öğretilmesinde kavram yanılgılarının giderilmesinin de oldukça önemli olduğu söylenebilir.

Kavram yanılgısı bir kavrama ilişkin öğrencinin kendi zihninde oluşturduğu bilişsel yapı ile bilimsel gerçekler ve kabuller arasındaki çelişkidir (Gilbert & Watts, 1983; Lane, 2008). Öğrencilerin bilimsel gerçeklerle örtüşmeyen kavram yanılgıları onlar açısından tutarlıdır ve bir bütünlük içermektedir (Platten,1995). Bu yanılgılar öğrenciler açısından mantıklı gerekçelere dayandığı için onları bilimsel gerçeklerle değiştirme konusunda tutucudurlar ve onları koruma eğilimindedirler (Driver, 1989; Schmidt, 1997). Bu nedenle de, öğrencileri, kendilerinde var olan kavram yanılgıları konusunda ikna etmek kolay olmamaktadır. Dolayısıyla öğrencilerin kavram yanılgılarını tespit etmek ve bu yanılgılar konusunda onları ikna etmek oldukça önemlidir. Alanyazın incelendiğinde, kavramların doğru kabul edilmiş bilimsel anlamlarına uygun bir şekilde öğrenilmesini sağlamada ve kavram yanılgılarının giderilmesinde geleneksel yaklaşımlardan farklı olarak çeşitli yaklaşım ve tekniğin kullanıldığı dikkat çekmektedir. Bu yaklaşımlardan birisi de kavram yanılgılarının giderilmesinde etkili olduğu düşünülen kavramsal değişim yaklaşımıdır. Kavram yanılgılarının giderilmesine odaklanan kavramsal değişim yaklaşımı, öğrencilerin ön bilgilerini dikkate alan, yeni bilgilerin önceki bilgiler/deneyimler üzerine inşaa edildiği anlayışını savunan yapılandırmacı öğrenme kuramına dayanmaktadır (Duit & Treagust, 2003; Widodo & Duit, 2002).

Kavramsal değişim yaklaşımına dayalı sınıf içi öğretim uygulamalarında kavram haritaları, vee diyagramları, zihin haritaları, kavram karikatürleri, analojiler, modeller vb. kullanılabilir (Aydın & Balım, 2013; Novak, 2002). Bu yöntemlerden biri de kavramsal değişim metinleridir (KDM). Bu metinlerde, öğretimi yapılacak kavrama ilişkin yanılgılar belirtilip konu ile ilgili sorular yöneltilerek öğrencilerin ön bilgileri harekete geçirilir ve hatalı, eksik, yanlış bilgiler/çelişkiler ortaya konulmaya çalışılır.

Bu doğrultuda, etkin vatandaşlık öğrenme alanında geçen kavram yanılgılarının giderilmesinde kavramsal değişim metinlerinin etkilerini konu alan bu çalışmanın, ilgili alana katkı sağlayacağı düşünülmektedir. Sosyal bilgiler dersinin temel amaçlarından birinin de etkin vatandaşlar yetiştirmek olduğu düşünüldüğünde, bu konudaki temel kavramların öğrencilerin zihinlerinde doğru ve bilimsel gerçeklere dayalı olarak yapılandırılması oldukça önemlidir. Çünkü demokratik toplumun en temel yapı taşı; demokrasi, hak ve özgürlükler ile ilgili temel kavramlara sahip, demokratik bilinç ve değerlere sahip bireylerdir (Misco, 2005). Ayrıca çalışma kapsamında hazırlanan KDM örneklerinin ileride yapılacak çalışmalar için rehber olacağı düşünülmektedir. Bu bağlamda, bu çalışma kapsamında aşağıdaki sorulara cevap aranmaya çalışılmıştır:

1- Kavramsal değişim metinlerinin öğrencilerin kavram yanılgılarının giderilmesinde etkisi nedir?
2- Kavramsal değişim metinlerinin öğrencilerin kavram akademik başarıları üzerinde etkisi nedir?

Yöntem

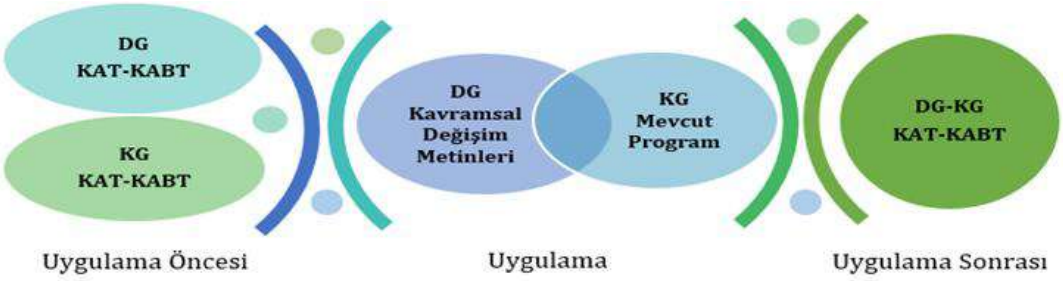
Bu araştırma, nicel araştırma yaklaşımlarından ön test- son test kontrol gruplu yarı deneysel desen kullanılarak yürütülmüştür. Belirli bir değişkenin etkilenmesinin söz konusu olduğu deneysel desenlerde, en az bir bağımsız değişkenin manipüle edilerek diğer ilgili değişkenlerin ise kontrol altına alınması ve bağımsız değişkenin bir ya da daha fazla bağımlı değişken üzerindeki etkisinin incelenmesi söz konusudur. Deneysel araştırmalarda temel amaç neden-sonuç ilişkisini incelemektir. (Fraenkel vd., 2012; Gay vd., 2012; McMillan & Schumaher, 2014). Bu araştırmada, kavramsal değişim metinlerinin öğrencilerin ilgili kavramları anlamaları ve kavram yanılgılarının giderilmesinde etkisini tespit etmek amaçlandığı için yarı deneysel desen tercih edilmiştir.

Bu araştırma, 2021-2022 eğitim-öğretim yılında Erzurum ilinde bir ortaokulun iki farklı şubesinde öğrenim gören toplam 67 altıncı sınıf öğrencisi ile yürütülmüştür. Sınıflardan birisi, kavramsal değişim metinlerinin uygulandığı deney grubu (DG, n= 34), diğeri ise kavramsal değişim metinlerinin uygulanmadığı kontrol grubu (KG, n= 33) olarak belirlenmiştir.

Kavramların tespiti amacıyla öncelikle altıncı sınıf sosyal bilgiler dersi etkin vatandaşlık öğrenme alanında yer alan kavramlar belirlenmiştir. Daha sonra bu kavramlar arasında öğrenci tarafından öğrenilmesinde güçlük yaşanılan ve yanılgıya düşünülen kavramları belirlemek amacıyla 15 öğretmen ile görüşülmüştür. Ayrıca etkin vatandaşlık öğrenme alanında yer alan kavramlara ilişkin öğrencilerin ön bilgi durumlarını ve bu kavramlarla ilgili yanılgıya sahip olup olmadıklarını tespit etmek için 60 öğrenciye ilgili öğrenme alanında yer alan kavramları içeren kavram anlama testi uygulanmıştır. Öğretmenlerin görüşleri ve öğrencilerin kavramlara ilişkin vermiş oldukları cevaplar doğrultusunda, öğrenilmesinde daha çok güçlük yaşanılan ve yanılgıya düşülen kavramların *cumhuriyet, demokrasi, milli egemenlik, meşrutiyet, çoğulculuk, anayasa, yasama, yürütme* ve *yargı* kavramları olduğu tespit edilmiştir. Bu doğrultuda, araştırmada belirtilen dokuz kavramın öğretimi ele alınmıştır.

Araştırmada, öğrencilerin ilgili öğrenme alanında yer alan kavramları anlama düzeylerini tespit etmek için açık uçlu sorulardan oluşan Kavram Anlama Testi (KAT) ve uygulama sürecinin kavram öğretimindeki etkisini belirlemek amacıyla da Kavram Akademik Başarı Testi (KABT) kullanılmıştır.

Bu araştırma, 2021-2022 eğitim- öğretim yılında Erzurum ili palandöken ilçesinde bulunan bir ortaokulun iki farklı şubesinde [Deney Grubu (DG), Kontrol Grubu (KG)] öğrenim gören toplam 67 öğrenci ile gerçekleştirilmiştir. Uygulama deney ve kontrol gruplarında haftada 3 ders saati olmak üzere toplam 7 hafta sürmüştür. Uygulama sürecinde dersler dersin öğretmeni tarafından yürütülmüş, araştırmacı ders sürecine gözlemci olarak katılmıştır. Uygulama sürecinin ilk ve son haftası ön test ve son testler için, 5 haftası ise ilgili öğrenme alanı içerisinde yer alan kavramların öğretimi için ayrılmıştır. Uygulama süreci Şekil 1'de sunulmuştur.



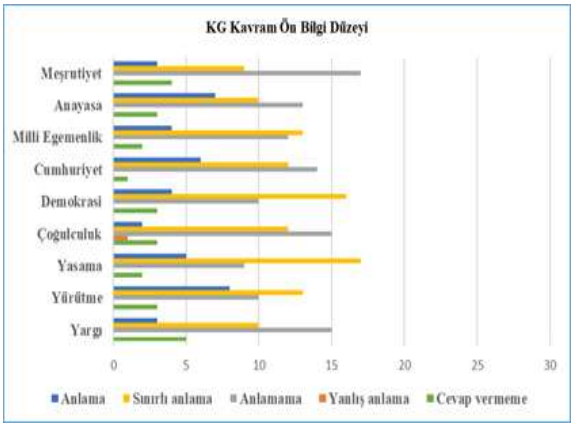
Şekil 1. Uygulama süreci

Kavram Anlama Testinden (KAT) elde edilen verilerin analizinde öğrencilerin anlama seviyeleri dikkate alınmıştır. Alanyazın incelendiğinde, anlama seviyelerini belirlemek amacıyla "*anlama"* (kavram ile ilgili doğru kabul edilebilecek ifadeler), *"sınırlı anlama"* (kavram ile ilgili doğru kabul edilecek doğru sayılabilecek ifadelerin bir ya da birkaç yönünü)," *yanlış anlama"* (kavram ile ilgili doğru kabul edilecek ifadeler ile çelişen ifadeler)*, "anlamama"* (kavramı tekrar yazmayı veya doğru kabul edilebilecek ifade ile ilgisi olmayan açıklamalar)*, "cevap vermeme"* (boş bırakma, "bilmiyorum" şeklinde ifadeler) kategorilerin oluşturulduğu görülmektedir (Akbaş, 2008; Cin, 1999; Harwood & Mcshane 1996). KAT'den elde edilen verilerin analizi belirtilen kategorilere bağlı kalınarak yapılmıştır.

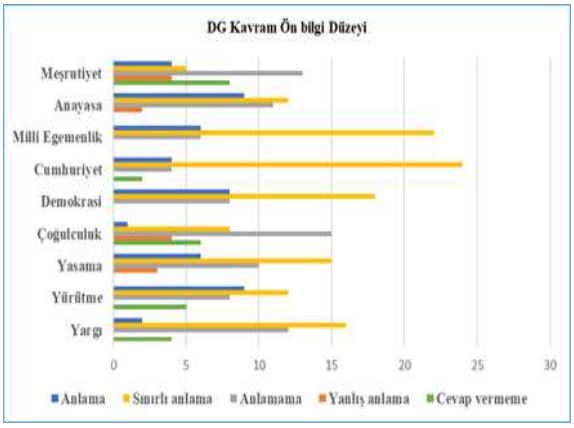
Kavram Akademik Başarı Testinin (KABT) verilerinin analizi için öncelikle normallik analizi yapılmıştır. Normallik analizi için histogram, normal Q-Q plot, detrended normal Q-Q plot grafiği, basıklık ve çarpıklık değerleri dikkate alınmış ve verilerin normal dağılım gösterip göstermediği incelenmiştir (Pallant, 2005). Bununla birlikte, uygulama gruplarındaki öğrenci sayısı 30'un üzerinde olduğu için normallik analizinde Kolmogorov Smirnov Normallik testi tercih edilmiştir (Ak, 2008). Yapılan normallik analizleri sonucunda, veriler normal dağılım gösterdiği için verilerin analizinde parametrik testlerden Bağımsız gruplar t testi kullanılmıştır. Bağımsız gruplar t testi yapılmadan önce verilerin analizi için gerekli varsayımların (normal dağılım, grupların varyanslarının eşit olması, her bir verinin diğerinden bağımsız olması) sağlayıp sağlamadığı kontrol edilmiştir (Can, 2017). Ayrıca analiz sonucunda etki büyüklüğü değeri hesaplanmıştır. Etki büyüklüğü değeri için 0.2 küçük, 0.5 orta, 0.8 büyük etki olarak kabul edilir (Green & Salkind, 2005).

Bulgular

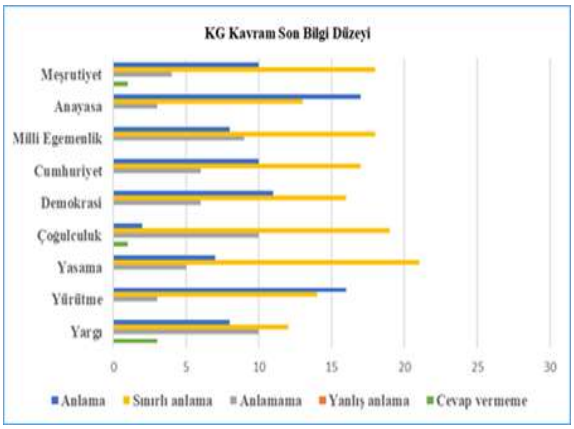
KAT'den elde edilen verilerin analizi, anlama, sınırlı anlama, yanlış anlama, cevap vermeme, anlamama kategorilerine göre yapılarak öğrencilerin kavramları anlama düzeylerine ilişkin bulgular aşağıda sunulmuştur.



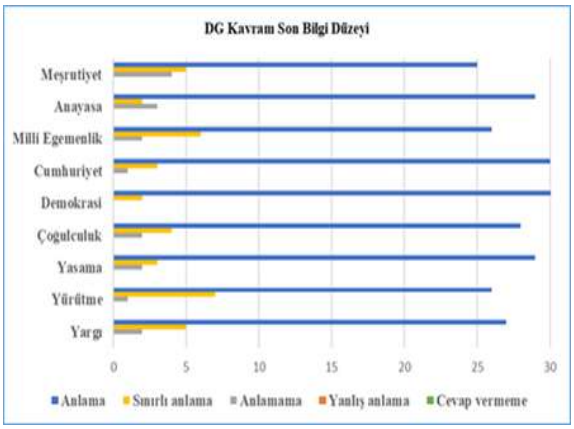
Şekil 2. KG kavram ön bilgi düzeyi



Şekil 3. DG kavram ön bilgi düzeyi



Şekil 4. KG kavram son bilgi düzeyi



Şekil 5. DG kavram son bilgi düzeyi

Şekil 2 ve Şekil 3 incelendiğinde, DG ve KG öğrencilerinin ilgili kavramları anlama ön bilgi düzeylerinin oldukça düşük olduğu görülmektedir. KG Öğrencilerin *"demokrasi", "yasama", "milli egemenlik", "yürütme"* kavramlarına daha çok sınırlı anlama kategorisine giren cevaplar; *"meşrutiyet", "cumhuriyet", "anayasa", "çoğulculuk", "yargı"* kavramlarına ise daha çok anlamama kategorisine giren cevaplar verdikleri tespit edilmiştir (Şekil 2). Bununla birlikte, DG öğrencilerinin *"anayasa", "milli egemenlik", "cumhuriyet", "demokrasi", "yasama", "yürütme", "yargı"* kavramlarına daha çok sınırlı anlama kategorisine giren cevaplar; *"çoğulculuk", "meşrutiyet"* kavramlarına ise (Şekil 3) daha çok anlamama kategorisine giren cevaplar verdikleri belirlenmiştir. Öğrencilerin kavram anlama son bilgi düzeyleri (Şekil 4 ve Şekil 5) incelendiğinde ise KG öğrencilerinin ilgili kavramları anlama son bilgi düzeylerinin daha çok sınırlı anlama seviyesinde olduğu görülmektedir. Öğrencilerin *"meşrutiyet", "milli egemenlik", "cumhuriyet", "demokrasi", "çoğulculuk", "yasama", "yargı"* kavramlarına daha çok sınırlı anlama kategorisine giren cevaplar; *"anayasa", "yürütme",* kavramlarına ise daha çok anlama kategorisine giren cevaplar verdikleri tespit edilmiştir. Bununla birlikte DG öğrencilerinin kavramları anlama son bilgi düzeylerinin daha çok anlama düzeyinde olduğu dikkat çekmektedir (Şekil 5). DG Öğrencilerinin *"meşrutiyet", "anayasa", "milli egemenlik", "cumhuriyet", "demokrasi", "çoğulculuk", "yasama", "yürütme", yargı* kavramlarına daha çok anlama kategorisine giren cevaplar verdikleri belirlenmiştir.

Kavramsal değişim metinlerinin (KDM) öğrencilerin kavram anlama düzeyleri üzerindeki etkisini belirlemek amacıyla Kavram Anlama Testinin (KAT) yanı sıra uygulama öğrencilerine Kavram Akademik Başarı Testi (KABT) ön test ve son test olarak uygulanmıştır. KDM'nin, öğrencilerin akademik başarıları üzerindeki etkisinin anlamlı olup olmadığını belirlemek için yapılan bağımsız gruplar t testi analiz sonuçları ve betimsel istatistik analiz sonuçlarına göre DG ve KG'de yer alan öğrencilerin ön test puan ortalamalarının *(DG;* $\overline{X}$ *=57.76; KG;* $\overline{X}$ *= 58.67)* birbirine yakın olduğu ve gruplar arasında akademik başarı açısından istatistiksel olarak anlamlı bir farklılığın olmadığı belirlenmiştir *(*$t_{(65)}$*= -.226, p> 0.05)*. Bu doğrultuda, uygulama öncesinde DG ve KG'de yer alan öğrencilerin kavram akademik başarılarının birbirine yakın olduğu ifade edilebilir. Bunun yanı sıra, deney ve kontrol gruplarına son test olarak uygulanan KABT'den elde edilen verilere göre DG'de yer alan öğrencilerin puan ortalamalarının *(DG;* $\overline{X}$ *= 82.24)* KG'de yer alan öğrencilerinin puan ortalamalarından *(KG;* $\overline{X}$ *= 70.18)* daha yüksek olduğu ve ğrencilerin puan ortalamaları arasındaki bu farklılığın istatistiksel olarak anlamlı olduğu tespit edilmiştir *(*$t_{(62)}$*= 5.286, p < 0.05*). Analiz sonucunda etki büyüklüğü değeri *d= 1.29* olarak hesaplanmış ve bu değerin de yüksek düzeyde bir etkiye işaret ettiği görülmüştür.

Sonuç ve Tartışma

Bu çalışmada altıncı sınıf sosyal bilgiler dersi etkin vatandaşlık öğrenme alanında (genelde siyaset bilimi, hukuk gibi sosyal bilimlere özgü kavramları içermektedir) öğrenilmesinde güçlük yaşanılan ve yanılgıya sahip olunan kavramların *(cumhuriyet, demokrasi, meşrutiyet, milli egemenlik, çoğulculuk, anayasa, yasama, yürütme, yargı)* öğretilmesinde kavramsal değişim metinlerinin etkisi incelenmiştir. Kavram öğretim sürecinde kavramsal değişim metinlerinin avantajlarını dikkate alan bu çalışmada etkin vatandaşlık öğrenme alanında öğrencilerin tespit edilen kavram yanılgılarının gidermek ve öğrenilmesinde zorlanılan kavramların öğretimini gerçekleştirmek için öğretim sürecine kavramsal değişim metinleri entegre edilerek yarı deneysel desen üzerinden kavramsal değişim metinlerinin etkisi sürece dayalı test edilmiştir. Beş hafta farklı kavramsal değişim metinleri üzerinden yürütülen süreç sosyal bilgiler dersine özgü kavramların öğrenilmesinde ve kavram yanılgıların giderilmesinde deney grubu öğrencilerinin lehine bir sonuç ortaya çıkarmıştır Öyle ki bu anlamlı değişim deney grubu öğrencilerin doğrudan kendi yazılarıyla açıkladıkları kavram tanımlarına da belirgin bir şekilde yansımıştır. Sosyal bilgiler dersi etkin vatandaşlık öğrenme alanında yer alan kavramların öğrenilmesine olumlu katkı sağlayan kavramsal değişim metinlerinin alan yazında yer alan farklı araştırmalarda da benzer sonuçlara ulaşıldığı görülmüştür (Akbaş, 2008; Kılıçoğlu, 2011; Aladağ & Yılmaz, 2014; Yıldırım, 2016; Çelikkaya & Şarlayan, 2019; Kürümlüoğlu, 2019; Köroğlu, 2019; Sel & Sözer, 2019). Sosyal bilgiler dersi etkin vatandaşlık öğrenme alanında öğrencilerin yaşamış olduğu kavramsal değişim ve gelişimin arka planında kavramsal değişim metinlerinin önemli etkileri söz konusudur. Kavramsal değişim sürecinde, öğrencilerin öncelikle kendi fikirlerindeki eksiklik ve hataların farkına varması ve bunları değiştirme konusunda farkındalığa sahip olması gerekmektedir. Bu süreçte, öğrenciler zihinlerinde kendi inanışlarına dayalı görüşleri ile bilimsel fikirler arasındaki çelişkileri görmeleri için çaba gösterilmelidir (Duit & Treagust, 2003).

Öneriler

Bu araştırmadan elde edilen bulgular ışığında aşağıda verilen öneriler ileri sürülebilir:

Bu çalışmada, kavram değişim metinleri üzerinden kavram öğretimin fen eğitimi alanında yoğunlaştığı, farklı disiplinlerde bir boşluk olduğu tespit edilmiştir. Farklı disiplinlerden çok sayıda kavramı bünyesinde barındıran sosyal bilgiler dersinde kavram değişim metinlerine daha fazla yer verilebilir.

Bu araştırma altıncı sınıf sosyal bilgiler dersi etkin vatandaşlık öğrenme alanında uygulanmıştır. Farklı sınıf ve öğrenme alanlarında benzer çalışmalar yapılabilir.

Bu araştırmada kavram değişim metinlerinin kavram yanılgılarının tespitinde etkili olduğu görülmüştür. Özellikle kavram yanılgılarının yoğun olduğu konu ve öğrenme alanlarında kavram değişim metinlerine yer verilebilir.

Bu araştırmada yarı deneysel desen üzerinden KDM'nin kavram öğretiminde ne düzeyde etkili olduğu tespit edilmiştir. Yapılacak nitel veya karma araştırmalar ile kavram öğretiminde veya kavram yanılgıların tespitinde kavramsal değişim metinlerinin niçin etkili olduğu üzerine araştırmalar yapılabilir.

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Development of the Digital Security Self-Efficacy Inventory

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Abstract

In this research, it was aimed to develop a "Digital Security Self-Efficacy Inventory" consisting of subscales to determine the digital security self-efficacy levels of secondary school seventh grade students. First of all, the Social Studies Course curriculum, Information Technologies and Software Course curriculum and related field literature were scanned and the topics of the 5 sub-scales were determined and article pools were created. The substance pools prepared in five likert types were presented to the expert opinion and the necessary arrangements were made. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were performed for the validity and reliability studies of the five subscales included in the inventory. A total of 1174 secondary school seventh grade students made up the study group. As a result of the EFA, 5 items were removed from the technical subscale, and the total explained variance of the two-factor structure consisting of 15 items is 32.86%. Psychosocial sub-40,33 percent of the total variance in the scale that explains the 8-point one-factor structure, online shopping sub-5 percent of the total variance in the scale that explains 49,79-item, single-factor structure, rights and responsibilities of the sub-44,32 percent of the total variance in the scale that explains a 7-point single-factor structure and health sub-scale of the total variance in 49,81 5%, which explained the single-point-Factor Structure demonstrated. The structure is confirmed by looking at the model fit indices of the subscales in the CFA. In order to test the reliability, Cronbach Alpha reliability coefficients were examined and calculated as 0.85 on the technical sub-scale, 0.77 on the psychosocial sub-scale, 0.78 on the online shopping sub-scale, 0.78 on the rights and responsibilities sub-scale, and 0.75 on the health sub-scale. According to the results of the analyzes carried out, it has been proven that the sub-scales included in the Digital Security Self-Efficacy Inventory are a valid and reliable measurement tool.

Keywords: Digital security, self-efficacy, digital security self-efficacy, scale development.

Introduction

Children, who participate in the digital society online and are digital citizens, use smartphones, tablets, computers, and the Internet frequently today (TÜİK, 2021). The advantages of these technologies have made the digital environment an important part of children's daily lives (Livingstone et al., 2016). In the research conducted by TÜİK (2021), it is stated that while the internet usage rate of children aged 6-15 was 50.8% in 2013, this rate was 82.7% in 2021. Within this increase and change, people face various risks in the digital environment every day (Stoilova et al., 2021). It is stated that especially the children mostly face risks in the digital society (Livingstone et al., 2017) and that risks and opportunities in the digital environment are positively related to each other (Livingstone et al., 2018). This situation has increased the importance of digital security.

Ribble (2011) examined digital security in 3 areas as personal security, school security, and community security. According to Hendrix et al. (2016), digital security as a field consists of many different aspects from digital equipment, software, and cryptography to human processes and psychology. Robinson et al. (2010) and Schneier (2015) similarly stated that digital security is not only composed of computer security, technical risks, and precautions but also human-related risks are important.

It has been observed in the literature that the technical dimension is often taken into the center in the researches about digital security (Şahinaslan et al., 2009; M. Tekerek ve Tekerek, 2013). In studies that also cover the risks arising from the human factor in digital security, digital bullying, online shopping, rights and responsibilities, and health dimensions were also

discussed (Çolak et al., 2011; Talan and Aktürk, 2019; Çolak, 2019; Durmaz and Ulukol, 2022). However, studies investigating the possible effects on the children are related to digital security or information security (Vural and Sağıroğlu, 2008; Demirel et al., 2012; Çubukçu and Bayzan, 2013), and there are also studies examining the risk areas affecting digital security (Çelen et al., 2011; Karakuş et al., 2014; Byrne et al., 2016). According to these studies, the possible effects of digital technologies on the children, risk areas, and human factor-induced neglect also shape digital security self-efficacy. Accordingly, in this study, the curriculum and textbooks of the Social Studies, Information Technologies, and Software Courses were examined together with the literature to determine the indicators of digital security self-efficacy. As a result of these studies, digital security has been sized in terms of technical, psychosocial, online shopping, rights and responsibilities, and health, and a subscale has been developed for each dimension.

1-Technical dimension: In this dimension, password security, device security, access security, distinguishing accurate and reliable information, and digital footprint are discussed. In various researches, it is emphasized that the risks in these issues are important from the point of view of digital security. NordPass (2021) stated that millions of people often use weak passwords, and this causes serious risks. Luo et al. (2009) state that the risks caused by malware threaten devices and data. Makhabbat and Gülseçen (2021) discussed this issue in their study on the "avoidance of unsafe" factor. As for the inability to distinguish between correct and reliable information in Internet research, psychological problems are experienced by people as a result of incorrect and unsafe information, which completely affects society (Demir, 2022). Yavanoğlu et al. (2012) stated that digital footprint violations in social networks led to the tracking of children. Erol et al. (2015) addressed this issue in the "leaving no trace" factor. These risk areas have been discussed in the technical sub-scale in terms of affecting the child age group.

2-Psychosocial dimension: Unsafe information flow in social networks, inability to socialize safely, and psychosocial difficulties caused by digital bullying are experienced. It is stated that children especially share private information on social networks too much (Krasna and Bratina, 2011; Çağıltay et al., 2017). Nawaila et al. (2021) state that digital bullying, the opportunities offered by the digital environment, being directed to pornography sites, and privacy risks can bring many other risks that can threaten a child's behavior. Erol et al. (2015) addressed this issue in the "protection of personal privacy" factor. Ekinci and Kayapalı Yıldırım (2019), on the other hand, addressed this issue on the scale of cyber mobbing. Güldüren et al. (2016) also examined this dimension, and the dimension was called "privacy". These risk areas are considered on the psychosocial sub-scale in terms of affecting the children.

3-Online shopping dimension: Monitoring unsafe steps during online shopping brings various risks. In the EU Kids Online (2020) report, it was stated that 3% of the participating children can lose money as a result of being deceived (Smahel et al., 2020). TÜİK (2021) reported that there is also online shopping among the purposes of using the internet for children aged 6-15. Thaichon (2017) stated that parents express that their children shop online. Online shopping by children can cause various risks; for this reason, online shopping has been discussed in the sub-scale.

4-Rights and responsibilities dimension: The easy accessibility of the internet causes the proliferation of malicious users in this environment (Nawaila et al., 2021). For this reason, the

online environment has turned into an environment where sexual abuse, abuse, being pushed into harmful habits, violence, coercion, and intimidation increase for children (Franklin and Smeaton, 2017). However, not only the rights of child users on the internet but also the rights of users belonging to other age groups are related to digital security in terms of children's rights and responsibilities. For example, children's use of other people's images in the digital environment without a source reference assignment while researching on the internet, unauthorized publication of sensitive issues related to the existence and use of information and documents, and disrespect in discourse affect your rights and responsibilities in the dimension of illegal access platforms to digital security. In addition, it is seen as a risk that children do not know the ways to fight and complain about privacy violations and digital bullying (Nawaila et al., 2021). For this reason, the risks mentioned above have been discussed in the sub-scale of rights and responsibilities.

5-Health dimension: Problematic internet use is seen as a set of problematic behaviors that include excessive preoccupation, impulses, and behaviors in the use of digital tools and online environment (McLean, 2013 as cited. Nannatt et al., 2022). Problematic behaviors in this regard are called “unhealthy internet use” (Nannatt et al., 2022). The inappropriate use of digital devices has a negative impact on physical health (Muslu and Bolisik, 2009). Vally et al. (2020) stated that problematic users make inappropriate uses such as excessive and harmful content consumption and excessive social media consumption, and this is linked to health. In this context, problematic use of digital devices and the internet (physically problematic use, temporally problematic use, problematic use in terms of content) has been discussed on the health sub-scale since it poses a significant risk in terms of digital security.

In this regard, this study was conducted in the 7th grade of secondary school. It is thought that the aim of the class students is to develop an inventory consisting of subscales that can determine their digital security self-efficacy levels and that it will contribute to the literature in terms of using the subscales separately.

Method

Study Group

The working group of the research was selected for the 7th grade of 2021-2022 academic year. There are 1174 students studying in the classroom. Stating that the sample size has a great impact on the final results of the factor analysis, Comrey and Lee (1992) stated that the sample size of 1,000 people is more perfectly reliable in terms of this number. Accordingly, it is seen that the sample obtained is sufficient for validity and reliability in the study.

The Development Process of the Inventory

In this process, first of all, the literature related to the curricula of the Social Studies course and the Information Technologies and Software course was examined; the sub-scales that should be included in the inventory were determined; item pools were created. The item pools of the sub-scales initially consist of 24 items for the technical sub-scale, 15 for the psychosocial sub-scale, 9 for the online shopping sub-scale, 11 for the rights and responsibilities sub-scale, and 8 for the health sub-scale. The 5-point Likert type consisting of “I do not agree at all”, “I do not agree”, “I agree a little”, “I agree”, and “I completely agree” options were used for the

subscales. The expressions in the options were scored correctly from 1 to 5 from the expression ”I do not agree at all“ to the expression ”I completely agree". According to this, the high score to be obtained will be evaluated positively for the self-efficacy status for each sub-scale on digital security self-efficacy.

The draft form of the sub-scales was presented to the opinions of 10 experts, including 5 from the BTE, 3 from Social Studies Education, 1 from the field of Measurement and Evaluation, and 1 field expert from Turkish Education. As a result of the expert opinions, the necessary arrangements were made by removing 4 items from the technical sub-scale, 7 items from the psychosocial sub-scale, 5 item from the online shopping sub-scale, and 3 item from the rights and responsibility sub-scale. The resulting draft form was applied to 5 seventh-grade students in terms of clarity and comprehensibility and rearranged. As a result of the regulations, the inventory was applied to 1174 middle school seventh-grade students.

Data Analysis

SPSS 24.0 and AMOS package programs were used for data analysis. The construct validity of the subscales was examined by conducting Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA).

In the EFA studies, Kaiser-Mayer-Olkin (KMO) and Bartlett tests were evaluated for the suitability of the data for factor analysis. Considering that there is a relationship between factors on the technical subscale in EFA, the promax method was deconstructed from the oblique rotation methods in order to better reveal the distribution. However, substances with an eigenvalue greater than 1 were taken into account. In other sub-scales, the rotation technique was not used because the structure was one-factor.

A CFA study was conducted on the same data structure in order to provide additional evidence for the construct validity of the 2-factor technical subscale and other single-factor subscales formed as a result of the EFA October. There are various scale development studies in the literature on this subject (Akbaba Altun and Büyüköztürk, 2011; Alıcı, 2013). In order to evaluate the validity of the model in CFA, χ2/ (df), RMSEA, TLI/NNFI, CFI, NFI, AGFI, and GFI values were calculated.

Table 1. *The criterion values used in the evaluation of compliance index values in all measurement models are*

Compliance Index	Perfect Fit Criteria	Acceptable Compliance Criteria
χ2/ (df)=Y	0≤Y≤3	3< Y≤5
RMSEA=Y	0≤Y≤0,05	0,05<Y≤0,08
TLI/NNFI=Y	0,97≤Y≤1,00	0,95≤Y<0,97
CFI=Y	0,97≤Y≤1,00	0,95≤Y<0,97
NFI=Y	0,95≤Y≤1,00	0,90≤Y<0,95
AGFI=Y	0,90≤Y≤1,00	0,85≤Y<0,90
GFI=Y	0,95≤Y≤1,00	0,90≤Y<0,95

In Table 1, χ2/ (df) of the critical values in the compliance index of the measurement model are given according to Byrne (2013), and RMSEA, TLI/NNFI, CFI, NFI, AGFI, GFI are given according to Schermelleh-Engel et al. (2003; as cited in Pektaş, 2022).

In order to test the reliability of the scale formed after the analyzes, the Cronbach Alpha reliability coefficient was examined. In order to test the internal validity of the items belonging to each sub-scale at the same time, item-total correlation analyses were examined.

Ethical Permissions of the Study

In this study, all the rules specified to be followed within the scope of the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were catered to. None of the actions specified under the title of "Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, were undertaken.

Ethics Committee Approval Information:

The name of the board that made the ethical evaluation= Gazi University Ethics Committee

The date of the ethical evaluation decision= 08.02.2022

Ethical evaluation certificate number number=E-77082166-302.08.01-281365

Findings

In this section, in order to examine the construct validity of the Digital Security Self-Efficacy Inventory, the EFA and CFA studies are presented separately for each subscale. The reliability results of the subscales are given under the heading "reliability" at the end of the section.

Technical Subscale

Exploratory Factor Analysis

Table 2. *KMO and Bartlett Sphericity test results*

Kaiser-Meyer-Olkin (KMO)		,90
Bartlett Sphericity Test	X^2	4349,77
	Sd	105
	P	,000

When Table 2 is examined, the calculated KMO value is 0.90. The fact that the KMO value is higher than 0.60 indicates that it is suitable for factor analysis (Büyüköztürk, 2019). The Bartlett test result was calculated as 4349.77, and this value is significant according to 0.01 (X^2_{105}=4349,77). The fact that the Bartlett test result is at a significant level indicates that the data are suitable for factor analysis (Kalaycı, 2009). It can be said that a sufficient sample was used in this direction.

Table 3. *The results of the EFA technical subscale*

Technical Subscale	1.Factor Substance Loads	2.Factor Substance Loads	Item Total Correlation
m18	0,83		0,60*
m19	0,74		0,54*
m17	0,71		0,47*
m15	0,67		0,55*
m12	0,59		0,51*
m8	0,53		0,45*
m13	0,50		0,47*
m9	0,45		0,47*
m2		0,72	0,53*
m4		0,70	0,50*
m1		0,69	0,48*
m3		0,68	0,50*
m6		0,65	0,49*
m7		0,50	0,51*
m11		0,47	0,48*

*p<,05 ***(****The resulting substances: 5, 10, 14, 16, 20)*

It is aimed to reveal the relationship between the items by deciphering the factor analysis. For this reason, the promax method, one of the "oblique rotation" methods used in cases where it is assumed that the items in the scale are related to each other, was used. At EFA, a value of at least 0.30 was used in scale development studies, and 5 items included in the technical subscale (m5, m10, m14, m16, m20) were removed from the scale because they fell below this value. The EFA results repeated after the items removed from the scale are presented in Table 3.

The first factor is called "Avoidance of untrustworthiness" and consists of 8 items, and the explained variance is 32.86%. The factor load values range between 0.45-0.83, and the eigenvalue is 4.92 Dec. The second factor is called "Taking precautions" and consists of 7 items, and the explained variance is 10.28%. The factor load values range between 0.47-0.72, and the eigenvalue is 1.54 Dec.

Based on all these findings, the construct validity of the technical subscale is at a satisfactory level. In addition, it is observed that the item Decisiveness is at a sufficient level due to the fact that the item total correlation of the technical subscale has a value between 0.47 and 0.60. According to the total variance value explained, it can be said that the scale adequately explains the quality it measures.

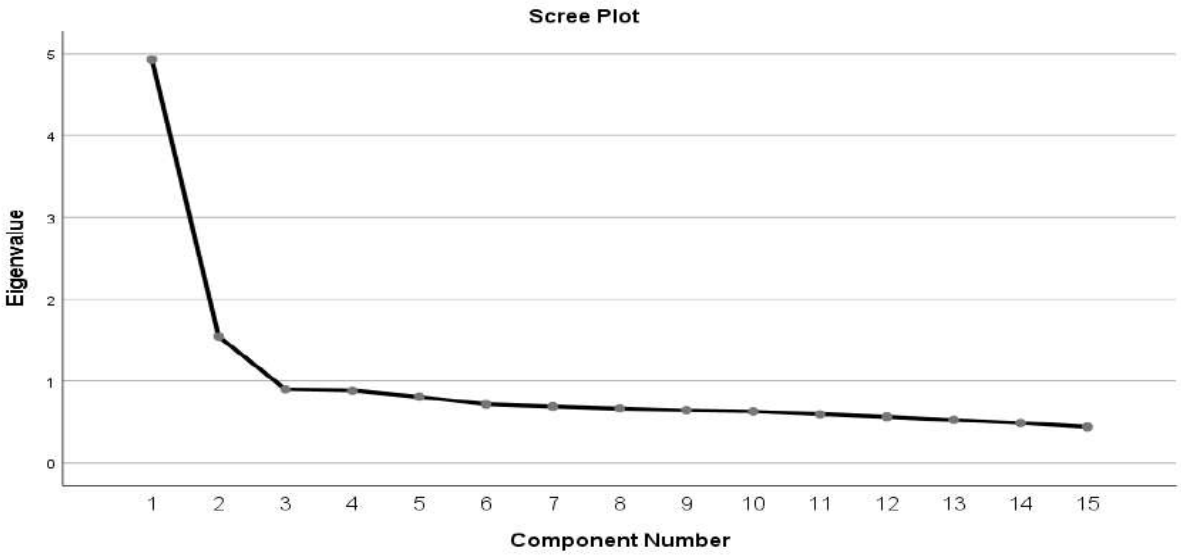

Figure 1. Slope deposit graph of the technical sub-scale

When the graph in Figure 1 is examined, it is seen that there are two factors with an eigenvalue greater than 1. Since the number of factors is compatible with the theoretical structure, it was found acceptable, and it was decided that the technical subscale should be two-factor.

Confirmatory Factor Analysis

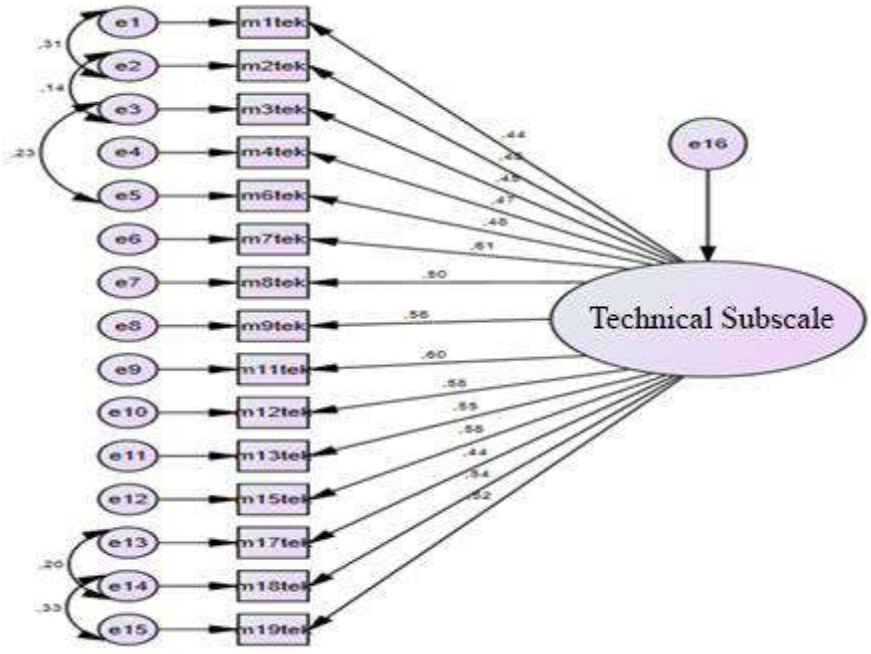

Figure 2. The CFA model related to the technical subscale

When Figure 2 is examined, the factor loads vary between 0.44 and 0.58, The factor loadings range from 0.44 to 0.61 In the research, 5 modifications were established between the error decimations of some items in order to improve the fit index values of the model.

Table 4. *Compliance index values of the measurement model related to the technical subscale*

Compliance Index	Measurement Model	Evaluation
χ2/ (df)	413,21/(85)= 4,86	Acceptable
RMSEA	0,057	Acceptable
TLI/NNFI	0,95	Acceptable
CFI	0,95	Acceptable
NFI	0,91	Acceptable
AGFI	0,93	Perfect
GFI	0,95	Perfect

Table 4 is evaluated according to the compliance index criteria in table 1. Accordingly, when table 4 was examined, χ2 / (df) was calculated as 4.86 in the compliance index values of the measurement model on the technical subscale, and this value is acceptable according to table 1. The RMSEA compliance index value of the technical subscale is 0.057 and has an acceptable compliance index. Again, according to the values in Table 4, the TLI / NNFI, CFI, and NFI values are in the acceptable compliance index, and the AGFI and GFI values are in the perfect compliance index. In general, it is seen that the measurement model established regarding the technical subscale has been confirmed.

Psychosocial Subscale

Exploratory Factor Analysis

Table 5. *KMO and Bartlett test results*

Kaiser-Meyer-Olkin (KMO)		,84
Bartlett Sphericity Test	X^2	2046,60
	Sd	28
	P	,000

When Table 5 is examined, the calculated KMO value is 0.84. The fact that the KMO value is higher than 0.60 indicates that it is suitable for factor analysis (Büyüköztürk, 2019). The Bartlett test was calculated as 2046.60 and is significant according to 0.01 (X^2_{28}=2046,60). The fact that the Bartlett test result is at a significant level indicates that the data are suitable for factor analysis (Kalaycı, 2009). In this direction, a sufficient sample was used in the research.

Table 6. *The results of the EFA psychosocial subscale*

Psychosocial Subscale	Item Factor Loads	Item Total Correlation
m21	0,47	0,35*
m22	0,61	0,46*
m23	0,65	0,50*
m24	0,55	0,39*
m25	0,56	0,42*
m26	0,68	0,52*
m27	0,74	0,59*
m28	0,70	0,62*

*p<,05

Deciphering Table 6, it is observed that the factor load values of the items included in the scale vary between 0.47 and 0.74. By looking at the factor load values, it was seen that the items in the sub-scale were compatible with the scale. According to Tabachnick and Fidell (2007), the load value of each substance should be at least below the value of 0.45, and if it is below this value, it is considered mediocre. Since none of the items in the scale remained below the value of 0.45 and were collected in a single factor, the analysis took its final form without repeating. In addition, the rotation technique due to its single-factor structure has not been used. When the item total correlation was considered, the values varied between 0.35 (m21) and 0.62 (m28), and item Decisiveness was sufficient. However, the eigenvalue was calculated as 3.22, and it was seen that it explained 40.33% of the total variance value in a single factor. In single-factor scales, it was considered sufficient that the explained variance was more than 30% (Tavşancıl, 2010).

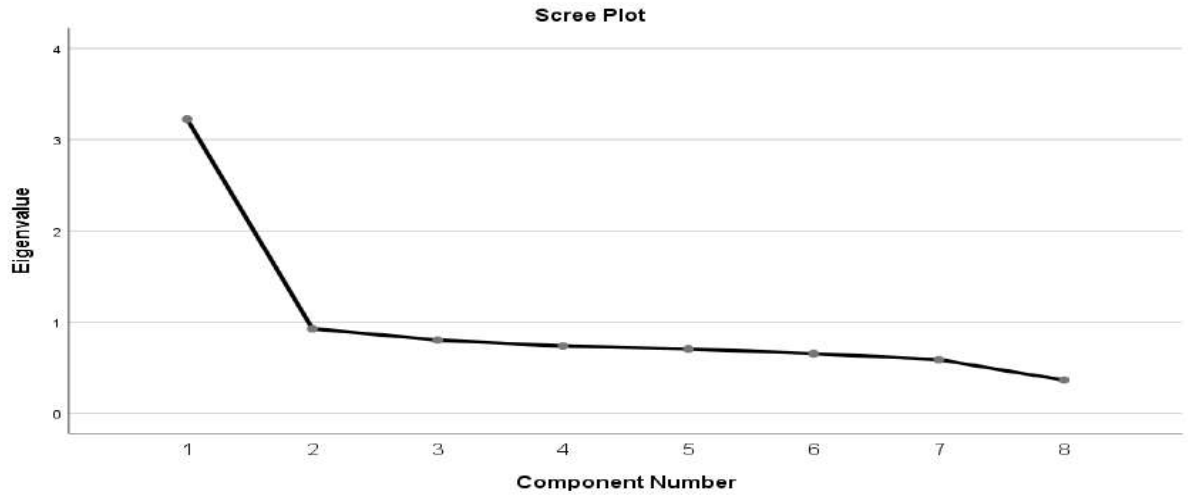

Figure 3. Slope deposit graph belonging to the psycho-social subscale

When the graph in Figure 3 is examined, it is seen that it is the only factor with an eigenvalue greater than 1. Since the number of factors is compatible with the theoretical structure, it was found acceptable, and it was decided that the "Psychosocial Subscale" should be single-factor.

Confirmatory Factor Analysis

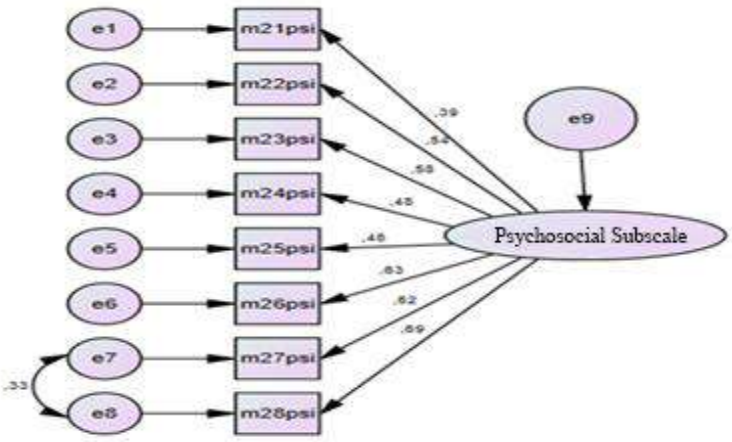

Figure 4. The CFA model related to the psychosocial subscale

When Figure 4 is examined, the factor Decouples of the substances varies between 0.39 and 0.69. In the research, 1 modification was established between the error Decimations of some items in order to improve the fit index values of the model.

Table 7. *Compliance index values of the measurement model related to the psychosocial subscale scale*

Compliance Index	Measurement Model	Evaluation
χ2/ (df)	72,03/(19)= 3,79	Acceptable
RMSEA	0,049	Perfect
TLI/NNFI	0,96	Acceptable
CFI	0,97	Perfect
NFI	0,97	Perfect
AGFI	0,97	Perfect
GFI	0,98	Perfect

Table 7 is evaluated according to the compliance index criteria in Table 1. Accordingly, when Table 7 is examined, in the fit index values of the one-factor level measurement model, the χ2/(df) value for the psychosocial subscale is 3.79, and this value is within the acceptable fit index according to Table 1. The RMSEA compliance index value is 0.049, and this value is in the perfect compliance index according to Table 1. According to Table 1, the TLI/NNFI value is in the acceptable compliance index, while the CFI, NFI, AGFI, and GFI values are in the perfect compliance index. In general, it is seen that the measurement model established regarding the psychosocial subscale has been confirmed.

Online Shopping Subscale

Exploratory Factor Analysis

Table 8. *KMO and Bartlett test results*

Kaiser-Meyer-Olkin (KMO)		,79
Bartlett Sphericity Test	X^2	1199,12
	Sd	10
	P	,000

When Table 8 is examined, the calculated KMO value is 0.79. The fact that the KMO value is higher than 0.60 indicates that it is suitable for factor analysis (Büyüköztürk, 2019). The Bartlett test was calculated as 1199.12 and is significant according to 0.01 (X^2_{10}=1199,12). The fact that the Bartlett test result is at a significant level indicates that the data are suitable for factor analysis (Kalaycı, 2009). In this direction, a sufficient sample was used in the research.

Table 9. *EFA results of the online shopping subscale*

Online Shopping Subscale	Item Factor Loads	Item Total Correlation
m29	0,61	0,41*
m30	0,72	0,51*
m31	0,77	0,58*
m32	0,77	0,58*
m33	0,64	0,44*

*p<,05

Deciphering Table 9, the online shopping subscale consists of 5 items in a single factor, and the factor load values range from 0.61 to 0.77. When the factor load values are examined, it is seen that the items are compatible with the scale. According to Tabachnick and Fidell (2007), the load value of each substance should be at least below the value of 0.45, and if it is below this value, it is considered mediocre. Because no item remains below the value of 0.45 and is collected in a single factor, the analysis has taken its final form without repeating. In addition, the rotation technique due to its single-factor structure has not been used. On the other hand, the item-total correlations ranged from 0.41 (m29) to 0.58 (m31-32), and item Decisiveness was sufficient. However, the eigenvalue was calculated as 2.49 on the subscale. It is seen that a single factor in the subscale explains 49.79% of the total variance value. In single-factor scales, it is considered sufficient that the explained variance is more than 30% (Tavşancıl, 2010).

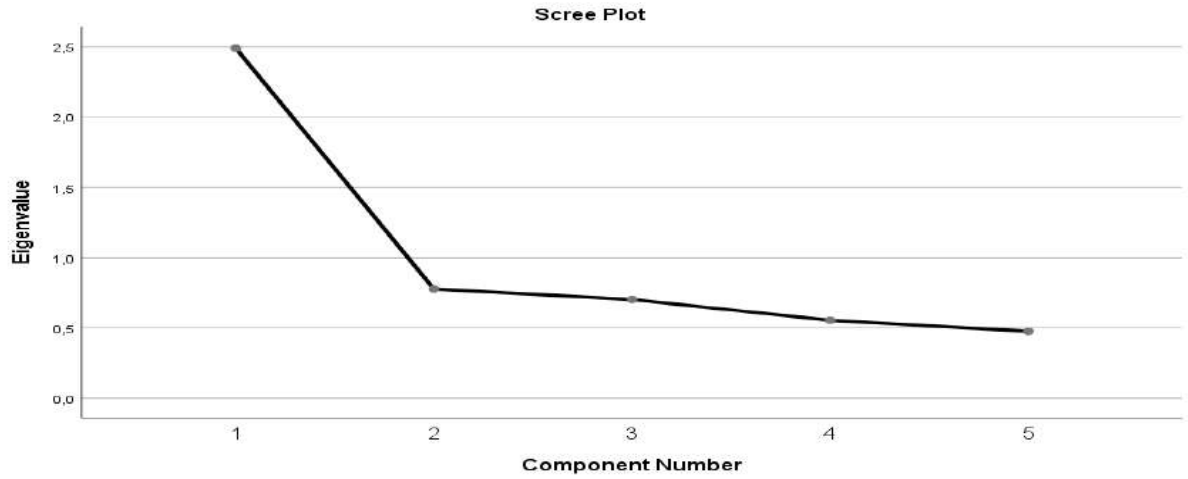

Figure 5. Slope deposit graph of the online shopping sub-scale

When the graph in Figure 5 is examined, it is seen that it is the only factor with an eigenvalue greater than 1. Since the number of factors is compatible with the theoretical structure, it was found acceptable, and it was decided that the subscale should be single-factor.

Confirmatory Factor Analysis

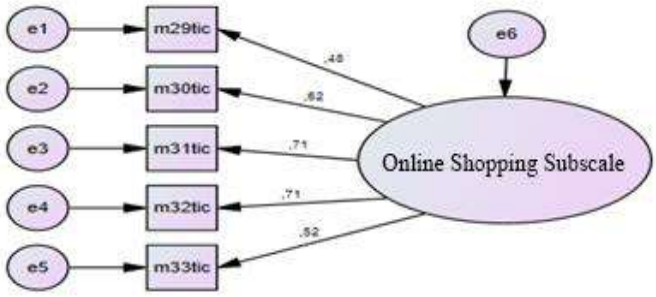

Figure 6. The CFA model for the online shopping subscale

When Figure 6 is examined, the factor load values of the substances vary between 0.48 and 0.71. In the research, 1 modification was established between the error decimations of some items in order to improve the fit index values of the model.

Table 10. *Compliance index values of the measurement model related to the online shopping subscale*

Compliance Index	Measurement Model	Evaluation
χ2/ (df)	6,08/(4)=1,52	Perfect
RMSEA	0,021	Perfect
TLI/NNFI	0,99	Perfect
CFI	0,99	Perfect
NFI	0,99	Perfect
AGFI	0,99	Perfect
GFI	0,99	Perfect

Table 10 is evaluated according to the compliance index criteria in Table 1. According to this, when Table 10 is examined, the established 1 regarding the subscale. It is observed that the χ2/ (df) value is 1.52, and this value has a perfect fit index in the fit index values belonging to the level one-factor measurement model. The RMSEA compliance index value is 0.021. Accordingly, as can be seen in the Table 1, other values belonging to the online shopping subscale also have a perfect fit index. In general, it is seen that the measurement model established regarding the online shopping subscale has been confirmed.

Right and Responsibility Subscale

Exploratory Factor Analysis

Table 11. *KMO and Bartlett test results*

Kaiser-Meyer-Olkin (KMO)		,81
Bartlett Sphericity Test	X^2	2046,09
	Sd	21
	P	,000

When Table 11 is examined, the calculated KMO sample fit measure value is 0.81. The fact that the KMO sample fit measure is higher than 0.60 indicates that it is suitable for factor analysis (Büyüköztürk, 2019). The Bartlett Sphericity Test was calculated as 2046.09, and this value is significant according to 0.01 (X^2_{21}=2046,09). The fact that the Bartlett Sphericity Test result is at a significant level indicates that the data are suitable for factor analysis (Kalaycı, 2009). In this direction, a sufficient sample was used in the research.

Table 12. *The results of the rights and responsibility subscale EFA*

The Sub-Scale of Rights and Responsibilities	Item Factor Loads	Item Total Correlation
m34	0,74	0,59*
m35	0,67	0,51*
m36	0,70	0,54*
m37	0,68	0,52*
m38	0,70	0,55*
m39	0,64	0,49*
m40	0,51	0,38*

*p<,05

When Table 12 is examined, the rights and responsibility subscale consists of 7 items in a single factor, and the factor load values vary between 0.51 and 0.74. By looking at the factor load values, it is seen that the items in the sub-scale are compatible with the scale. According to Tabachnick and Fidell (2007), the load value of each substance should be at least below the value of 0.45, and if it is below this value, it is considered mediocre. Since none of the items in the scale remained below the value of 0.45 and were collected in a single factor, the analysis took its final form without repeating. In addition, the rotation technique due to its single-factor structure was not used. When the item total correlation is considered, the values vary between 0.38 (m40) and 0.59 (m34), and item Decisiveness is sufficient. In the sub-scale, 44.32% of the total variance value is explained by a single factor. In single-factor scales, it is considered sufficient that the described variance is more than 30% (Tavşancıl, 2010).

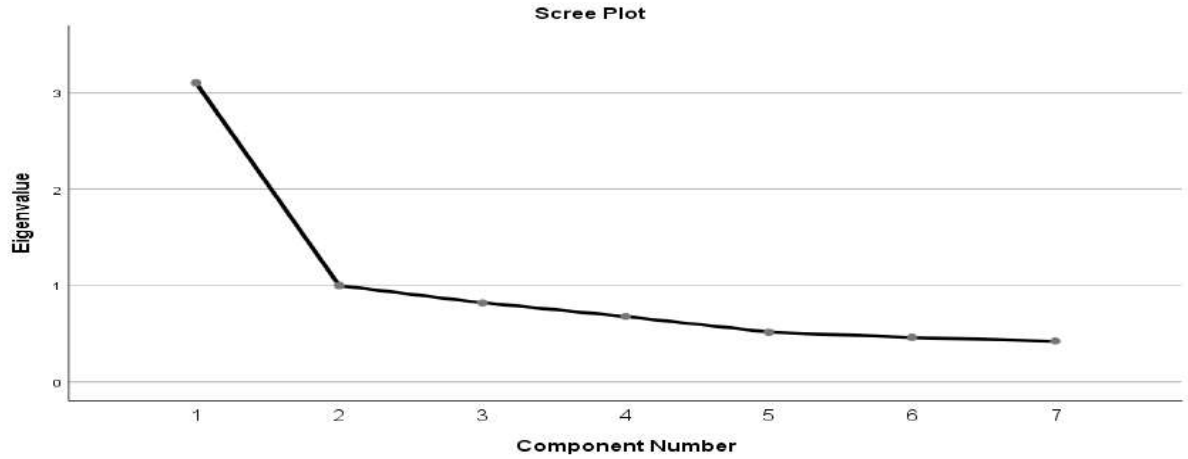

Figure 7. Slope deposit graph of the rights and responsibilities sub-scale

When the graph in Figure 7 is examined, it is seen that it is the only factor with an eigenvalue greater than 1. Since the number of factors is compatible with the theoretical structure, it was found acceptable, and it was decided that the subscale should be single-factor.

Confirmatory Factor Analysis

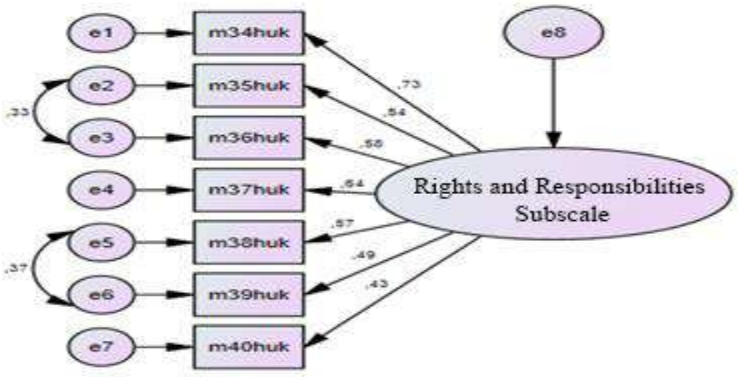

Figure 8. The CFA model related to the rights and responsibility subscale

When Figure 8 is examined, the substance factor loads of the substances included in the scale Decipher are between 0.43 and 0.73. In the research, 2 modifications were established between the error loads of some items in order to improve the fit index values of the model.

Table 13. *Compliance index values of the measurement model related to the rights and responsibility scale*

Compliance Index	Measurement Model	Evaluation
χ2/ (df)	37,62/(12)= 3,14	Acceptable
RMSEA	0,043	Perfect
TLI/NNFI	0,98	Perfect
CFI	0,99	Perfect
NFI	0,98	Perfect
AGFI	0,98	Perfect
GFI	0,99	Perfect

Table 13 is evaluated according to the compliance index criteria in Table 1. Accordingly, when Table 13 is examined, it is seen that the χ2/(df) value is 3.14 in the fit index values of the level 1 single-factor measurement model established for the subscale and this value has an acceptable fit index. The RMSEA compliance index value is 0.043. Accordingly, as can be seen in the Table, other values belonging to the rights and responsibility subscale also have a perfect fit index. In general, it is seen that the measurement model established regarding the rights and responsibility subscale has been confirmed.

Health Subscale

Exploratory Factor Analysis

Table 14. *KMO and Bartlett test results*

Kaiser-Meyer-Olkin (KMO)		,78
Bartlett Sphericity Test	X^2	1199,37
	Sd	10
	P	,000

When Table 14 is examined, the calculated KMO value is 0.78. The fact that the KMO value is higher than 0.60 indicates that it is suitable for factor analysis (Büyüköztürk, 2019). The Bartlett test was calculated as 1199.37 and is significant according to 0.01 (X^2_{10}=1199,37). The fact that the Bartlett test result is at a significant level indicates that the data are suitable for factor analysis (Kalaycı, 2009). In this direction, a sufficient sample was used in the research.

Table 15. *The results of the health subscale EFA*

Health Subscale	Item Factor Loads	Item Total Correlation
m41	0,72	0,65*
m42	0,70	0,60*
m43	0,65	0,56*
m44	0,61	0,51*
m45	0,74	0,64*

*p<,05

When Table 15 is examined, the health subscale consists of 5 items in a single factor, and the factor load values vary between 0.61 and 0.74. By looking at the factor load values, it is seen that the items in the sub-scale are compatible with the scale. According to Tabachnick and Fidell

(2007), the load value of each substance should be at least below the value of 0.45, and if it is below this value, it is considered mediocre. Since none of the items in the scale remained below the value of 0.45 and were collected in a single factor, the analysis took its final form without repeating. In addition, the rotation technique due to its single-factor structure was not used. When the item total correlation is considered, the values vary between 0.51 (m44) and 0.65 (m41), and item Decisiveness is sufficient. However, the eigenvalue was calculated as 2.49. It is seen that a single factor explains 49.81% of the total variance value in the health sub-scale. In single-factor scales, it is considered sufficient that the explained variance is more than 30% (Tavşancıl, 2010).

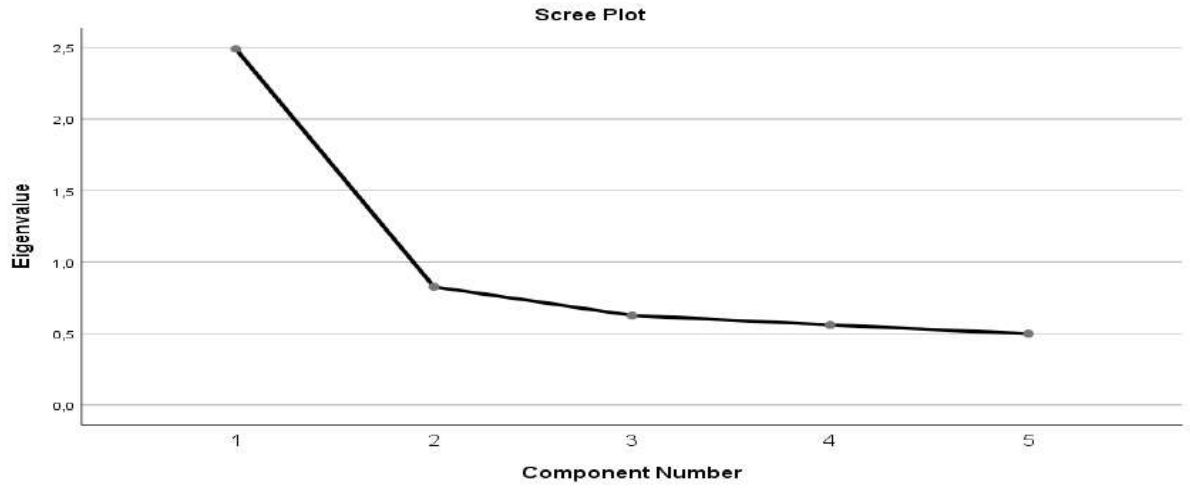

Figure 9. Slope deposit graph of the health sub-scale

When the graph in Figure 9 is examined, it is seen that it is the only factor with an eigenvalue greater than 1. Since the number of factors is compatible with the theoretical structure, it was found acceptable, and it was decided that the health subscale should be single-factor.

Confirmatory Factor Analysis

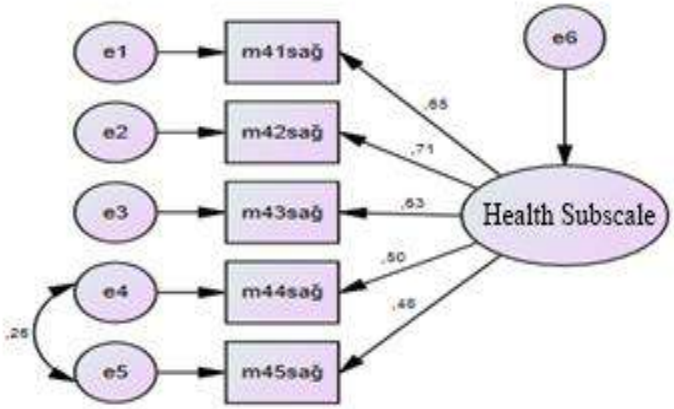

Figure 10. The CFA model related to the health subscale

When Figure 10 is examined, the factor load values of the substances vary between 0.48 and 0.71. In the research, 1 modification was established between the error Decimations of some items in order to improve the fit index values of the model.

Table 16. *Compliance index values of the measurement model related to the health subscale scale*

Compliance Index	Measurement Model	Evaluation
χ2/ (df)	11,41/(4)= 2,85	Perfect
RMSEA	0,040	Perfect
TLI/NNFI	0,98	Perfect
CFI	0,99	Perfect
NFI	0,99	Perfect
AGFI	0,99	Perfect
GFI	0,99	Perfect

Table 16 is evaluated according to the compliance index criteria in Table 1. Accordingly, when Table 16 is examined, the established 1 regarding the subscale, It is seen that the χ2/ (df) value is 2.85 in the compliance index values belonging to the level one-factor measurement model, and this value has a perfect compliance index. Accordingly, as can be seen in the Table, other values belonging to the rights and responsibility subscale also have a perfect fit index. In general, it is seen that the measurement model established regarding the health subscale has been confirmed.

Reliability

The reliability of the 5 subscales included in the Digital Security Self-Efficacy Inventory and the Cronbach Alpha internal consistency coefficient numbers were examined. The Cronbach Alpha coefficients of the subscales included in the inventory are, respectively; 0.85 for the Technical Subscale (1. For the factor 0.80, 2. It was calculated as 0.77 for the Factor), 0.77 for the Psychosocial Subscale, 0.74 for the Online Shopping Subscale, 0.78 for the Rights and Responsibility Subscale, and 0.75 for the Health Subscale. Kalaycı (2009) stated that 0.60 and above is an acceptable level of reliability for the Reliability coefficient. When this criterion is taken into consideration, it is seen that the reliability values of each subscale are above the acceptable level, that is, the subscales are reliable.

Discussions and Conclusion

In this study, all 5 subscales in the "Digital Security Self-Efficacy Inventory" developed to determine the digital security self-efficacy perceptions of 7th-grade students were found to be suitable for factor analysis according to the results of KMO and Bartlett tests. According to the EFA results of the sub-scales, it was seen that the technical sub-scale consists of 15 items and 2 factors. It is seen that the psychosocial sub-scale has a single-factor structure of 8 items, the online shopping sub-scale has 5 items, the rights and responsibility sub-scale has 7 items, and the health sub-scale has 5 items. In addition, it is seen that 43.14% of the total variance is

explained on the technical sub-scale, 40.33% on the psychosocial sub-scale, 49.79% on the online shopping sub-scale, 44.32% on the rights and responsibilities sub-scale, and 49.81% on the health sub-scale. Looking at the variance ratios described, it has been proved that the construct validity of all subscales is at a good level. According to the CFA results of the subscales, the model is statistically confirmed. Cronbach Alpha values, on the other hand, prove the reliability of the subscales. For this reason, it has been proven that the inventory developed is a valid and reliable measurement tool.

Considering that technical knowledge and awareness of digital security affect the correct use, it is of great importance to develop a scale for measuring the digital security self-efficacy of individuals and to make reliable measurements. The scales developed in the literature related to digital security are aimed at university students (Akgun and Topal, 2015; Arpaci and Sevinç, 2022; Çolak, 2019; Erdoğmuş, 2017; Ekinci and Kayapalı Yıldırım, 2019; Erol et al., 2015), aimed at secondary school students (Güldüren et al., 2016), there are studies aimed at teaching staff (Keser and Güldüren, 2014), and secondary school students (Mihçi and Kılıç Çakmak, 2017). Butavicius at al (2020) aimed to develop a scale of technical control for cybersecurity in their studies, where the target audience is adults working at work with a digital device. The scale consisting of 4 items is related to the technical subscale in this study. Egelman and Peer (2015)'s study, which aims to develop a measurement tool that can detect the cybersecurity behavior of 18-69-year-old digital users, can be related to the items included in the technical and psychosocial sub-scale. Unlike the previous studies, this study differs in that it deals with digital security self-efficacy in a multidimensional way, is suitable for the secondary school age group and the Ministry of Education curriculum, and can also be used piecemeal.

The self-efficacy inventory consisting of 5 subscales can be applied to students in the same age group as a whole, and each subscale will be able to contribute to different studies separately. The situations of individuals being exposed to a digital security breach, the health problems encountered, etc. the relationship between Deciency and digital security self-efficacy can be evaluated with this developed inventory. The digital security self-efficacy inventory can contribute to the objectives and content of the educational curriculum, and it can be said that it is a valid and reliable measurement tool that can be used to determine the digital security self-efficacy levels of 7th-grade students. The developed "Digital Security Self-Efficacy Inventory" can be used to determine the digital security self-efficacy levels of 7th-grade students and to determine whether they differ according to various variables. This scale, which was developed by collecting data from 7th-grade students, can be adapted and developed for different age groups.

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Dijital Güvenlik Öz Yeterlik Envanterinin Geliştirilmesi

Giriş

Dijital topluma çevrim içi olarak katılım sağlayan ve her biri birer dijital vatandaş olan çocuklar, günümüzde akıllı telefon, tablet, bilgisayar ve interneti sıklıkla kullanmaktadır (TÜİK, 2021). Bu teknolojilerin avantajları dijital ortamı çocukların günlük yaşamlarının önemli bir parçası haline getirmiştir (Livingstone ve diğ., 2016). TÜİK (2021) tarafından yapılan araştırmada 6-15 yaş grubu çocukların 2013 yılında internet kullanım oranı %50,8 iken 2021 yılında bu oranın %82,7 olduğu belirtilmektedir. Bu artış ve değişim içerisinde özellikle çocuk yaş grubunun dijital toplumda çoğunlukla risklerle karşı karşıya kaldığı (Livingstone ve diğerleri, 2017) ve dijital ortamda risk ve fırsatların pozitif yönde birbiriyle ilişkili olduğu belirtilmektedir (Livingstone ve diğerleri, 2018; Helsper ve Smahel, 2020). Bu durum dijital güvenliğin önemini artırmıştır.

Alanyazında dijital güvenlik ile ilgili araştırmalarda sıklıkla teknik boyutun merkeze alındığı görülmüştür (Şahinaslan ve diğerleri, 2009; M. Tekerek ve Tekerek, 2013). Dijital güvenlikte insan faktöründen kaynaklı riskleri de kapsama alan çalışmalarda ise dijital zorbalık, çevrim içi alışveriş, hak ve sorumluluk, sağlık boyutları da ele alınmıştır (Çolak ve diğerleri, 2011; Çolak, 2019; Durmaz ve Ulukol, 2022; Talan ve Aktürk, 2019). Bununla birlikte dijital güvenlik veya bilgi güvenliği ile ilgili çocuk yaş grubu üzerinde olası etkileri araştıran araştırmalar (Vural ve Sağıroğlu, 2008; Demirel ve diğerleri, 2012; Çubukçu ve Bayzan, 2013) ve dijital güvenliği etkileyen risk alanlarını inceleyen çalışmalar da mevcuttur (Çelen ve diğerleri, 2011; Karakuş ve diğerleri, 2014; Byrne ve diğerleri, 2016). Yapılan bu çalışmalara göre çocuk yaş grubu üzerinde dijital teknolojilerin olası etkileri, risk alanları, insan faktöründen kaynaklı ihmaller de dijital güvenlik öz yeterliklerini şekillendirmektedir. Bu doğrultuda bu çalışmada dijital güvenlik ile ilgili kazanımların yer alması sebebiyle Sosyal Bilgiler ile Bilişim Teknolojileri ve Yazılım Dersi öğretim programları, ders kitapları ve ilgili alanyazın incelenmiştir. Bu

incelemeler neticesinde dijital güvenlik teknik, psikososyal, çevrim içi alışveriş, hak ve sorumluluk ve sağlık açısından boyutlandırılarak her bir boyuta yönelik alt ölçek geliştirilmiştir. Bu bağlamda bu çalışmanın ortaokul 7. Sınıf öğrencilerinin dijital güvenlik öz yeterlik düzeylerini belirleyebilecek alt ölçeklerden oluşan bir envanter geliştirmeyi amaçlaması ve alt ölçeklerin ayrı ayrı kullanılabilmesi yönünden alanyazına katkı sağlayacağı düşünülmektedir.

Yöntem

Çalışma Grubu

Araştırmanın çalışma grubunu, 2021-2022 eğitim öğretim yılında 7. sınıfta öğrenim görmekte olan 1174 öğrenci oluşturmaktadır. Örneklem sayısının, yapılacak olan faktör analizinin nihai sonuçları üzerinde çok büyük bir etkiye sahip olduğunu belirten Comrey ve Lee (1992) örneklem sayısı bakımından 1000 kişi ve daha fazlasının mükemmel derecede güvenilir olduğunu ifade etmiştir. Buna göre çalışmada geçerlik ve güvenirlik için ulaşılan örneklem sayısının yeterli olduğu söylenebilir.

Envanterin Geliştirme Süreci

Bu süreçte öncelikle dijital güvenlik ile ilgili kazanım ve kavramların öğretim programlarında yer alması sebebiyle Sosyal Bilgiler ile Bilişim Teknolojileri ve Yazılım dersinin öğretim programları, ders kitapları ve alanyazın incelenmiş, envanterde yer alması gereken alt ölçekler belirlenerek madde havuzları oluşturulmuştur.

Alt ölçekler için “hiç katılmıyorum”, “katılmıyorum”, “biraz katılıyorum”, “katılıyorum”, “tamamen katılıyorum” seçeneklerinden oluşan 5’li likert tipi kullanılmıştır. Seçeneklerdeki ifadeler “hiç katılmıyorum” ifadesinden “tamamen katılıyorum” ifadesine doğru 1’den 5’e doğru puan verilmiştir. Buna göre elde edilecek olan yüksek puan dijital güvenlik öz yeterlik konusunda her bir alt ölçek için öz yeterlik durumu olumlu yönde değerlendirilecektir.

Alt ölçeklerin taslak formu BÖTE’ den 5, Sosyal Bilgiler Eğitimi’nden 3, Ölçme-Değerlendirme alanından 1 ve Türkçe Eğitimi’nden 1 alan uzmanı olmak üzere 10 uzmanın görüşüne sunulmuştur. Uzman görüşleri neticesinde gerekli düzenlemeler yapılmış ve teknik alt ölçeğinde 20, psikososyal alt ölçeğinde 8, çevrim içi alışveriş alt ölçeğinde 5, hak ve sorumluluk alt ölçeğinde 7 ve sağlık alt ölçeğinde 5 madde kalmıştır. Oluşan taslak form açıklık ve anlaşılırlık yönünden 5 yedinci sınıf öğrencisine uygulanmış ve tekrar düzenlenmiştir. Düzenlemeler sonucunda envanter çalışma grubuna uygulanmıştır.

Veri Analizi

Veri analizinde SPSS 24.0 ve AMOS paket programları kullanılmıştır. Alt ölçeklerin geliştirilmesi için Açımlayıcı Faktör Analizi (AFA) ve Doğrulayıcı Faktör Analizi (DFA) yapılmıştır.

AFA çalışmalarında Kaiser-Mayer-Olkin (KMO) ve Bartlett testleri verilerin faktör analizine uygunluğu açısından değerlendirilmiştir. AFA’da teknik alt ölçekte faktörler arasında ilişki olduğu düşünülerek dağılımı daha iyi ortaya koymak açısından eğik döndürme yöntemlerinden promax yöntemi yapılmıştır. Bununla birlikte özdeğeri 1’den büyük maddeler dikkate alınmıştır. Diğer alt ölçeklerde ise yapı tek faktörlü olduğu için döndürme tekniği kullanılmamıştır.

AFA sonucunda oluşan alt ölçeklerin yapı geçerliğine ek kanıt amacıyla aynı veri yapısı üzerinden DFA çalışması yapılmıştır. Bu konuda alanyazında çeşitli ölçek geliştirme çalışmaları mevcuttur (Akbaba Altun ve Büyüköztürk, 2011; Alıcı, 2013). DFA'da modelin geçerliğini değerlendirmek amacıyla χ2/ (df), RMSEA, TLI/NNFI, CFI, NFI, AGFI, GFI değerleri hesaplanmıştır.

Tablo 1. *Ölçme modellerinin tümünde uyum indeks değerlerinin değerlendirilmesinde kullanılmış olan kriter değerler*

Uyum İndeks	Mükemmel Uyum Kriterleri	Kabul Edilebilir Uyum Kriterleri
χ2/ (df)=Y	0≤Y≤3	3< Y≤5
RMSEA=Y	0≤Y≤0,05	0,05<Y≤0,08
TLI/NNFI=Y	0,97≤Y≤1,00	0,95≤Y<0,97
CFI=Y	0,97≤Y≤1,00	0,95≤Y<0,97
NFI=Y	0,95≤Y≤1,00	0,90≤Y<0,95
AGFI=Y	0,90≤Y≤1,00	0,85≤Y<0,90
GFI=Y	0,95≤Y≤1,00	0,90≤Y<0,95

Tablo 1'de ölçme modeline ait uyum indekste kriter değerlerden χ2/ (df) Byrne'e (2013) göre ve RMSEA, TLI/NNFI, CFI, NFI, AGFI, GFI ise Schermelleh-Engel ve diğerleri (2003; aktaran Pektaş, 2022) göre verilmiştir.

Analizler sonrasında oluşan ölçeğin güvenirliğini test etmek amacıyla Cronbach Alfa güvenirlik kat sayısına bakılmıştır. Aynı zamanda her bir alt ölçeğe ait maddelerin iç geçerliğini test etmek için madde toplam korelasyon analizlerine bakılmıştır.

Araştırmanın Etik İzinleri

Yapılan bu çalışmada "Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi" kapsamında uyulması belirtilen tüm kurallara uyulmuştur. Yönergenin ikinci bölümü olan "Bilimsel Araştırma ve Yayın Etiğine Aykırı Eylemler" başlığı altında belirtilen eylemlerden hiçbiri gerçekleştirilmemiştir.

Etik Kurul İzin Bilgileri

Etik değerlendirmeyi yapan kurul adı = Gazi Üniversitesi Etik Komisyonu

Etik değerlendirme kararının tarihi=08.02.2022

Etik değerlendirme belgesi sayı numarası=E-77082166-302.08.01-281365

Bulgular ve Yorum

Bu bölümde Dijital Güvenlik Öz Yeterlik Enventeri'nde yapı geçerliğini incelemek amacıyla AFA ve DFA çalışmaları her alt ölçek için ayrı sunulmuştur. Alt ölçeklerin güvenirlik sonuçlarına bölüm sonunda "güvenirlik" başlığı altında yer verilmiştir.

Teknik Alt Ölçeği

Açımlayıcı Faktör Analizi

Teknik alt ölçeğinde hesaplanan KMO değeri 0,90'dır ve bu değerin 0,60 değerinden yüksek olması faktör analizine uygun olduğunu gösterir (Büyüköztürk, 2019). Bartlett test sonucu ise 4349,77 olarak hesaplanmış ve bu değer 0,01'e göre anlamlıdır (X^2_{105}=4349,77). Barlett testi sonucunun anlamlı düzeyde olması verileri faktör analizine uygun olduğunu gösterir (Kalaycı, 2009). Bu doğrultuda yeterli bir örneklem kullanıldığı söylenebilir.

Teknik alt ölçeğinde maddelerin arasındaki ilişkiyi ortaya koymak amacıyla yapılan AFA işleminde ölçekteki maddelerin birbiriyle ilişkili olduğunun varsayıldığı durumlarda kullanılan "eğik döndürme" yöntemlerinden promax yöntemi kullanılmıştır. AFA'da en az 0,30 değeri kullanılmaktadır ve teknik alt ölçeğinde yer alan 5 madde bu değerin altında kaldığı için ölçekten çıkarılmıştır. Tekrarlanan AFA sonuçlarına göre ise teknik alt ölçeği 15 madde ve 2 faktörlüdür. Birinci faktör "Güvenilmeyenden kaçınma" olarak adlandırılmış ve 8 maddeden oluşmuş, açıklanan varyans %32,86'dır. Faktör yük değerleri 0,45-0,83 arasında değişmekte ve özdeğeri 4,92'dir. İkinci faktör ise "Önlem alma" olarak adlandırılmış ve 7 maddeden oluşmuş, açıklanan varyans %10,28'dir. Açıklanan toplam varyans değerine (%43,14) göre ölçeğin ölçtüğü niteliği yeterince açıkladığı söylenebilir. Faktör yük değerleri 0,47-0,72 arasında değişmekte ve özdeğeri 1,54'tür. Tüm bu bulgulardan hareketle, teknik alt ölçeğinin yapı geçerliği tatmin edici düzeydedir. Ayrıca teknik alt ölçeğinin madde toplam korelasyonunun 0,47 ile 0,60 arasında değer alması sebebiyle madde ayırt ediciliğinin yeterli düzeyde olduğu görülmektedir.

Doğrulayıcı Faktör Analizi

Teknik alt ölçeğinde DFA'da 1. faktör için faktör yükleri 0,44 ile 0,58 arasında değişmekte, 2. faktör için faktör yükleri 0,44 ile 0,61 arasında değişmektedir. Araştırmada modelin uyum indeks değerlerinin iyileştirilmesi için bazı maddelerin hata yükleri arasında 5 tane modifikasyon kurulmuştur.

DFA sonuçlarında χ2/ (df) 4,86 olarak hesaplanmıştır ve bu değer tablo 1'e göre kabul edilebilir değerdedir. Teknik alt ölçeğinin RMSEA uyum indeks değeri ise 0,057'dir ve kabul edilebilir uyum indeksine sahiptir. Yine Tablo 1'de yer alan değerlere göre TLI/NNFI, CFI ve NFI değerleri kabul edilebilir uyum indeksine, AGFI ve GFI değerleri ise mükemmel uyum indeksine sahiptir. Genel itibari ile teknik alt ölçeğine ilişkin kurulan ölçme modelinin doğrulandığı görülmektedir.

Psikososyal Alt Ölçeği

Açımlayıcı Faktör Analizi

Psikososyal alt ölçeğinde hesaplanan KMO değeri 0,84'tür. Bartlett testi ise 2046,60 olarak hesaplanmış ve 0,01'e göre anlamlıdır (X^2_{28}=2046,60). Bu doğrultuda araştırmada yeterli bir örneklem kullanılmıştır.

Psikososyal alt ölçekte yer alan maddelerin faktör yük değerleri 0,47 ile 0,74 arasında değişmektedir. Faktör yük değerlerine göre alt ölçekte yer alan maddelerin ölçek ile uyumlu olduğu görülmektedir. Ölçekte hiçbir madde 0,45 değerinin altında kalmamış tek faktörde toplanmış olması sebebiyle analiz tekrarlanmadan son şeklini almıştır. Ayrıca tek faktörlü

yapıda olmasından kaynaklı döndürme tekniği kullanılmamıştır. Madde toplam korelasyonuna bakıldığında ise değerler 0,35 (m21) ile 0,62 (m28) arasında değişmektedir ve madde ayırt ediciliği yeterlidir. Bununla birlikte özdeğer 3,22 olarak hesaplanmıştır ve tek bir faktörde toplam varyans değerinin %40,33'ünü açıkladığı görülmektedir. Tek faktörlü ölçeklerde, açıklanan varyansın %30'dan fazla olması yeterli görülmektedir (Tavşancıl, 2010).

Doğrulayıcı Faktör Analizi

DFA'da maddelere ait faktör yükleri 0,39 ile 0,69 arasında değişmektedir. Araştırmada modelin uyum indeks değerlerinin iyileştirilmesi için bazı maddelerin hata yükleri arasında 1 tane modifikasyon kurulmuştur.

DFA sonuçları tablo 1'deki uyum indeks kriterlerine göre değerlendirilmiştir. Buna göre, psikososyal alt ölçeğine ilişkin kurulan 1. düzey tek faktörlü ölçme modeline ait uyum indeks değerlerinde, χ2/ (df) değerinin 3,79 olduğu ve bu değerin tablo 1'e göre kabul edilebilir uyum indeksindedir. RMSEA uyum indeks değeri ise 0,049'dur ve bu değer tablo 1'e göre mükemmel uyum indeksindedir. Yine tablo 1'e göre TLI/NNFI değeri kabul edilebilir uyum indeksinde, CFI, NFI, AGFI ve GFI değerleri ise mükemmel uyum indeksindedir. Genel itibari ile psikososyal alt ölçeğine ilişkin kurulan ölçme modelinin doğrulandığı görülmektedir.

Çevrim İçi Alışveriş Alt Ölçeği

Açımlayıcı Faktör Analizi

Çevrim içi alışveriş alt ölçeğinde hesaplanan KMO değeri 0,79'dur. Bartlett testi ise 1199,12 olarak hesaplanmış ve 0,01'e göre anlamlıdır (X^2_{10}=1199,12). Bu doğrultuda araştırmada yeterli bir örneklem kullanılmıştır.

Çevrim içi alışveriş alt ölçeği tek faktörde 5 maddeden oluşmuş ve faktör yük değerleri 0,61 ile 0,77 arasında değişmektedir. Faktör yük değerlerine bakıldığında maddelerin ölçek ile uyumlu olduğu görülmektedir. Hiçbir madde 0,45 değerinin altında kalmadığı ve tek faktörde toplanması sebebiyle analiz tekrarlanmadan son şeklini almıştır. Ayrıca tek faktörlü yapıda olmasından kaynaklı döndürme tekniği kullanılmamıştır. Madde toplam korelasyonunları ise 0,41 (m29) ile 0,58 (m31-32) arasında değişmektedir ve madde ayırt ediciliği yeterlidir. Bununla birlikte alt ölçekte özdeğer 2,49 olarak hesaplanmıştır. Alt ölçekte tek bir faktörde toplam varyans değerinin %49,79'unu açıkladığı görülmektedir.

Doğrulayıcı Faktör Analizi

DFA'da maddelere ait faktör yük değerleri 0,48 ile 0,71 arasında değişmektedir. Araştırmada modelin uyum indeks değerlerinin iyileştirilmesi için bazı maddelerin hata yükleri arasında 1 tane modifikasyon kurulmuştur.

DFA sonuçları tablo 1'deki uyum indeks kriterlerine göre değerlendirilmiştir. Buna göre alt ölçeğe ilişkin kurulan 1. düzey tek faktörlü ölçme modeline ait uyum indeks değerlerinde, χ2/ (df) değerinin 1,52 olduğu ve bu değerin mükemmel uyum indeksine sahip olduğu görülmektedir. RMSEA uyum indeks değeri ise 0,021'dir. Buna göre tabloda görüldüğü üzere çevrim içi alışveriş alt ölçeğine ait diğer değerler de mükemmel uyum indeksine sahiptir. Genel itibari ile çevrim içi alışveriş alt ölçeğine ilişkin kurulan ölçme modelinin doğrulandığı görülmektedir.

Hak ve Sorumluluk Alt Ölçeği

Açımlayıcı Faktör Analizi

Hak ve sorumluluk alt ölçeğinde hesaplanan KMO örneklem uyum ölçüsü değeri 0,81'dir. Bartlett Küresellik Testi ise 2046,09 olarak hesaplanmış ve bu değer 0,01'e göre anlamlıdır (X^2_{21}=2046,09). Bu doğrultuda araştırmada yeterli bir örneklem kullanılmıştır.

Hak ve sorumluluk alt ölçeği tek faktörde 7 maddeden oluşmuş ve faktör yük değerleri 0,51 ile 0,74 arasında değişmektedir. Faktör yük değerlerine bakılarak alt ölçekte yer alan maddelerin ölçek ile uyumlu olduğu görülmektedir. Ölçekte hiçbir madde 0,45 değerinin altında kalmamış tek faktörde toplanmış olması sebebiyle analiz tekrarlanmadan son şeklini almıştır. Ayrıca tek faktörlü yapıda olmasından kaynaklı döndürme tekniği kullanılmamıştır. Madde toplam korelasyonuna bakıldığında ise değerler 0,38 (m40) ile 0,59 (m34) arasında değişmektedir ve madde ayırt ediciliği yeterlidir. Bununla birlikte özdeğer 3,10 olarak hesaplanmıştır. Alt ölçekte tek faktörde toplam varyans değerinin %44,32'si açıklanmaktadır.

Doğrulayıcı Faktör Analizi

DFA'da ölçekte yer alan maddelerin madde faktör yükleri 0,43 ile 0,73 arasında değişmektedir. Araştırmada modelin uyum indeks değerlerinin iyileştirilmesi için bazı maddelerin hata yükleri arasında 2 tane modifikasyon kurulmuştur.

DFA sonuçları tablo 1'deki uyum indeks kriterlerine göre değerlendirilmiştir. Buna göre alt ölçeğe ilişkin kurulan 1. düzey tek faktörlü ölçme modeline ait uyum indeks değerlerinde, χ2/(df) değerinin 3,14 olduğu ve bu değerin kabul edilebilir uyum indeksine sahip olduğu görülmektedir. RMSEA uyum indeks değeri ise 0,043'tür. Buna göre tabloda görüldüğü üzere hak ve sorumluluk alt ölçeğine ait diğer değerler de mükemmel uyum indeksine sahiptir. Genel itibari ile hak ve sorumluluk alt ölçeğine ilişkin kurulan ölçme modelinin doğrulandığı görülmektedir.

Sağlık Alt Ölçeği

Açımlayıcı Faktör Analizi

Sağlık alt ölçeğinde hesaplanan KMO değeri 0,78'dir. Bartlett testi ise 1199,37 olarak hesaplanmış ve 0,01'e göre anlamlıdır (X^2_{10}=1199,37). Buna göre araştırmada yeterli bir örneklem kullanılmıştır.

AFA'ya göre alt ölçek tek faktörde 5 maddeden oluşmuş ve faktör yük değerleri 0,61 ile 0,74 arasında değişmektedir. Faktör yük değerlerine bakılarak alt ölçekte yer alan maddelerin ölçek ile uyumlu olduğu görülmektedir. Ölçekte hiçbir madde 0,45 değerinin altında kalmamış tek faktörde toplanmış olması sebebiyle analiz tekrarlanmadan son şeklini almıştır. Ayrıca tek faktörlü yapıda olmasından kaynaklı döndürme tekniği kullanılmamıştır. Madde toplam korelasyonuna bakıldığında ise değerler 0,51 (m44) ile 0,65 (m41) arasında değişmektedir ve madde ayırt ediciliği yeterlidir. Bununla birlikte özdeğer 2,49 olarak hesaplanmıştır. Sağlık alt ölçeğinde tek bir faktörde toplam varyans değerinin %49,81'ini açıkladığı görülmektedir.

Doğrulayıcı Faktör Analizi

DFA'da maddelerin faktör yük değerleri 0,48 ile 0,71 arasında değişmektedir. Araştırmada modelin uyum indeks değerlerinin iyileştirilmesi için bazı maddelerin hata yükleri arasında 1 tane modifikasyon kurulmuştur.

DFA sonuçları tablo 1'deki uyum indeks kriterlerine göre değerlendirilmiştir. Buna göre tablo 16 incelendiğinde alt ölçeğe ilişkin kurulan 1. düzey tek faktörlü ölçme modeline ait uyum indeks değerlerinde χ2/ (df) değerinin 2,85 olduğu ve bu değerin mükemmel uyum indeksine sahip olduğu görülmektedir. Tablo 1'e göre hak ve sorumluluk alt ölçeğine ait diğer değerler de mükemmel uyum indeksine sahiptir. Genel itibari ile sağlık alt ölçeğine ilişkin kurulan ölçme modelinin doğrulandığı görülmektedir.

Güvenirlik

Dijital Güvenlik Öz Yeterlik Envanteri'nde yer alan 5 alt ölçeğin güvenirliğine Cronbach Alfa iç tutarlılık kat sayılarına bakılmıştır. Envanterde yer alan alt ölçeklere ait Cronbach Alfa katsayıları sırasıyla; Teknik Alt Ölçeği için 0,85 (1. Faktör için 0,80, 2. Faktör için 0,77), Psikososyal Alt Ölçeği için 0,77, Çevrim İçi Alışveriş Alt Ölçeği için 0,74, Hak ve Sorumluluk Alt Ölçeği için 0,78, Sağlık Alt Ölçeği için 0,75 olarak hesaplanmıştır. Kalaycı (2009), Güvenirlik katsayısı için 0,60 ve üzerinin kabul edilebilir düzeyde güvenilir olduğunu ifade etmektedir. Bu kriter göz önünde bulundurulduğunda her bir alt ölçeğin güvenirlik değerlerinin kabul edilebilir düzeyin üstünde olduğu yani alt ölçeklerin güvenilir olduğu görülmektedir.

Sonuç

Bu çalışmada, 7. sınıf öğrencilerinin dijital güvenlik öz yeterlik algılarını belirlemek için geliştirilmiş olan "Dijital Güvenlik Öz Yeterlik Envanterinde" yer alan 5 alt ölçeğin tümünde KMO ve Bartlett test sonuçlarına göre faktör analizine uygunluğu tespit edilmiştir. Alt ölçeklerin AFA sonuçlarına göre teknik alt ölçeğinin 15 madde ve 2 faktörden oluştuğu görülmüştür. Psikososyal alt ölçeğin 8 madde, çevrim içi alışveriş alt ölçeğinin 5 madde, hak ve sorumluluk alt ölçeğinin 7 madde ve sağlık alt ölçeğinin 5 maddelik tek faktörlü bir yapıda olduğu görülmektedir. Ayrıca teknik alt ölçekte toplam varyansın %43,14'ünün, psikososyal alt ölçekte %40,33'ünün, çevrim içi alışveriş alt ölçekte %49,79'unun, hak ve sorumluluk alt ölçekte %44,32'sinin, sağlık alt ölçekte %49,81'inin açıklandığı görülmektedir. Açıklanan varyans oranlarına bakıldığında tüm alt ölçeklerin yapı geçerliğinin iyi düzeyde olduğu ispatlanmıştır. Alt ölçeklere ait DFA sonuçlarına göre ise model istatistiksel olarak doğrulanmaktadır. Cronbach Alfa değerleri ise alt ölçeklerin güvenirliğini ispat etmektedir. Bu sebeple geliştirilmiş olan envanterin geçerli ve güvenilir bir ölçme aracı olduğu kanıtlanmıştır.

Dijital güvenliğin teknik bilgi ve farkındalığın doğru kullanımı etkilediği de düşünüldüğünde bireylerin dijital güvenlik öz yeterliklerinin ölçülmesine ilişkin ölçek geliştirilmesi ve güvenilir ölçümlerin yapılması büyük önem taşımaktadır. Alanyazında dijital güvenlikle ilgili geliştirilmiş olan ölçekler arasında üniversite öğrencilerine yönelik (Akgün ve Topal, 2015; Arpacı ve Sevinç, 2022; Çolak, 2019; Erdoğmuş, 2017; Ekinci ve Kayapalı Yıldırım, 2019; Erol ve diğerleri, 2015), ortaöğretim öğrencilerine yönelik (Güldüren ve diğerleri, 2016), öğretim elemanlarına yönelik (Keser ve Güldüren, 2014) ve ortaokul öğrencilerine yönelik (Mıhçı ve Kılıç Çakmak, 2017) çalışmalar mevcuttur. Butavicius ve diğerleri (2020) hedef

kitlenin dijital cihazla iş yerinde çalışan yetişkinlerin olduğu çalışmalarında siber güvenliğe yönelik teknik kontrol ölçek geliştirmeyi amaçlamışlardır. 4 maddeden oluşan ölçek, bu çalışmadaki teknik alt ölçeği ile ilişkilidir. Egelman ve Peer (2015) ise 18-69 yaş aralığında dijital kullanıcıların siber güvenlik davranışını tespit edebilecek bir ölçme aracı geliştirmeyi amaçladığı çalışması ise teknik ve psikososyal alt ölçeğinde yer alan maddelerle ilişkilendirilebilir.

5 alt ölçekten meydana gelen öz yeterlik envanteri bir bütün olarak aynı yaş grubundaki öğrencilere uygulanabileceği gibi, her bir alt ölçek farklı çalışmalara ayrı ayrı katkı sağlayabilecektir. Bireylerin bir dijital güvenlik ihlaline maruz kalma durumları, karşılaşılan sağlık sorunları vb. ile dijital güvenlik öz yeterlikleri arasındaki ilişki geliştirilen bu envanterle değerlendirilebilir. Dijital güvenlik öz yeterlik envanteri eğitim müfredatının amaçlarına ve içeriğine yönelik katkı sağlayabilir. 7. sınıf öğrencilerinin dijital güvenlik öz yeterlik düzeylerini belirlemede kullanılabilecek geçerli ve güvenilir bir ölçme aracı olduğu söylenebilir. Geliştirilmiş olan "Dijital Güvenlik Öz Yeterlik Envanteri" 7. sınıf öğrencilerinin dijital güvenlik öz yeterlik düzeylerinin belirlenmesi ve çeşitli değişkenlere göre farklılık gösterip göstermediğinin tespit edilmesi amacıyla kullanılabilir. Ortaokul 7. sınıf öğrencilerinden veri toplanarak geliştirilmiş olan bu ölçek farklı yaş grupları için de yeniden uyarlanıp geliştirilebilir.

EK 1.

DİJİTAL GÜVENLİK ÖZ YETERLİK ENVANTERİ	**Hiç Katılmıyorum**	**Katılmıyorum**	**Biraz Katılıyorum**	**Katılıyorum**	**Katılıyorum**
Teknik Alt Ölçeği					
1.Şifre sıfırlamada kullanılan güvenlik sorularına başkalarının tahmin edemeyeceği cevaplar oluşturabilirim.	1	2	3	4	5
2.Güçlü şifre oluşturabilirim.	1	2	3	4	5
3.Dijital cihazlarda (akıllı telefon, tablet, bilgisayar vb.) güvenlik yazılımları (antivirüs yazılımı vb.) kullanabilirim.	1	2	3	4	5
4.Şifre güvenliği için "iki faktörlü kimlik doğrulama" yöntemini kullanabilirim.	1	2	3	4	5
5.Dijital cihazlarımda (akıllı telefon, tablet, bilgisayar vb.) lisanslı yazılım kullanabilirim.	1	2	3	4	5
6.Dijital ortamda önemli dosyaları yedekleyebilirim.	1	2	3	4	5
7.Dijital cihazları (akıllı telefon, tablet, bilgisayar vb.) kullanırken güvenlik bildirimlerine uygun davranabilirim.	1	2	3	4	5
8.İstenmeyen e-postaları "istenmeyen posta" olarak işaretleyebilirim.	1	2	3	4	5
9.İnternet tarayıcısının (Google Chrome, Firefox vb.) güvenlik ayarlarını düzenleyebilirim.	1	2	3	4	5
10.Dosya indirmeden önce güvenlik kontrollerini yapabilirim.	1	2	3	4	5
11.Halka açık bilgisayarları kullandıktan sonra cihazda kalan bilgilerimi temizleyebilirim.	1	2	3	4	5
12.Güvenli internet hizmetlerini seçebilirim.	1	2	3	4	5
13.Şüpheli görünen bağlantıları açmaktan kaçınabilirim.	1	2	3	4	5
14.İnternette bilgi edineceğim kaynağın güvenirliğini kontrol edebilirim.	1	2	3	4	5
15.İnternette ulaştığım bilgilerin doğruluğunu kontrol edebilirim.	1	2	3	4	5
Psikososyal Alt Ölçeği					
1.Sosyal medyada yabancıların arkadaşlık isteklerini kabul etmemeyi tercih edebilirim.	1	2	3	4	5
2.Dijital ortamda kişisel bilgilerimi (TC No, doğum tarihi, telefon no, konum vb.) paylaşmaktan kaçınabilirim.	1	2	3	4	5
3.Dijital ortamda tehdit ve şantaja maruz kaldığımda durumu güvenilir bir yetişkin ile paylaşabilirim.	1	2	3	4	5
4.Dijital ortamda zorbalığa maruz kaldığımda saldırgana itiraz edebilirim.	1	2	3	4	5
5.Sosyal medya sitelerine üye olmadan önce gizlilik-güvenlik politikasını inceleyebilirim.	1	2	3	4	5
6.Kötü niyetli olduğuna emin olduğum kişileri engelleyebilirim.	1	2	3	4	5
7.İnternette tanışılan kişilerin sahte olma ihtimaline karşı temkinli(ölçülü) olabilirim.	1	2	3	4	5
8.İnternette kişilerin kötü niyetli olma ihtimaline karşı temkinli(ölçülü) olabilirim.	1	2	3	4	5

Çevrim içi Alışveriş Alt Ölçeği					
1.Ailemle birlikte yaptığım internet alışverişlerinde kredi kartı bilgilerinin kaydedilmemesini önerebilirim.	1	2	3	4	5
2.Ailemle birlikte yaptığım internet alışverişlerinde kullanıcı yorum ve şikayetlerini kontrol edebilirim.	1	2	3	4	5
3.Ailemle birlikte yaptığım internet alışverişlerinde güvenli ödeme yöntemlerini önerebilirim.	1	2	3	4	5
4.Ailemle birlikte yaptığım internet alışverişi sırasında tercih edeceğimiz sitenin güvenirliğini kontrol edebilirim.	1	2	3	4	5
5.Ailemle birlikte yaptığım internet alışverişlerinde "bilgilendirme metninin" dikkatlice okunmasını önerebilirim.	1	2	3	4	5
Hak ve Sorumluluk Alt Ölçeği					
1.Dijital ortamda kişilerin haklarına saygılı davranabilirim.	1	2	3	4	5
2.Dijital ortamda kişilik haklarını ihlal eden durumları şikayet edebilirim.	1	2	3	4	5
3.Dijital ortamda zararlı içerik ve paylaşımları şikayet edebilirim.	1	2	3	4	5
4.Dijital ortamda değer kavramlarına (din, vatan, bayrak, aile, ırk vs.) saygılı davranabilirim.	1	2	3	4	5
5.Dijital ortamda başkalarına ait belgeleri (video, fotoğraf, ses vb.) izinsiz kullanmaktan kaçınabilirim.	1	2	3	4	5
6.Dijital ortamda başkalarına ait belgeler (video, fotoğraf, ses vb.) üzerinde değişiklikler yapmaktan kaçınabilirim.	1	2	3	4	5
7.Araştırmalarımda internetten yararlandığım kaynakları kaynakçada belirtebilirim.	1	2	3	4	5
Sağlık Alt Ölçeği					
1.Eğlence amaçlı internet kullanımlarında (sosyal medya, dijital oyun, video vb.) aşırı zaman harcamaktan kaçınabilirim.	1	2	3	4	5
2.Dijital cihazları (akıllı telefon, tablet, bilgisayar vb.) kullanırken oturuş biçimi ve izleme mesafesini sağlığa uygun şekilde ayarlayabilirim.	1	2	3	4	5
3.Dijital cihazlarımı kullanırken ses, ışık ve ekran parlaklığını sağlığa uygun ayarlayabilirim.	1	2	3	4	5
4.Zararlı içeriklerden (nefret, şiddet, cinsel içerikli video, film, oyun, fotoğraf vb.) uzak durabilirim.	1	2	3	4	5
5.Akıllı işaretlere (olumsuz öğeler içerir, +13 vb.) göre içerik tercihi yapabilirim.	1	2	3	4	5

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Investigation of STEM Approach Applications Based on Model Eliciting Activities in Primary School 4th Grade Mathematics Lessons of Pre-Service Classroom Teachers

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Abstract

In this research, it is aimed to examine how the pre-service classroom teachers apply the STEM approach applications based on model eliciting activities that they designed themselves in primary school 4th grade mathematics course. In the research, the basic qualitative research design was used. The research was carried out in a public primary school in a province in the Aegean region within the scope of Teaching Practice I course in the fall semester of the 2019-2020 academic year. 4 of the 8 participants took part in the research as event practitioners and the other 4 as observers. Practitioner participants designed and implemented 3 STEM approach applications based on model eliciting activities implementation plans. At the end of each activity, semi-structured interviews were held with the practitioners, and when all the activities were finished, with the observer participants, and written opinions of 4th grade primary school students were obtained through structured forms. As a result of the analysis of the observations and interviews, it is seen that the participants completed the STEM approach applications based on model eliciting activities in 6 stages, each stage has a flexible structure that can be switched between each other, they have the motivation to implement the activities despite their lack of experience, and in general, each participant completes the process. When only the opinions of the participants was analyzed, it was concluded that despite the difficulties they experienced, they were willing to apply the STEM approach based on model eliciting activities in their professional lives, and that the students' interest and motivation towards the applications increased, and that, apart from some other skills, students gained cooperation, communication, creativity, and critical thinking skills.

Keywords: STEM approach applications based on model eliciting activities, prospective classroom teacher, STEM education approach

Introduction

Education is a dynamic field that is influenced by many different sectors. One of the sectors where education is affected is the financial sector. As a result of the economic competition between countries in the globalizing world, the concern of the United States of America (USA) to lose its leadership position in economic and political areas began to emerge in the late 20th century. With these concerns, the STEM (Science, Technology, Engineering and Mathematics) education approach has emerged in order to meet the labor force they need and has led an increasing number of countries to review or change their education systems and curricula in recent years (Gencer, Doğan, Bilen and Can, 2019). STEM (Bybee, 2010), which origins date back to the 1990s, was founded in 2001 by Judith A. It was put forward by Ramaley as an educational term or concept (Yıldırım and Altun, 2015). In general terms, STEM education can be defined as the process of obtaining a technological product by supporting the theoretical knowledge of science and mathematics with the engineering application dimension (Thomas, 2014). According to another definition, STEM education is an approach that includes at least two STEM components, provides solutions to students' daily life problems, and utilizes the technology and engineering design process in this process (Aydın-Günbatar and Tabar, 2019).

Research has shown that integrating mathematics and science makes learning more connected and relevant, and has a positive impact on students' attitudes and interests towards school, their motivation to learn, and their achievement (Stohlmann, 2013a). In today's world, where multidisciplinary approaches and skills are required to solve increasingly complex problems, the school curriculum, which includes STEM activities integrated with the preservation of the integrity of the relevant disciplines and the equipping of teachers with the necessary

knowledge, commitment and resources, seems to be a positive step forward in education (English, 2017). As a result of the meta-analysis of the studies in which the STEM education approach was applied, it was concluded that STEM education programs contributed positively to the mathematics success of the students and this contribution was statistically significant (Siregar, Rosli, Maat, & Capraro, 2019). However, although it is widely accepted that mathematics supports all other STEM disciplines, there is clear evidence that it plays an underestimated role in integrated STEM education (Maass, Geiger, Ariza, & Goos, 2019). Engineering education should not be allowed to cause mathematics to remain in the background by being carried out predominantly based on the science curriculum (English, 2015).

Including the STEM education approach in the curriculum seems to be a need to climb the steps in the educational race, and mathematical modeling is recommended as a tool to make the transition to STEM education. Teachers, as the main actors in the implementation of new approaches, should adopt the relevant approaches and be equipped with the necessary knowledge and skills at this point (Doğan, Gürbüz, Çavuş Erdem and Şahin, 2018). In addition, Erbaş et al. (2014) stated that there are insufficient resources for teachers who want to integrate modeling into teaching processes, therefore, more research is needed on the use of modeling for different education levels. They added that with the studies to be carried out, it can be ensured that the resources that can be used in pre-service and in-service teacher training programs are produced and that there is a need for resources that include good examples of modeling tasks for teachers.

The potential contribution of mathematical modeling to STEM education should not be overlooked and academic studies should be conducted on the potential to be used together with the common aspects of mathematical modeling and STEM education (Aydın and Derin, 2018). Kertil and Gürel (2016) state that mathematical modeling is included in all STEM-related applications to some extent. In other words, not all STEM activities are modeling activities, but students can experience the mathematical modeling process in many STEM activities. Teachers can design integrated STEM activities that focus on mathematics discipline using mathematical modeling (Yabas, Boyacı, & Çorlu, 2020). Mathematical modeling can be used both to fulfill STEM tasks such as problem solving and collaborative work that students will face in future societies and to implement education for sustainable development. Since mathematical modeling is based on real-world situations, it can be said that the use of mathematical modeling for STEM task is compatible with the use of education for sustainable development (Suh and Han, 2019).

Maass, Geiger, Ariza and Goos (2019) suggest that mathematical modeling should be included in the school curriculum in a meaningful way as one of the methods they propose to increase the role of mathematics in STEM activities. "Modeling activities", one of the application methods of mathematical modeling, have emerged as an alternative to the use of STEM education in mathematics lessons. However, modeling activities alone may not be sufficient for the realization of engineering skills and interdisciplinary learning. Similarly, Lesh (2010) stated that modeling activities are activities that aim to complete the content of a course rather than being a complete curriculum. When the STEM education literature is examined, it is possible to see the importance of mathematical modeling, but there is also a limited number of studies on the nature of modeling as a bridge between STEM disciplines (Hallström and Schönborn, 2019). In addition,

based on the study they stated that there was no change in mathematical thinking and problem solving skills in primary school mathematics teacher candidates after STEM activities where modeling activities were not used (Yıldırım and Sidekli, 2018). It can be thought that seeing the results of modeling activities as a result of using the STEM approach in mathematics-based applications may contribute to the literature.

Stohlmann, Moore and Cramer (2013) state that in many modeling activities, students use their mathematical ideas with activities established in the context of science to make sense of the tasks given by a real customer. In this study, it is aimed to design modeling activities based on the realistic modeling approach to be applied in a way that will include the achievements of 4th grade primary school mathematics and science course. Model eliciting Activities and Engineering Design Process stages were integrated in order to use the STEM education approach in primary school mathematics courses. The constructed structure is called the STEM approach applications based on model eliciting activities. Mathematics must be used as a foundation in the activity planned. For this purpose, the course should start with modeling activities involving mathematics course achievements, and be aimed creating a mathematical model for solving real-life problems, including science course achievements, by applying engineering design process and producing a three-dimensional product by associating the created mathematical model with science achievements. The stages of the STEM approach applications based on model eliciting activities implementation process created by the researcher are given in Figure 1.

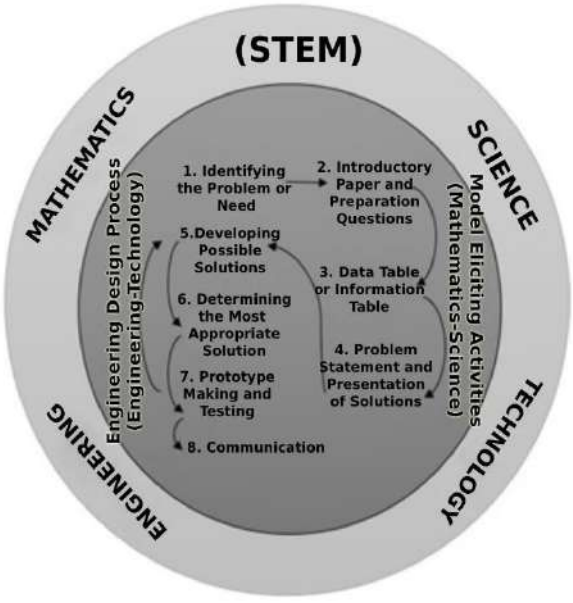

Figure 1. Implementation Process of the STEM approach applications based on model eliciting activities

As a result of the literature review, it seems possible to say that modeling activities are a method that can be used to apply the STEM education approach in the context of mathematics. In this context, this study aims to investigate the applicability of the STEM approach based on modeling activities at primary school level. The researches conducted in the field of teacher candidates' education for STEM approach in Turkey are of the application type and include

theoretical knowledge and activities related to STEM and approximately half of them have been carried out in the last 3 years. In these studies, the samples are mostly science teachers (Gül and Taşar, 2020). As a matter of fact, considering the studies conducted, the use of the STEM education approach at the primary school level and the lack of applications in the sample of classroom teacher candidates are striking, based on the achievements and subjects of mathematics lessons. In addition, considering the researches that mathematical modeling can be a method in the mathematics-based application of STEM education approach, there is a lack of research in this field in Turkey. In this context, this study aims to examine how the classroom teacher candidates perform the applications in the 4th grade mathematics course of primary school and the opinions of the classroom teacher candidates and primary school students regarding the use of the applications by observing the video recordings of the STEM approach applications based on model eliciting activities that are applied by the prospective classroom teachers in a public school in the classroom environment. It is thought that the research will eliminate the deficiency mentioned in the literature and will answer the following problems.

- What are the stages that the participants use in the process of STEM approach applications based on modeling activities?
- What are the views of the participants on the STEM approach applications based on model eliciting activities process?
- What are the opinions of the participants about the next activity and professional life at the end of the STEM approach application process based on modeling activities?
- What are the opinions of the participants regarding the effect of STEM approach practices based on modeling activities on the skill development of primary school students?

Method

The Method of the Study

In the research, "basic qualitative research" design, which is one of the qualitative research methods, was used. In basic qualitative research, researchers are interested in how people interpret their lives, how they build their own worlds, and what the meanings they add to their experiences are. The main goal is to understand how people understand their lives and experiences. Basic qualitative research may be the most common type used in education. Data are collected by observation, interview or document analysis. Data analysis is performed to determine repetitive patterns. The themes obtained from the resulting data constitute the findings (Merriam, 2013). In the research, qualitative data were collected through observation and interviews and the research was conducted based on the qualitative research paradigm. Other qualitative research patterns were not expressed as a method because data was gathered from an intervened and purposefully modified environment rather than revealing the existing situation. In such cases, the basic qualitative research design, which is generally used as a research design in the literature, was preferred as a method. In this context, in this research, the basic qualitative research design was used to reveal the application process of prospective classroom teachers for the application of the modeling activities-based STEM approach in the 4th grade mathematics course of primary school, to reveal and interpret the meanings they add to their experiences.

The Source of the Data

The maximum diversity among the purposeful sampling methods of the teacher candidates selected to carry out the process in the research was determined according to the sample selection. In the selection of the maximum diversity sample, a small sample is studied in order to represent the diversity of individuals at the maximum level. The aim is to reveal the points where individuals with diversity are similar or different (Gezer, 2021). Before the implementation phase, prospective primary school teachers were given training to design activities in accordance with the STEM approach application process based on modeling activities within the scope of the Mathematics Teaching II course while studying in the third grade in the spring semester of the 2018-2019 academic year. According to the scores they received from the activities they designed at the end of the training, eight teacher candidates were selected on a voluntary basis among the teacher candidates who received the highest (85 points and above), the lowest (50 to 64 points) and the average score (65 to 84 points). Accordingly, two candidates were determined among the teacher candidates with the highest score, two candidates were determined among the teacher candidates with the lowest score, and four candidates were determined among the teacher candidates with the average score. The sample selection over the score was made only for the purpose of increasing diversity, it was not used as a variable in any way during the research process. Six of the selected study group are female and two are male. Among these eight teacher candidates, one of the highest, one of the lowest, and two average scoring teacher candidates designed an activity suitable for the STEM approach application process based on modeling activities and applied it to 4th grade students studying in a public primary school within the scope of the Teaching Practice I course. The other four teacher candidates participated in the lessons in observer status.

Data Collection Tools

In this study, observation and interview techniques were used to collect data. The researcher observed classroom video recordings in order to examine the activity application processes of prospective classroom teachers. During the observation process, the activity application process was carried out by taking notes and examining the teacher-student dialogues and teacher-student behaviors in the classroom. Therefore, no observation form was used. The data obtained as a result of the examinations made according to unstructured observation were also analyzed in accordance with the opinions of the participants about the application process. In addition, a semi-structured interview form was prepared to determine the opinions of the prospective classroom teachers and it was used to interview the prospective classroom teachers after each of the three activities. In addition, a different semi-structured interview form was prepared and applied to determine the views of the prospective classroom teachers based on their observations at the end of the process. The interview information obtained from the participants is presented in Tables 1 and 2, followed by the interview questions.

Table 1. *Schedule of interviews with classroom teacher candidates performing the application*

No	Code name	Meeting Date	Date of second meeting	Date of third interview	Interview location	Total duration of three interviews
1	Serkan	31.10.2019	28.11.2019	16.12.2019	Office	1 h. 2 min 45 sec
2	Reyhan	31.10.2019	28.11.2019	13.12.2019	Office	58 min. 34 sec.
3	Doruk	31.10.2019	28.11.2019	13.12.2019	Office	1 h. 23 min. 57 sec.
4	Yağmur	31.10.2019	28.11.2019	16.12.2019	Office	1 h. 8 min 27 sec.
Total duration						4 h 33 min 43 sec.

Table 2. *Schedule of interviews with classroom teacher candidates observing the application*

No	Code name	Date of discussion	Interview location	Duration of meeting
1	Zehra	17.12.2019	Office	11 min 48 sec.
2	Bilge	17.12.2019	Office	20 min. 17 sec.
3	Selin	18.12.2019	Office	07 min. 18 sec.
4	Nalan	18.12.2019	Office	21 min. 02 sec.
Total duration				1 h. 1 min. 25 sec.

Semi-structured interview questions with prospective practitioners:

1. What are your views on the implementation of the STEM approach based on model eliciting activities at primary school level? Do you find it applicable?

• Physical structure of schools,

• Primary school level, children's level,

• Current curriculum status,

• In terms of socio-economic level.

2. What is the effect of the activity you designed and implemented on your thoughts on the use of STEM approach applications based on modeling activities in mathematics class?

3. What do you think about the effect of the activity you designed and applied on your mathematics teaching skills?

4. What do you think about the teaching of mathematics by associating it with other disciplines? what is the contribution of STEM approach applications based on model eliciting activities to this situation?

5. What are the situations that you have difficulty in the activity you design and implement, and what are the difficulties you encounter?

• Planning (designing).

• Implementation (teaching process).

• Measurement and evaluation dimensions.

6. What solutions have you developed for the situations you have difficulty in the activity you designed and implemented?

• Planning (designing).

• Implementation (teaching process).

• Measurement and evaluation dimensions.

7. What elements do you think facilitate the activity you design and implement?

• Classroom teacher, student level, physical structure of the classroom, suitability of the subject, etc.

8. What do you think about the impact of the first activity you designed and implemented on the design and implementation experiences of your second activity?

9. What do you think about the effects of the experiences you have gained from the activity you designed and implemented when planning the next STEM approach application based on model eliciting activities?

10. Do you drop the STEM approach based on modeling activities in your professional life?

• If you are thinking, why do you apply it?

• In which courses do you apply it?

11. Do you have any other thoughts you would like to add?

Semi-structured interview questions with observer teacher candidates:

1. Would you consider the process in general? Can you convey your experiences and observations?

2. Do you think that the teacher candidate you observe can fully design and implement activities?

• What do you think are the good and bad aspects?

• What would have been more feasible?

3. What do you think about the benefits of the activities implemented to children?

4. What are your views on the implementation of the STEM approach based on model eliciting activities at primary school level? Do you find it applicable?

• Physical structure of schools

• Primary school level children's level

• Current curriculum status

• In terms of socio-economic level.

5. What are your thoughts on the use of STEM approach applications based on modeling activities in mathematics?

6. What do you think about the teaching of mathematics by associating it with other disciplines?

• What is the contribution of STEM approach applications based on model eliciting activities to this situation?

7. Would you consider applying a STEM approach based on model eliciting activities in your professional life?

• If you are thinking, why do you apply it?

• In which courses do you apply it?

8. Do you have any other thoughts you would like to add?

Apart from the classroom teacher candidates, a form was created in order to get the written opinions of the students studying in the 4th grade in the primary school where the application took place, and at the end of the process, it was applied by the researcher in their own classes. Since the activities were carried out in two classes and two teacher candidates carried out the application in each class, the name of the teacher candidate who carried out the activity was written in the space at the beginning of the questions and the opinions of the students were collected separately for each teacher candidate. Interview questions are as follows.

1. What are your thoughts on the lessons you have done with your teacher?

2. .....can you compare your mathematics lessons with your other mathematics lessons with your teacher? What are the similarities and differences?

3. Do you like math class? Why do you like it or not?

4. How did your activities with your ..... teacher affect whether you liked the math lesson?

The Path Followed in the Study

In the study, the data were collected using observation and interview techniques. Observations were made by observing the activity application processes of classroom teacher candidates. The interviews were conducted with classroom teacher candidates and primary school fourth grade students who both performed and observed the application. At the end of each of the three activities, interviews were held with four prospective classroom teachers and primary school students at the end of the three activities. Interviews with prospective primary school teachers were conducted by voice recording on the researcher's phone in order to make it easier for them to progress than the note-taking technique, and they were conducted face-to-face in the researcher's office. In addition, at the end of the application process, the written form created in order to get the written opinions of the students studying in the 4th grade in the primary school where the application took place was applied by the researcher in their own classes. After the interviews were completed, the voice recordings were transcribed by the researcher.

The Analysis of the Data

In this study, qualitative data were analyzed using thematic analysis. Braun and Clarke (2006) stated that thematic analysis consists of six stages and these stages are not linear, but a

repetitive process that can be moved back and forth. The definitions of the stages and what is carried out in the stages in the data analysis process in this research are stated below:

• Researcher's familiarity with the data: It is the decoding of the data, reading the data repeatedly, and noting the first ideas. In this study, the observations of the researcher were recorded and the interview records made with the participants were deciphered. After grading and decoding, each interview text and observation notes were read repeatedly.

• Creating the first codes: It is the systematic coding of the remarkable features of the entire data set and the collection of the data related to each code. In this study, after the interviews were completed, the interview records of all three activities conducted with the practitioner teacher candidates were individually and the interview records made with the observer teacher candidates at the end of the process were associated with the teacher candidate they observed and coded by reading in detail. Then, the codes that are thought to be common are marked on the paper with the same colored pens. Two additional encodings were made by the researcher on the same data set in the same time period. Then, the codes created by the researchers were brought together and similar and different aspects were discussed, and the process continued until a common decision was made. Observation notes were brought together by the researcher to determine the common points of the application stages of each of the teacher candidates. The mentioned process was also used in the other stages (except for the preparation of the report) stated below.

• Searching for themes: It is the collection of codes under the possible themes they are related to. After the coding stage of Saldana (2013), the categories expressed a process from private to general in which the themes were reached after the categories. In this context, the codes extracted from the texts before the themes were created in this research were grouped according to their similar characteristics and combined under categories. As a result of the analysis of the observations, the stages of the activity application processes of the classroom teachers were formed and the determined stages were combined under the theme of "STEM applications based on modeling activities in the 4th grade mathematics course in primary school".

• Reviewing themes: Checking the compatibility of themes with coded data content and the entire data set, creating a thematic “map” of the analysis. In this study, possible themes created by combining subcategories, categories and categories were reviewed by researchers and coders and their compatibility with the data was checked. The consistency of the categories and whether the possible themes covered the categories were discussed by the researchers and coders and a draft thematic map was created. The stages created as a result of the observations were arranged as a result of the interviews with researchers and coders and the stages were finalized.

• Defining and naming themes: It is the simplification of the features of each theme and the clear definition and naming of each theme. In this study, possible themes created and named by the researcher were defined, and the themes were discussed with other coders and their definitions, names and content were clarified.

• Preparation of the report: Selecting concrete and convincing direct quotation samples, analyzing the coded data contents for the last time, reconnecting the analysis results with the research question and the literature, reporting the analysis in an academic language. The themes

created in this research, the categories under the themes, the subcategories and the codes that make up the categories were discussed again by the researchers and coders and finalized.

Validity and reliability in qualitative research depend on the researcher's impartial interpretation of the data and a clear explanation of all stages of the research. The researcher should clearly explain the process to other researchers who want to do a similar study after him or her. Therefore, the research process is explained in detail. In qualitative research where re-measurement and calculations cannot be made, techniques such as calculating the compatibility between observers, triangulation and confirmation of data analysis can be used (January, 2019). Qualitative validity comes from the analysis processes and expert reviews conducted by the researcher based on the information obtained from the participant observations. Reliability plays a smaller role in qualitative research. It deals with consensus-based encoder reliability on the generated codes (Creswell and Plano Clark, 2015). The reliability of the qualitative findings is improved by the researcher's explanation of the underlying assumptions and theories of the study, the use of the triangulation technique, and the detailed explanation of how the findings were reached (Merriam, 2013).

In this study, expert opinions were firstly taken in the creation of data collection tools to ensure the validity and reliability of the qualitative data collection process. The questions were examined by a total of four experts working in the fields of classroom education, developmental psychology, measurement and evaluation, and psychological counseling and guidance. Pre-application was made for the data collection tools created. During the interviews, statements that would guide the participants were avoided. Within the scope of reliability, method triangulation and data-based triangulation were used. For the purpose of method triangulation, observation, interview and document analysis were performed, and diaries and observation reports of the observer teacher candidate were examined. For data-based triangulation, data were collected from practitioner teacher candidates, observer teacher candidates and primary school 4th grade students. The interviews were recorded with the consent of the participants.

In order to establish a relationship between the researcher and the participant, the participants went to the school first and spent time with the participants. The voice recordings were transcribed by the researcher including all the words, exclamations and pauses of the participants. In this context, after the data were written, participant confirmation was applied. The participants were informed about the accuracy of the text and that it reflected their own opinions. An expert other than the researcher coded the interview text at the end of the expert coding process at the same time. At the end of the coding process, the codes, categories and themes were discussed and consensus was reached. The encoder reliability was calculated according to the Miles-Huberman method and found to be 91%.

At the end of the coding process, the researcher selected 1 random interview text and re-encoded it, and compared it with the previous coding. After the data were analyzed, a report containing the meanings obtained from the data was sent to the participants and it was confirmed whether the findings reflected their own experiences. All stages followed within the scope of the research are explained in detail. The findings were presented without commenting and without deteriorating the nature of the data, and the comments were made later. The findings were interpreted by comparing with each other.

Findings

In this section, the findings obtained as a result of the analysis of the qualitative data obtained as a result of the research are presented.

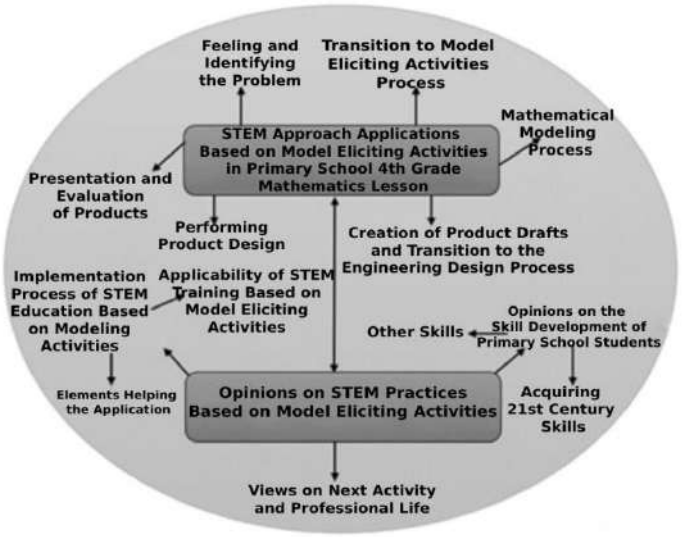

Figure 2. Qualitative data

As a result of the analysis of the course video recordings on how the STEM approach applications based on modeling activities of primary school teacher candidates and the opinions of the practitioner-observer teacher candidates and primary school students about the process, the themes of " STEM approach applications based on model eliciting activities in primary school 4th grade mathematics lesson" and "Opinions on STEM practices based on model eliciting activities" were created in the 6th Grade Mathematics Course. The stages, categories and subcategories under the emerging themes are presented in Figure 2. The results of themes, categories and subcategories are described in detail below.

STEM Approach Applications Based on Model Eliciting Activities in Primary School 4th Grade Mathematics Lesson

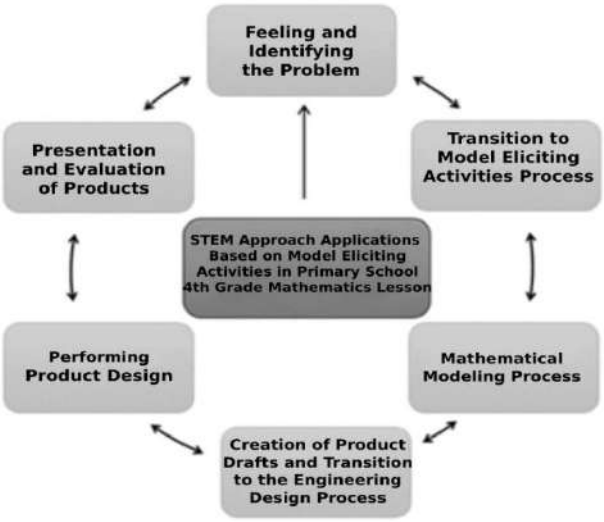

Figure 3. STEM approach applications based on model eliciting activities in primary school 4th grade mathematics lesson

When the video recordings of the course are examined, the theme of STEM approach applications based on model eliciting activities in primary school 4th grade mathematics lesson includes the stages of "feeling and identifying the problem", "transition to model eliciting activities process", "mathematical modeling process", "creation of product drafts and transition to the engineering design process", "performing product design" and "presentation and evaluation of products". As shown in Figure 3, the 6 stages mentioned consist of a cyclic process in which forward or backward transition can be made between each other. The process, which starts with students making sense of the daily life problem by doing group work and solving it with the help of mathematical modeling, is completed by product design, presentation and evaluation of the product they designed with the transition to the engineering design process. The theme of STEM approach applications based on model eliciting activities in primary school 4th grade mathematics lesson is explained below in titles to reflect the process in accordance with the order of stages.

Feeling and Identifying the Problem

When the course video recordings are examined, the first stage of STEM approach applications based on model eliciting activities is to feel and determine the daily life problem. Before starting the mathematical modeling problem, the prospective practitioners gave examples from the daily life of the students in order to understand the problem by the students, and showed examples from newspaper and television news, images from cartoons, videos or songs using smart boards. An exemplary dialogue between the teacher candidate and the students in the classroom is given below.

Teacher candidate: Now tell me what you saw in the news. (Warning not to speak without having the right to speak)

Student: Well, they showed a child with obesity.

Teacher candidate: What is obesity?

Student: Ee do not eat packaged foods too much and ee do not stop by diving into the internet, sedentary life.

Teacher candidate: As a result of this, overweight. It's called obesity, right?

Student: Yes. Exercises between the ages of three and six are mostly gymnastics.

The teacher candidate then asks the students to give examples of people who have obesity problems around them and to exemplify what they are doing to solve this problem.

In addition, when the opinions of the participants are examined, it is understood that when the mathematics course is associated with another discipline (science, art, engineering, etc.) in which the students are interested, the interest of the students in mathematics indirectly increases. At the same time, it can be said that trying to find solutions to daily life problems by associating mathematics with other disciplines also helps students to make sense of the position of mathematics in daily life. *But when we ask in this way, when I associate it with science, when I associate it with art and engineering, the child is inevitably interested in mathematics because he/she has an interest in one of those branches and can solve it more easily "," if I only studied mathematics, it would be a boring lesson, but we include science in it. For example, as in my first*

study, as in my third study, it is a dog in daily life, a means of transportation, designing them, its expenses, harming the environment, the fact that these are all related to science, it makes sense for them to act alone when children think about science besides mathematics, so it makes no sense for them to act for a purpose. I think this positively affects the use of science with mathematics." However, considering the observations and interviews, it is seen that mathematics is in the background compared to other disciplines in the activities. It can be said that taking mathematics as a basis compels classroom teacher candidates in terms of designing and implementing activities. As the teacher candidates stated, "*My first activity I designed was a little weak in that regard. While it was supposed to be mathematics-based, I realized later that I was doing it science-based "," If we think from the beginning, I had difficulty in choosing an achievement. It is also related to the grade level", "I had difficulty in finding a suitable outcome for children. Because I thought we couldn't just take every win and put it in front of them as STEM or MEA. For this reason, I had a little difficulty in looking for gains. "*

Transition to Model Eliciting Activities Process

After the stage where the daily life problem was felt and understood by the students, the teacher candidates switched to the modeling activities process. Mathematical modeling problems were distributed to students individually and students were asked to read the problem and ask about the points that were not understood. According to the results of both observation and activity plans, it can be said that the mathematical modeling problem presented to the students is related to the initially given problem situation. It was observed that teacher candidates made intensive efforts to understand the mathematical modeling problem. When the transition stage to the modeling activities process is examined separately for each classroom teacher candidate, it is seen that the process differs with small nuances due to the situations arising from different approaches in the stages of feeling and determining the problem. Although the use of modeling activities in STEM has positive reflections, it is seen that associating modeling activities with the subject within the framework of an activity within the framework of STEM in some cases compels teacher candidates. "This mathematical modeling seems to me to be like this, as if there are two separate lessons. That's why I had a little trouble. As a matter of fact, the prospective practitioners said, *"I think the first lesson is whether I should have modeling or a prototype drawn, so I think it is a little separated", "For example, we are doing a STEM activity, the child is throwing something there, how can I say, he will design something simple for you, he will design a wind-powered electrical thing for a wind, how can we add mathematics to this? Like I said, I don't think math is very prominent. They used mathematics, the math part, for what I did in STEM. Like I said, math was in it, it's not very prominent, but it was in it. It must have been effective,* "and an observer teacher candidate *said," What if, as I really said, I never thought that mathematics was fully fed into the activities. Science has always remained on top, and even mathematics has been put in the middle. So I think this is a very negative thing for the children and for us. Therefore, I have no idea what it would be like to include mathematics more, but I think better activities can be done by involving mathematics more."* This problem in adding modeling activities to STEM can be explained by the finding that STEM approach applications based on modeling activities encountered in "curriculum status" may not be suitable for every subject as mentioned in the other theme.

Mathematical Modeling Process

At this stage, after it was determined that the mathematical modeling problem was well understood by the students, it was observed that the teacher candidates directed the students to solve the problem. It is seen that teacher candidates guide the groups to find solutions through group discussions. They tried to answer the questions and needs of each group and tried to encourage students who did not participate in the group work or prevented the process to participate in the solution process again. Later, teacher candidates asked students to present the mathematical model they obtained as a result of the solution of the modeling problem with group work. In general, the first week was concluded with this presentation by the teacher candidates in the activities and they concluded the first week by stating that they wanted the students to do the second week until the other part of the activity. In Figure 4 below, an example of the mathematical modeling done by the students and the letter studies they wrote afterwards is shown.

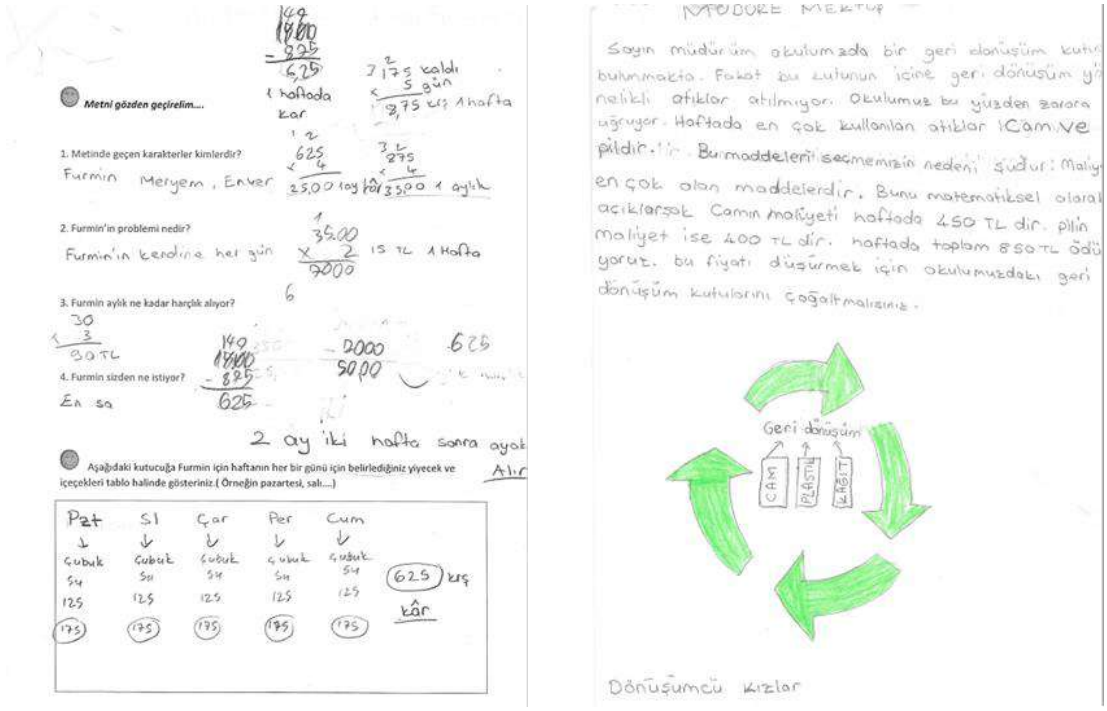

Figure 4. Mathematical modeling and examples of letters performed by students

As a result of course video recording observations and interviews with both practitioner-observer classroom teacher candidates and primary school 4th grade students, it can be stated that the use of modeling activities within the framework of a certain subject in STEM improves students' mathematics skills, better results are obtained from the application, mathematics comes to the fore in problem solving according to fields such as science and engineering, and enables mathematics to become concrete. In addition, it can be said that modeling activities can be used as a method in the use of STEM education approach in mathematics lessons. Regarding this situation, the teacher candidates stated, *"When we research in the studies, we do not see much like we do. He's usually at the center of science, but he used math as a sub-branch. But it's not like that either, we first determine the mathematical achievement or the example, or the state, then we add science to it. This is mathematics and then science in children, and in our study, they do their*

mathematical modeling and then science. If we did not use MEA for mathematical modeling, I think math would be in children, so I think they would say science, they would not say math at that time. " and" Since MEA is actually a problem, since the problem is about math, we are turning that problem into a product, I think how it could have been different. It means that we will directly explain the subject and do this, so it is important to reconcile how we reconcile. I think MEA is good right now." In addition, primary school students' *"It was a little while ago because I did not like mathematics lesson, but I like it because it was a little fun.", "It happened. Mathematical operations were very fun." "We did very nice things with teachers and maybe I would like to be a mathematics teacher when I grow up. "* The sample opinions they expressed in the form of support this situation.

Creation of Product Drafts and Transition to the Engineering Design Process

In the first dimension of the product drafting and transition to the engineering design process, it was seen that teacher candidates asked students to create two-dimensional drafts of the product they wanted them to design based on their mathematical models, which are the solutions to modeling problems, and the achievements of the science course in the problem. It is understood that this dimension, which was mostly realized immediately after mathematical modeling, was completed within the first week of the two-week process. In the second week, with the aim of transitioning to the engineering design process again, the achievements or gains of the science course, which is included in the modeling problem, were emphasized again by the teacher candidates at the beginning of the course. The first week was reminded and efforts were made to involve the students again in the process. In the video observations, the teacher candidates *said, "children, we completed our mathematical modeling in the previous lesson. Now, I'm going to tell you a little bit about the activity we're going to do next week in this class. We'll do something this week for our event next week. Now, you see next week, there's a transportation vehicle that can reach high speeds under the influence of a magnet. Now you will think of a vehicle in your mind. Look, I'm telling you, don't try to build a train just because a train is built here. It's up to you, if you want. You determine one vehicle with all your friends in the group. It may be different from the tools you see, your own design may be a tool, it may be a tool you want to make new. You'll have this car all to yourself. But there's only one thing this vehicle needs to move with a magnet. When we hold the magnet against him, the vehicle will move. We'll do that next week. We are drawing the tool we will make this week. ","* Has *everyone done their research homework? I want you to do a group sketch based on that research assignment, the distance between the two trees. Make a common decision in your trees. You will make a drawing according to what you want to have in your natural environment. You draw a drawing by paying attention to* the distance between your trees."

Performing Product Design

After the product drafts were created by the prospective primary school teachers, it was observed that the students were asked to make their drafts into a three-dimensional model using the materials requested from the previous week. The stage of designing the product carried out with group work reveals that teacher candidates have the most difficulty in classroom management and remain the most passive. At this stage, the common problem experienced by all teacher candidates is that the materials requested from the students are incomplete and as a result, the problems experienced by the teacher candidates. In cases where there was a lack of material, the problem was tried to be solved by sharing between groups or by the material

supplement brought to the class by the teacher candidates thinking beforehand. Sample views on this situation are as follows.

"Well, everything went exactly as I wanted. Well, my only problem was that the students didn't bring the supplies. It was a big problem."

"During the first lesson of the day, I asked the students if they brought any supplies. Only one of the students brought an electrical circuit."

"Only one thing happened, the issue of bringing materials. In fact, it is not about us either, it is a little bit about students, when it is about those who do not bring materials and bring missing things, that group naturally gets interrupted. That was the only problem."

"Well, one of the students did not bring his/her equipment. They shared it among themselves. He did not bring his materials... Because I saw that the students share a lot of materials. You bring this, I'll bring this, but when we look at it the next week, there are people who forget. There are people crying about it. I don't want these.".

At this stage, it may be useful to show a few examples of the products students make. As a matter of fact, two examples are shown in Figure 5.

Figure 5. Product examples made by students

Presentation and Evaluation of Products

After the students turned the products they designed into a three dimensional model, the teacher candidates asked for the presentation of their products by a spokesperson selected within the group. Students introduced their models, explained their characteristics, and opinions were received about the models introduced by other groups. A screenshot of the students' product presentation is shown in Figure 6.

Figure 6. Snapshot of students' product presentation at the end of the event

After the presentation of the products, the teacher candidates were evaluated, which is the last stage of the process, and mostly evaluation studies were carried out using pen and paper tests. However, the point that draws attention here is that there are problems of inability to catch up due to insufficient time allocated to evaluation studies. Due to the time problem, the evaluation questions were either given as homework or were asked to be completed quickly by the students and collected at the last moments of the lesson. It can be said that classroom teacher candidates generally adhere to a single method in terms of measurement and evaluation, and they are incomplete in terms of product, peer, self and process evaluation. Another missing aspect is that the evaluations do not have a corresponding score. Only one teacher candidate evaluated the questions as true and false, but this was not given to the students as a score as feedback. This may be due to the lack of knowledge and experience of teacher candidates in terms of evaluation methods, as well as the difficulty of the variety of evaluation methods in terms of time and applicability. The sample opinions of teacher candidates about the time constraints experienced during the presentation and evaluation of the products are as follows.

"Well, it was the first study, so there was a little inadequacy in time. Presentations are too late. We kept the evaluation phase short where they should have made the last presentation. We did an immediate evaluation and a late evaluation."

"At the end of the lesson, there was no time for students to present. Students delivered the products they created directly without presenting them.

Opinions on STEM Practices Based on Model Eliciting Activities

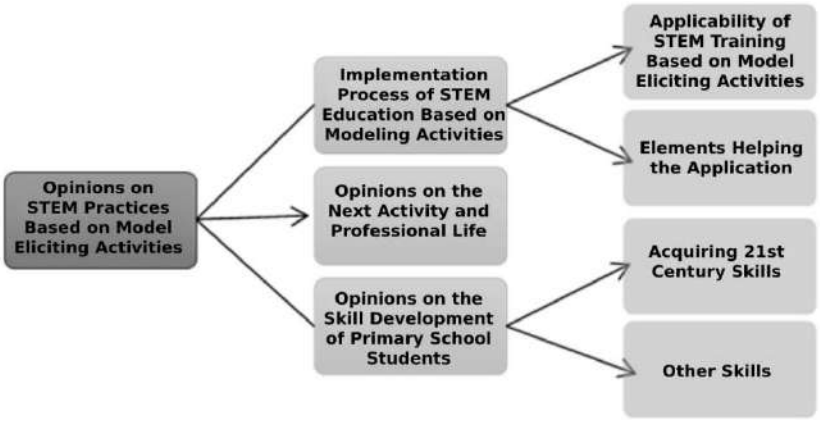

Figure 7. Opinions on STEM practices based on model eliciting activities

The theme views on STEM applications based on model eliciting activities consists of three categories and four subcategories. These categories and subcategories were obtained only as a result of semi-structured interviews and daily evaluations with the classroom teacher candidates who performed the application, interviews with the classroom teacher candidates who observed the application, daily observation reports and analysis based on the written opinions of the primary school 4th grade students. Under this theme, which includes findings that cannot be associated with the observations of the course video recordings and cannot be obtained from the observations, there are three categories called "implementation process of STEM education based on modeling activities", "opinions on the next activity and professional life" and "opinions on the skill development of primary school students". In addition, the category of implementation process of STEM education based on modeling activities consists of the subcategories of "applicability of STEM training based on model eliciting activities" and "elements helping the application". The category of opinions on the skill development of primary school students is "acquiring 21. century skills" and "other skills" subcategories.

Implementation Process of STEM Education Based on Modeling Activities

The application process category of STEM education based on modeling activities consists of "applicability of STEM education based on modeling activities" and "elements that help implementation" subcategories. The Applicability of STEM Education Based on Model eliciting Activities subcategory refers to the general situations that affect the applicability of the approach used in primary school 4th grade mathematics course, are outside the control of the teacher candidate, and affect whether the application can be made or not. As seen in Table 3, the codes of this sub-category are determined as "physical conditions", "student level", "curriculum status", "socio-economic level".

Table 3. *Participants' opinions on the applicability of STEM education based on model eliciting activities*

Subcategory	Code
Applicability of STEM Training Based on Model eliciting Activities	Physical conditions
	Student Level
	Curriculum status
	Socio-economic level

Examples of the opinions of the participants in this subcategory are presented below.

"We can also talk about the crowd of the classroom in terms of its physical structure. Well, I think STEM studies need to be done with fewer people. Our classroom was 22, 23, 25 people in general for weeks, and when this class is crowded, there is more noise, of course, we want them to talk, we want them to help, but when it is more crowded, the teacher candidate gets angry, cannot make his voice heard, the children do not listen, so I think it would be more appropriate for more than fifteen people. The number of our class was too many."

"Primary school is actually very important in this respect. Rather than starting in secondary school, I find it useful to start in primary school or even in preschool before primary school."

"I see this as difficult, but they can make thoughts about turning an abstract into concrete during the transition to the new secondary school in four, but I don't think they can do it in less than three, so I don't think they can do it in less than four... So it's feasible, but it's a little bit of a thing to

wait for the product to come out. I have a pessimism about that. We can wait for the product after four, but if necessary, it can be applied for STEM other than the product. "

"The curriculum situation, as we said, can fit every achievement even if it does not fit everything, I think it should be applied to the achievements and should not be missed."

"It is only my problem that it is in the direction of this achievement. Because ee 5, 6, 7. 8. There are so many achievements in classrooms to do STEM that you can do as much as you want, so you can do STEM in the classroom. I only have a little difficulty in the levels until this 4th grade... There's a bit of a problem with the curriculum. Of course, you can do it as a science, but you can also be a little out of your league. I don't know how true that would be."

"I mean, I think, if I go to a village school, how much can I do it? I can do this at most once a month, once every two months, but in private schools, I think it is applicable every week. Financially troubled throughout Turkey "

The subcategory of elements that help implement modeling activities-based STEM education in the application process category refers to primary school 4th grade mathematics classroom teacher candidates and situations that positively affect the application while applying modeling activities-based STEM education. As seen in Table 4, the codes of this category are determined as "classroom teacher support", "grouping students", "appropriate subject selection" and "student readiness".

Table 4. *Participants' Views on the Factors Helping the Application*

Subcategory	Code
Elements Helping the Application	Classroom teacher support Grouping students Appropriate topic selection Student readiness

Examples of the opinions of the participants in this subcategory are presented below.

"I think I have already received support from the teacher. He's already been very helpful with the, uh, supplies. He was the one who told the students about the materials."

"There is something like this in group work. I think it would be very good if a heterogeneous group was formed... How can I describe it properly? I think it would be very good cooperation and working together in line with a common goal if the students were really recognized and created according to their characteristics."

"The fact that the subject I chose was interesting made my job easier. For example, the fact that there is a puppy in this subject that I have chosen attracts more attention in children, so they have taken more ownership of the subject or I think they are more inclined to the subject because they think of someone who needs help."

"Well, they knew about it. They already know the four-digit process. They already know the other, uh, science part. I just came on to you... He may have just made it easier on himself. Because the students had to reapply what they learned in STEM."

Opinions on the Next Activity and Professional Life

This category covers the findings obtained by analyzing the opinions of prospective classroom teachers in terms of both the activity they will design and apply and their use in their professional lives as a result of the application of STEM education based on modeling activities in the 4th grade mathematics course of primary school. As seen in Table 5, the codes of this category are determined as "planning time", "acquisition and subject selection" and "using in professional life".

Table 5. *Participants' views on next activity and professional life*

Category	Code
Views on Next Activity and Professional Life	Scheduling time Acquisition and topic selection Use in professional life

Examples of the opinions of the participants in this category are presented below.

"I will definitely be more careful in the timing part once in the leap time part. The timing didn't go with my original plans. I'll tell you, I've had problems in general. I will fix it at the beginning, I will keep the time wider now. "

"Actually, we are starting from the gains here, so the gains can actually be applied, but I don't know if they can be applied in line with the gains. For us, for example, with the gains, there will be both science gains and mathematics gains. Of course, these will already be at the level of 4th grade, and this will also do this in the classroom. For example, if it progresses in the direction of a single gain, for example, if it does not associate science with mathematics, or if mathematics can be done with science, it seems to be easier to apply this way... For example, this will probably not be the case at my event. It will be easier for them to understand and easier for them to do. That's my opinion.

"Honestly, I can't do it every week. I can't do as I say in every subject, but I definitely want to do it","I use it, I definitely use it... So I don't do anything in a single course, but I don't know your class in any course, I mean, according to the efficiency I will receive from them, I will definitely use it every two weeks, every three weeks, maybe once a month. I'd like to use it. In fact, I do not use it for a single course, as I said, it is not a single course, because it covers all courses. I don't know once a week, it can be in any class."

"Of course I do. I take the child from the foundation, develop him/her, of course, I would like to develop his/her 21st century skills floor by floor. I don't normally want to be a flattened teacher. I definitely run the STEM application for him. I apply them for the child's own development."

Opinions on the Skill Development of Primary School Students

The effect of the activities applied in the process of applying the STEM education approach based on modeling activities in the 4th grade mathematics course on the skill development of primary school students category "21. Century skills" and" Other Skills". 21. The acquisition of 21st century skills subcategory includes the findings related to the observation of the acquisition of basic 21st century skills aimed by the STEM approach as a result of the application of the STEM education approach based on model eliciting activities in the 4th grade mathematics course of

primary school. As seen in Table 6, the codes of this subcategory are determined as "cooperating", "communication", "creativity" and "critical thinking".

Table 6. *Participants' 21st 20th century skills*

Category	Code
Acquiring 21st Century Skills	Collaboration Contact Creativity Critical Thinking

Examples of the opinions of the participants in this subcategory are presented below.

"They learned to work together, they learned creativity, they had fun, the lesson was more fluid, it was easier. That's why I think it has benefits."

"Group work, they communicate together, they decide something common together. Here they make joint decisions, they do this in the case of group work... For example, someone is making the wheel of the car, someone is making the body, someone is dealing with the decoration, someone is saying that we will make patterns like this here, so they are all talking together, they are in communication."

"They exchanged ideas within the group while dealing with each group design", "It was good for the exchange of ideas. If I think about it, it was also good for communication"

"As I said about the benefits to children, I think that creativity definitely increases their creativity for the first time. Because we leave it original, you know, he chooses one of the many options and does it himself. "

"I think it is very effective in terms of critical point of view", "at work I can think critically, I can take problems from daily life", "the child can think critically and because he/she does this with a group, he/she takes everyone's opinion, I think there are very different perspectives"

The Other Skills subcategory includes the findings of the situations observed in the students as a result of the application of the STEM education approach based on modeling activities in the 4th grade mathematics course of primary school and the experiences of the students regarding some of these situations. As seen in Table 7, the codes of this subcategory are determined as "interest and motivation", "abstract thinking", "psychomotor skills", "spatial thinking", "experience", "using the given time", "working with the group" and "mathematical modeling".

Table 7. *Participants' Opinions on Other Skills Category*

Category	Code
Other skills:	Interest and Motivation Abstract Thinking Psychomotor skills Spatial Thinking of Experience Using the Given Time Working with the Group Mathematical Modeling

Examples of the opinions of the participants in this subcategory are presented below.

"Well, the lessons were fluent, attracted the attention of the children, mostly because it was a design, drawing and they put it into practice."

"I was very happy to see that the students enjoyed themselves and laughed during the lesson."

"But when I went to the internship yesterday, I noticed. The kids come right up to me and say, "When are we going to do the activity?" When should we bring the supplies?"

"I think it makes it easier for children to think abstractly", "I think I make them think because I teach indirectly instead of giving direct gain in another job."

"As I said, they work together within the group, their psychomotor skills develop together, they cut and draw."

"When I was modeling the reading text in another job, they did not understand this so that they would think of a three-dimensional car style on a cardboard cardboard. There were those who made it in two dimensions "," even when you say we will model them, they were surprised and so on."

"For example, I think that children have come a long way for group work because they have never done any group work until today and when they work in groups, they have a really great development when I compare the weeks, the first activity and the third activity. You know, for group, teamwork."

"It was very nice, I liked these 3 activities very much. She told us very beautifully. I liked it as much as we could understand.", "It was nice, I was happy. I was very pleased. "," I thought I liked the lessons very much, I wish I could do the activity again. ", I think it was good, our teacher made us very happy, it was very good, our lesson was very good."

Discussion and Conclusion

Student-level model eliciting activities have emerged as one of the factors affecting the applicability of the STEM approach. In their first activities, teacher candidates had difficulty in designing and implementing activities for the STEM approach based on model eliciting activities suitable for the 4th grade student level of primary school. However, with the experiences they gained in other activities, it was revealed that they exceeded the difficulties they experienced in terms of student level. Similarly, there are studies in the literature indicating that student level is important in STEM activities, the level of association of STEM disciplines increases as the grade level increases, and that it is an effective factor in implementing activities (Kaya and Ayar, 2020; Korucu and Kabak, 2021). In this direction, it makes sense that the participants had difficulty in their first activities. There are positive results such as increased success, better understanding of the subject and permanent learning in the classes where STEM activities are applied (Acar, Tertemiz and Taşdemir, 2018; Alumbaugh, 2015; Becker and Park, 2011; Bolat, 2020; Herdem and Ünal, 2018; Kanadlı, 2019; Seage and Türegün, 2020; Siregar, Rosli, Maat and Capraro, 2020). In addition, in the study conducted by Akgündüz and Akpınar (2018), it can be thought that STEM education practices positively affect students in terms of both academic achievement and skill development, and that Becker and Park (2011) found the largest effect size of the STEM approach at primary school level according to school levels. In this study, it was concluded that STEM activities could be applied at the level of primary school 4th grade students and that the activities could make positive contributions to the students.

The situation expressed by the curriculum status, which is one of the factors affecting applicability, covers that the units, subjects and achievements of primary school mathematics and science course are partially appropriate for the realization of the STEM approach based on modeling activities in schools. There are studies in the literature in which it is concluded that the existing school curricula shaped within the framework of the knowledge-based exam system limit the STEM education approach practices. It has been stated that these limits STEM from students' exam anxiety (Doğan, 2019; Kanadlı, 2019; Kaya and Ayar, 2020; Korucu and Kabak, 2021; Mumcuoğlu Topaloğlu, 2020; Uğraş, 2017). It is seen that the competencies expected from the students within the scope of Turkey Competencies Framework in Ministry of Education curricula are mostly similar to the expectations of STEM. However, although there is a step in the STEM action plan of Ministry of Education (2016) to update the curricula to include STEM education, there is no gain or skill related to STEM in the primary school mathematics curriculum. In the science curriculum, there is a STEM study at the end of each unit and it is even recommended that the products made by the students be presented at the end of the year under the name of science festival. Similarly, it can be said that additions are necessary to integrate STEM in the mathematics curriculum. This situation coincides with the findings obtained in this study that the curriculum situation is partially suitable for STEM practices.

According to the opinions of the participants, it can be said that when the mathematics course is associated with another discipline (such as science, art, engineering) or disciplines, the interest of the students in mathematics increases. When the literature is examined, it is seen that STEM applications allow students to learn with an interdisciplinary approach by crossing the boundaries of a discipline (Eroğlu and Bektaş, 2016; Kanadlı, 2019; Kaya and Ayar, 2020; Kopcha et al., 2017; Siew, Amir and Chong, 2015; Uğraş, 2017). At the same time, it is possible to see that STEM education positively affects students' creative thinking skills by allowing interdisciplinary education (Gülhan and Şahin, 2018) and that teacher candidates have a positive effect on their perceptions of interdisciplinary education (Herdem and Ünal, 2018; Korucu and Kabak, 2021; Yıldırım and Gelmez-Burakgazi, 2020). In addition, there are studies showing that students prefer STEM activities presented with an interdisciplinary approach (Doğan, 2019; Hiğde, 2018). However, within the scope of STEM activities, there are also studies in which mathematics remains weak in relation to daily life compared to other disciplines (Akgündüz and Akpınar, 2018), the interdisciplinary mathematics course has no significant effect on students' problem solving skills (Dickerson, Eckhoff, Stewart, Chappell and Hathcock, 2014; Elliott, Oty, McArthur and Clark, 2001), and among the disciplines that make up STEM, mathematics has the least effect size in terms of success compared to other disciplines (Becker and Park, 2011). Considering that the participants expressed a positive opinion that the application of the STEM approach based on modeling activities increased students' interest in mathematics, it can be stated that mathematics can be beneficial in terms of associating it more strongly with daily life.

Participants stated that they had difficulty in establishing context integration in terms of basing mathematics and placing mathematics lesson learning outcomes and subjects in STEM activity. In the observations made, it is seen that some teacher candidates have difficulty in establishing context integration. Similarly, when the literature is examined, it is possible to see studies indicating the difficulty of combining different disciplines in a context (Estapa and Tank, 2017; Firdaus, Wardani, Altaftazani, Kelana and Rahayu, 2020; Kaya and Ayar, 2020; Lidinillah,

Mulyana, Karlimah and Hamdu, 2019; Uğraş and Genç, 2018; Weber, Fox, Levings and Bouwma-Gearhart, 2013). Among the reasons for difficulty in context integration, it can be thought that there is a lack of sufficient information about how to integrate STEM activities and lack of resources and support (Weber, Fox, Levings and Bouwma-Gearhart, 2013). Weber, Fox, Levings, and Bouwma-Gearhart (2013) point out that when situations such as lack of knowledge, lack of resources and support are eliminated, it can be thought that the problems experienced in context integration will decrease.

Participants stated that modeling activities could be an appropriate method in the application of STEM in mathematics lesson. Studies on the subject also show that STEM is effective in mathematics success (Berk, 2020; Bolat, 2020; Hakim, Sulatri, Mudrikah and Ahmatika, 2019; Hiğde, 2018; Kim and Choi, 2012; Prawvichien, Siripun and Yuenyong, 2018; Siregar, Rosli, Maat and Capraro, 2019) and positively affects students' attitudes towards mathematics (Ching, Yang, Wang, Baek, Swanson and Chittoori, 2019). At the same time, within the scope of STEM activities, students experience how they can apply their mathematics knowledge in practice (Kopcha et al., 2017; Wieselmann, Roehrig, & Kim, 2020). Doğan, Gürbüz, Çavuş-Erdem and Şahin (2019) stated that STEM activities can be done by using an interdisciplinary mathematical modeling framework and this can be a tool to overcome the difficulties in solving real-world problems. When we look at Doğan's (2019) research, it can be seen that applying STEM activities based on mathematics can make mathematics topics more fun and understandable. Compared to other disciplines, the difficulty of placing mathematics in STEM activities is also known (Lidinillah, Mulyana, Karlimah, & Hamdu, 2019). In this study, the participants stated that they had difficulty in basing mathematics on STEM activities, but they stated that modeling activities were an appropriate method to overcome this difficulty.

At the end of the activity, the participants stated that they generally used pen and paper tests, presentation and product evaluation during the measurement and evaluation phase. They generally used peer evaluation by making students in other groups comment after product presentation, but it is seen that they did not use an evaluation form. It can be said that they are incomplete in terms of self-evaluation. A similar situation is seen as a result of the observations made and the examination of the activity files of the participants. In the literature, it is stated that measurement and evaluation have an important place in STEM activities, in this way, information about students' performance and learning levels can be obtained and activities can be organized in the light of this information (Pulat, 2020; Zengin, Kaya and Pektaş, 2020). It is understood that measurement and evaluation were made in the majority of the studies conducted using STEM activities. In the measurement and evaluation dimension, the ability to use the presentation method more frequently than other methods in the evaluation phase of STEM activities (Pulat, 2020) is also important for the development of communication skills within the scope of 21st century skills. Although there are deficiencies in terms of evaluation types in this study, it can be thought that the evaluation types used by the participants are sufficient.

The use of the STEM approach based on modeling activities in the professional lives of the participants includes the frequency of activities, the course to be based on and the motivation factors. It was stated that the activities could not always be done, but when the benefits were considered, they should be done once in the period. Similarly, it is possible to come across findings

that teachers use STEM-based activities as extracurricular exercises in the lesson by considering various criteria (Eroğlu and Bektaş, 2016). However, from the perspective of the students, it can be seen that such activities are requested to be applied more frequently (Doğan, 2019). Regardless of how often it is used, it has been observed that teacher candidates have various motivations to use such activities in the future. Participants' interest in using such activities in the future, trying to solve the problem with real life, providing the student with basic 21st century skills and lesson repetition are the sources of motivation. When the literature is examined, it is seen that teachers and teacher candidates generally develop positive attitudes towards STEM practices and contribute to professional development (Alumbaugh, 2015; Herdem and Ünal, 2018; Kaya and Ayar, 2020; Korucu and Kabak, 2021; Uğraş, 2017; Uğraş and Genç, 2018).

According to the opinions of the participants, it was determined that the basic 21st century skills (collaboration, communication, creativity and critical thinking) aimed by the STEM approach were observed in the fourth grade students as a result of the application of the STEM approach based on modeling activities in the 4th grade mathematics course of primary school. Similar to this finding, many studies show that STEM practices positively affect students' 21st century skills (Akgündüz and Akpınar, 2018; Hiğde, 2018; Kanadlı, 2019; Kaya and Ayar, 2020; Korucu and Kabak, 2021; Uğraş, 2017; Uğraş and Genç, 2018). However, in some studies, it is also noteworthy that STEM activities do not have an effect on STEM 21st century skills (Doğan, 2019). The difference between the study of Doğan (2019) and this study may be due to the differences in the data collection tool (interview-achievement test), sample (teacher candidate-seventh grade student) and method (qualitative-quantitative) between the two studies.

As a result of the application of the STEM approach based on modeling activities, the participants stated that the students had positive and negative experiences in terms of interest and motivation, abstract thinking, psychomotor skills, spatial thinking, experience, using the given time, working with the group and mathematical modeling. It is seen that most of the STEM activities performed allow students to make their own decisions and do their own research throughout the process, are fed by current teaching approaches that provide meaningful learning, provide permanent, effective learning, and are designed as student-centered on its basis (Kaya and Ayar, 2020; Pulat, 2020). Considering the ratio of learning by doing and experiencing among other forms of learning, it can be thought that STEM activities provide a suitable learning environment for the student.

Participants stated that students' interest and motivation in the course and subject increased as a result of the application of the STEM approach based on modeling activities. In addition, they stated that the fact that the application made in this increase was different for the students compared to other courses, product creation as a result of the application, active participation of the student in the application process and the application process being fun for the student were effective. Primary school students also have statements stating that the lessons they do are more fun than other courses. As seen in the literature, although there may be differences in attitudes towards STEM depending on many variables (gender, parental education level, computer or internet ownership status, etc.) (Azgın and Şenler, 2019; Korucu and Kabak, 2021), similar to this study, it is possible to come across studies showing that STEM applications are fun for students and increase students' interest and motivation in the learned subject (Acar,

2018; Acar, Tertemiz and Taşdemir, 2018; Afriana, Permanasari and Fitriani, 2016; Akgündüz and Akpınar, 2018; Arık and Benli Özdemir, 2019; Berk, 2020; Bolat, 2020; Ching et al., 2019; Doğan, 2019; Eroğlu and Bektaş, 2016; Hacıoğlu and Başpınar, 2020; Kanadlı, 2019; Kaya and Ayar, 2020; Kopcha et al., 2017; Korucu and Kabak, 2021; Saka, 2020; Captain and Katrancı, 2020; Siewir, 2015; Amrong, 2015; Tomca and Greş, 2015; Ultğra, 2017; Ultaş, 2017; Yasmak, 2017).

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BIOGRAPHICAL NOTES

Contribution Rate of Researchers

Author 1: 50%

Author 2: 50%

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Sınıf Öğretmeni Adaylarının İlkokul 4. Sınıf Matematik Dersinde Model Oluşturma Etkinlikleri Temelli STEM Yaklaşımı Uygulamalarının İncelenmesi

Giriş

Araştırmalar, matematik ve fen bilimlerini bütünleştirmenin öğrenmeyi daha bağlantılı ve alakalı hale getirdiğini ve öğrencilerin okula karşı tutumları ve ilgileri, öğrenme motivasyonları ve başarıları üzerinde olumlu bir etkisi olduğunu göstermiştir (Stohlmann, 2013a). Gittikçe karmaşıklaşan problemleri çözmek için multidisipliner yaklaşımların ve becerilerin gerekli olduğu günümüz dünyasında, ilgili disiplinlerin bütünlüğünün korunması ve öğretmenlerin gerekli bilgi, bağlılık ve kaynaklarla donatılmasıyla bütünleştirilmiş STEM etkinliklerini içeren okul müfredatı eğitimde ilerleme için olumlu bir adım gibi görünmektedir (English, 2017). STEM eğitim yaklaşımı uygulanan çalışmaların meta analizinin yapılması sonucu STEM eğitimi programlarının öğrencilerin matematik başarısına olumlu katkı yaptığı ve bu katkının istatistiksel olarak anlamlı olduğu sonucuna varılmıştır (Siregar, Rosli, Maat ve Capraro, 2019). Ancak matematiğin diğer tüm STEM disiplinlerini desteklediği yaygın olarak kabul edilse de bütünleştirilmiş STEM eğitiminde hafife alınan bir rol oynadığına dair açık kanıtlar vardır (Maass, Geiger, Ariza ve Goos, 2019). Mühendislik eğitiminin ağırlıklı olarak fen müfredatına dayanarak gerçekleştirilmesi ile matematiğin arka planda kalmasına yol açmasına izin verilmemelidir (English, 2015).

Maass, Geiger, Ariza ve Goos (2019) STEM etkinliklerinde matematiğin rolünü arttırmak için önerdiği yöntemlerden birinde matematiksel modellemenin okul müfredatına anlamlı bir şekilde dâhil edilmesinin gerekli olduğunu söylemektedir. Matematiksel modellemenin uygulama yöntemlerinden biri olan "model oluşturma etkinlikleri" ise STEM eğitiminin matematik dersinde kullanımına yönelik alternatif olarak ortaya çıkmıştır. Ancak tek başına model oluşturma etkinlikleri mühendislik becerisi ve disiplinler arası öğrenmenin gerçekleşmesinde yeterli olmayabilir. Benzer şekilde Lesh (2010) model oluşturma etkinliklerinin tam bir müfredat olmasından ziyade bir dersin içeriğini tamamlaması amaçlayan etkinlikler olduğunu ifade etmiştir. STEM eğitimi alanyazını incelendiğinde matematiksel modellemenin önemini görmek

mümkündür ancak aynı zamanda STEM disiplinleri arasında bir köprü olarak modellemenin doğası hakkında yapılmış sınırlı sayıda araştırma bulunmaktadır (Hallström ve Schönborn, 2019). Bunun yanında model oluşturma etkinliklerinin kullanılmadığı STEM etkinlikleri uygulaması sonrası ilköğretim matematik öğretmen adaylarında matematiksel düşünme ve problem çözme becerilerinde değişiklik olmadığı (Yıldırım ve Sidekli, 2018) ifade edilen çalışmadan yola çıkarak, model oluşturma etkinliklerinin STEM yaklaşımının matematik temelli uygulamasında kullanılması sonucu elde edilecek sonuçları görmenin alanyazına katkısı olabileceği düşünülebilir.

Alanyazın taraması sonucu model oluşturma etkinliklerinin STEM eğitim yaklaşımın matematik bağlamında uygulayabilmek için kullanılabilecek bir yöntem olduğunu söylemek mümkün görünmektedir. Bu bağlamda; bu araştırmada model oluşturma etkinlikleri temelli STEM yaklaşımının ilkokul düzeyinde uygulanabilirliğini araştırmak amaçlanmıştır. Türkiye'de STEM yaklaşımına yönelik öğretmen adayı eğitimi alanında yapılan araştırmalar uygulama türünde olup, STEM ile ilgili teorik bilgi ve etkinlikleri içermektedir ve yaklaşık yarısı son 3 yılda gerçekleştirilmiştir. Bu çalışmalarda örneklemler çoğunlukla fen bilgisi öğretmenleridir (Gül ve Taşar, 2020). Nitekim yapılan çalışmalar göz önüne alındığında STEM eğitimi yaklaşımının matematik dersi kazanım ve konularının temele alınarak, ilkokul düzeyinde kullanılması ve sınıf öğretmeni adayları örnekleminde uygulamalarının eksikliği göze çarpmaktadır. Ayrıca matematiksel modellemenin STEM eğitimi yaklaşımının matematik temelli uygulanmasında bir yöntem olabileceğine dair araştırmalar dikkate alındığında, Türkiye'de bu alanda araştırmaların eksikliği görülmektedir. Bu bağlamda bu araştırmada sınıf öğretmeni adaylarının bir devlet okulunda, sınıf ortamında uyguladıkları, araştırmacı tarafından modeli ortaya konulan model oluşturma etkinlikleri temelli STEM yaklaşımı uygulamalarının, ders video kayıtlarının gözlemlenmesiyle, uygulamaların ilkokul 4. sınıf matematik dersinde sınıf öğretmeni adayları tarafından nasıl gerçekleştirildiğinin ve uygulayıcı-gözlemci sınıf öğretmeni adayları ile ilkokul öğrencilerinin uygulamaların kullanımına yönelik görüşlerinin incelenmesi amaçlanmıştır. Araştırmanın alanyazında bahsedilen eksikliği gidereceği ve aşağıda yer alan problemlere cevap vereceği düşünülmektedir.

•Katılımcıların model oluşturma etkinlikleri temelli STEM yaklaşımı uygulamaları sürecinde kullandıkları aşamalar nelerdir?

•Katılımcıların model oluşturma etkinlikleri temelli STEM yaklaşımı uygulamaları sürecine yönelik görüşleri nedir?

•Katılımcıların model oluşturma etkinlikleri temelli STEM yaklaşımı uygulamaları süreci sonunda bir sonraki etkinlik ve mesleki yaşama ilişkin görüşleri nedir?

•Katılımcıların model oluşturma etkinlikleri temelli STEM yaklaşımı uygulamaları sürecinin ilkokul öğrencilerinin beceri gelişimine etkisine ilişkin görüşleri nelerdir?

Yöntem

Araştırma Modeli

Araştırmada nitel araştırma yöntemlerinden "temel nitel araştırma" deseni kullanılmıştır. Temel nitel araştırmada araştırmacılar insanların yaşamlarını nasıl yorumladığına, kendi dünyalarını nasıl inşa ettiğine ve deneyimlerine kattıkları anlamların ne olduğuyla ilgilenirler. Temel amaç insanların yaşam ve deneyimlerini nasıl kavradığını anlamaktır. Temel nitel

araştırma eğitimde kullanılan en yaygın tür olabilir. Veriler gözlem, görüşme ya da doküman analizi ile toplanır. Veri analizi tekrarlayan örüntüleri belirlemek için yapılır. Ortaya çıkan verilerden elde edilen temalar bulguları oluşturur (Merriam, 2013). Araştırmada gözlem ve görüşme ile nitel veriler toplanmış ve araştırma nitel araştırma paradigmasına dayanarak yürütülmüştür. Var olan durumu ortaya koymaktan ziyade müdahale edilmiş ve amaçlı olarak değiştirilmiş ortamdan veri toplanmış olduğu için diğer nitel araştırma desenleri yöntem olarak ifade edilmemiştir. Bu tip durumlarda genellikle alanyazında araştırma deseni olarak kullanılan temel nitel araştırma deseni yöntem olarak tercih edilmiştir.

Çalışma Grubu

Araştırmada süreci yürütmek üzere seçilen öğretmen adayları amaçlı örnekleme yöntemlerinden maksimum çeşitlilik örneklem seçimine göre belirlenmiştir. Maksimum çeşitlilik örneklem seçiminde bireylerin çeşitliliğin maksimum düzeyde temsil edilmesi amacıyla küçük bir örneklem üzerinde çalışılır. Amaç çeşitlilik gösteren bireylerin benzer ya da farklı olduğu noktaları ortaya koymaktır (Gezer, 2021). Sınıf öğretmeni adaylarına uygulama aşamasından önce 2018-2019 öğretim yılı bahar döneminde 3. sınıfta öğrenim görürken, Matematik Öğretimi II dersi kapsamında model oluşturma etkinlikleri temelli STEM yaklaşımı uygulama sürecine uygun etkinlik tasarlama eğitimi verilmiştir. Eğitimin sonunda tasarladıkları etkinliklerden aldıkları puanlara göre, en yüksek (85 puan ve üzeri), en düşük (50 ile 64 arası) ve ortalama puan (65 ile 84 puan arası) alan öğretmen adayları arasından sekiz öğretmen adayı gönüllülük esasına göre seçilmiştir. Buna göre iki aday en yüksek puan alan, iki aday en düşük puan alan ve dört aday ise ortalama puan alan öğretmen adayları arasından belirlenmiştir. Puan üzerinden örneklem seçimi yalnızca çeşitliliği artırma amaçlı yapılmıştır, araştırma sürecinde herhangi bir şekilde değişken olarak kullanılmamıştır. Seçilen çalışma grubunun altısı kadın ikisi ise erkektir. Bu sekiz öğretmen adayı arasından bir en yüksek, bir en düşük ve iki ortalama puan alan öğretmen adayı etkinlik tasarlamış ve 2019-2020 öğretim yılı güz döneminde Öğretmenlik Uygulaması I dersi kapsamında bir devlet ilkokulunda eğitim gören 4. sınıf öğrencilerine uygulamışlardır. Diğer dört öğretmen adayı ise gözlemci statüsünde derslere katılım sağlamışlardır.

Veri Toplama Araçları ve Verilerin Toplanması

Araştırmada veri toplamak amacıyla gözlem ve görüşme tekniği kullanılmıştır. Sınıf öğretmeni adaylarının etkinlik uygulama süreçlerini incelemek amacıyla araştırmacı tarafından ders video kayıtları gözlemlenmiştir. Gözlem sürecinde etkinlik uygulama süreci notlar alınarak, sınıfta geçen öğretmen-öğrenci diyalogları ve öğretmen-öğrenci davranışları incelenerek yürütülmüştür. Dolayısıyla herhangi bir gözlem formu kullanılmamıştır. Yapılandırılmamış gözleme göre yapılan incelemeler sonucu elde edilen veriler katılımcıların uygulama süreci ile ilgili görüşleri ile de bağdaştırılarak analiz edilmiştir. Ayrıca sınıf öğretmeni adaylarının görüşlerini belirlemeye yönelik yarı yapılandırılmış görüşme formu hazırlanmış ve uygulanan üç etkinliğin her birinin sonrasında sınıf öğretmeni adaylarıyla görüşme yapmak için kullanılmıştır. Ayrıca uygulamayı gerçekleştiren sınıf öğretmeni adaylarının sınıflarında bulunan gözlemci sınıf öğretmeni adaylarıyla sürecin sonunda gözlemlerine yönelik görüşlerini belirlemek için farklı bir yarı yapılandırılmış görüşme formu hazırlanmış ve uygulanmıştır.

Verilerin Analizi

Bu araştırmada nitel veriler tematik analiz kullanılarak analiz edilmiştir. Braun ve Clarke (2006) tematik analizin altı aşamadan oluştuğunu ve bu aşamaların doğrusal olmadığını, ileri geri gidilebilen tekrarlı bir süreç olduğunu ifade etmişlerdir. Aşamaların tanımları ve bu araştırmada veri analiz sürecinde aşamalar içerisinde gerçekleştirilenler aşağıda ifade edilmiştir:

Araştırmacının veriye aşina olması: Verinin deşifre edilmesi, verinin tekrarlı şekilde okunması, ilk fikirlerin not edilmesidir. Bu araştırmada da araştırmacının gözlemleri notlara dökülmüş ve katılımcılarla yapılan görüşme kayıtları deşifre edilmiştir. Notlandırma ve deşifre sonrasında her görüşme metni ve gözlem notları tekrarlı şekilde okunmuştur.

İlk kodların oluşturulması: Tüm veri setinin dikkat çeken özelliklerinin sistematik bir şekilde kodlanması ve her bir kodla alakalı olan verilerin bir araya toplanmasıdır. Bu araştırmada görüşmeler tamamlandıktan sonra uygulayıcı öğretmen adaylarıyla yapılan her üç etkinliğin görüşme kayıtları ayrı ayrı ve gözlemci öğretmen adaylarıyla süreç sonunda yapılan görüşme kayıtları ise gözlemlediği öğretmen adayıyla ilişkilendirilip detaylı okunarak kodlanmıştır. Daha sonra ortak olabileceği düşünülen kodlar aynı renkli kalemlerle kâğıt üzerinde işaretlenmiştir. Aynı zaman diliminde aynı veri seti üzerinde iki ayrıca araştırmacı tarafından kodlama yapılmıştır. Daha sonra araştırmacıların oluşturduğu kodlar bir araya getirilerek benzer ve farklı yönler tartışılmış, ortak bir karar verilene kadar süreç devam etmiştir. Gözlem notları ise öğretmen adaylarının her birinin uygulama aşamalarının ortak noktalarını belirlemek amacıyla araştırmacı tarafından bir araya getirilmiştir. Bahsedilen süreç aşağıda ifade edilen diğer aşamalarda da (raporun hazırlanması hariç) kullanılmıştır.

Temaların aranması: Kodların ilişkili oldukları olası temaların altında toplanmasıdır. Saldana (2013) kodlama aşamasından sonra kategoriler, kategorilerden sonra temalara ulaşılan özelden genele doğru bir süreci ifade etmiştir. Bu bağlamda bu araştırmada temalar oluşturulmadan önce metinlerden çıkarılan kodlar benzer özelliklerine göre gruplandırılarak kategoriler altında birleştirilmiştir. Gözlemlerin analizi sonucu ise sınıf öğretmenlerinin etkinlik uygulama süreçlerinin aşamaları oluşturulmuş ve belirlenen aşamalar "İlkokul 4. sınıf matematik dersinde model oluşturma etkinlikleri temelli STEM uygulamaları" teması altında birleştirilmiştir.

Temaların gözden geçirilmesi: Temaların, kodlanmış veri içeriğiyle ve tüm veri setiyle uyumunun kontrol edilmesi, analize ilişkin tematik 'haritanın' oluşturulması. Bu araştırmada alt kategoriler, kategoriler ve kategoriler birleştirilerek oluşturulan olası temalar araştırmacı ve kodlayıcılar tarafından gözden geçirilmiş ve verilerle uyumu kontrol edilmiştir. Kategorilerin tutarlılığı ve olası temaların kategorileri kapsayıp kapsamadığı araştırmacı ve kodlayıcılar tarafından tartışılarak taslak tematik harita oluşturulmuştur. Gözlemler sonucunda oluşturulan aşamalarla ilgili araştırmacı ve kodlayıcılarla yapılan görüşmeler sonucu düzenlenmiş ve aşamalara son şekli verilmiştir.

Temaların tanımlaması ve isimlendirilmesi: Her temaya ait özelliklerin sadeleştirilmesi ve her bir temanın açık bir şekilde tanımlanması ve isimlendirilmesidir. Bu araştırmada araştırmacı tarafından oluşturulan ve isimlendirilen olası temalar tanımlanmış ve temalara diğer kodlayıcılar ile tartışılarak tanımları, isimleri ve içeriği konusunda kesinlik kazandırılmıştır.

Raporun hazırlanması: Somut ve inandırıcı doğrudan alıntı örneklerinin seçilmesi, kodlanan veri içeriklerinin son kez analiz edilmesi, analiz sonuçlarının araştırma sorusu ve alan yazınla tekrar ilişkilendirilmesi, analizin akademik bir dille raporlaştırılmasıdır. Bu araştırmada oluşturulan temalar, temaların altın yer alan kategoriler, alt kategoriler ve kategorileri oluşturan kodlar araştırmacı ve kodlayıcılar tarafından tekrar tartışılarak son hali verilmiştir.

Araştırmanın Etik İzinleri

Araştırmanın etik izni Kütahya Dumlupınar Üniversitesi Etik Kurulu'nun 11/11/2019 tarihli ve 2019/13 toplantı sayılı kararı ve Kütahya İl Milli Eğitim Müdürlüğünden uygulama çalışmasına yönelik izin 53490996-44 sayılı kararla alınmıştır.

Bulgular

Sınıf öğretmeni adaylarının model oluşturma etkinlikleri temelli STEM yaklaşımı uygulamalarının nasıl gerçekleştirdiğine dair ders video kayıtlarının ve uygulayıcı-gözlemci öğretmen adayları ile ilkokul öğrencilerinin süreç ile ilgili görüşlerinin analizi sonucu "İlkokul 4. Sınıf Matematik Dersinde Model Oluşturma Etkinlikleri Temelli STEM Uygulamaları" ve "Model Oluşturma Etkinlikleri Temelli STEM Uygulamalarına İlişkin Görüşler" temaları oluşturulmuştur. Temalar, kategoriler ve alt kategorilere ait sonuçlar aşağıda ayrıntılı olarak açıklanmıştır. Yapılan gözlemler ve görüşmelerin analizi ile elde edilen örnek diyalog veya görüşler ingilizce metinde ifade edildiğinden dolayı genişletilmiş özette ilgili diyalog veya ifadelere yer verilmemiştir.

İlkokul 4. Sınıf Matematik Dersinde Model Oluşturma Etkinlikleri Temelli STEM Uygulamaları

Ders video kayıtları incelendiğinde İlkokul 4. Sınıf Matematik Dersinde Model Oluşturma Etkinlikleri Temelli STEM Uygulamaları teması; "problemin hissedilmesi ve belirlenmesi", "model oluşturma etkinlikleri sürecine geçiş", "matematiksel modelleme süreci", "ürün taslaklarının oluşturulması ve mühendislik tasarım sürecine geçiş", "ürün tasarımının yapılması" ve "ürünlerin sunumu ve değerlendirme" aşamalarını kapsamaktadır. Belirtilen 6 aşama birbiri arasında ileri veya geri geçiş yapılabilecek döngüsel bir süreçten oluşmaktadır. Öğrencilerin grup çalışması yaparak günlük hayat problemini anlamlandırıp matematiksel modelleme yardımıyla çözmesi ile başlayan süreç, mühendislik tasarım sürecine geçiş aşaması ile birlikte ürün tasarlama, tasarladıkları ürünün sunumu ve değerlendirmesi ile tamamlanmaktadır. İlkokul 4. sınıf matematik dersinde model oluşturma etkinlikleri temelli STEM uygulamaları teması, aşamaların sırasına uygun şekilde süreci yansıtacak biçimde aşağıda başlıklar halinde açıklanmaktadır.

Problemin Hissedilmesi ve Belirlenmesi

Ders video kayıtları incelendiğinde model oluşturma etkinlikleri temelli STEM uygulamalarının ilk aşaması günlük hayat probleminin hissedilmesi ve belirlenmesi olarak karşımızda çıkmaktadır. Uygulayıcı öğretmen adayları matematiksel modelleme problemine geçmeden önce öğrenciler tarafından problemin anlaşılması adına öğrencilerin günlük hayatından örnekler vermiş, akıllı tahta kullanarak, gazete ile televizyon haberlerinden örnekler, çizgi filmlerden görseller, videolar veya şarkılar göstermiştir.

Ayrıca katılımcıların görüşleri incelendiğinde Matematik dersi, öğrencilerin ilgisinin olduğu diğer bir disiplinle (fen, sanat, mühendislik vb.) ilişkilendirildiğinde dolaylı olarak

öğrencilerin matematiğe de ilgisinin arttığı anlaşılmaktadır. Aynı zamanda matematiği diğer disiplinlerle ilişkilendirerek günlük hayat problemleri üzerine çözüm üretmeye çalışmak öğrencilerin matematiğin günlük yaşamdaki konumunu anlamlandırmasına da yardımcı olduğu söylenebilir.

Model Oluşturma Etkinlikleri Sürecine Geçiş

Öğrenciler tarafından günlük hayat probleminin hissedildiği ve anlaşıldığı aşamadan sonra öğretmen adayları model oluşturma etkinlikleri sürecine geçiş yapmışlardır. Matematiksel modelleme problemleri öğrencilere bireysel olarak dağıtılmış ve öğrencilerin problemi okuması ve anlaşılmayan noktaları sormaları istenmiştir. Öğrencilere sunulan matematiksel modelleme probleminin hem gözlem hem de etkinlik planları sonuçlarına göre başlangıçta verilen problem durumu ile ilişkili olduğu söylenebilir. Öğretmen adaylarının matematiksel modelleme probleminin anlaşılması için yoğun çaba sarf ettiği gözlemlenmiştir. Model oluşturma etkinlikleri sürecine geçiş aşaması her sınıf öğretmeni adayı için ayrı ayrı incelendiğinde, problemin hissedilmesi ve belirlenmesi aşamalarındaki farklı yaklaşımlardan kaynaklanan durumlar nedeniyle küçük nüanslarla da olsa sürecin farklılık gösterdiği görülmektedir. Her ne kadar model oluşturma etkinliklerinin STEM içerisinde kullanılmasının olumlu yansımaları olsa da model oluşturma etkinliklerini bir etkinlik çerçevesinde STEM kapsamında konuyla ilişkilendirmenin bazı durumlarda öğretmen adaylarını zorladığı görülmektedir.

Matematiksel Modelleme Süreci

Bu aşamada matematiksel modelleme probleminin öğrenciler tarafından iyice anlaşıldığı tespit edildikten sonra öğretmen adaylarının problemin çözümü için öğrencileri yönlendirdiği gözlemlenmiştir. Çözümlerin grup tartışması yapılarak bulunması konusunda öğretmen adaylarının gruplar arasında dolaşarak rehberlik ettiği görülmektedir. Her grubun sorusuna ve ihtiyacına cevap vermeye çabalamışlar ve grup çalışmasına katılmayan veya süreci engelleyen öğrencileri tekrar çözüm sürecine katılmaya teşvik etmeye çalışmışlardır. Daha sonra öğretmen adayları modelleme probleminin öğrenciler tarafından grup çalışmasıyla çözümü sonucu elde ettikleri matematiksel modelin sunumunu istemişlerdir. Genellikle etkinliklerde öğretmen adayları tarafından ilk hafta bu sunumla sonuçlandırılmış ve öğrencilerden ikinci hafta etkinliğin diğer kısmına kadar yapılmasını istediklerini ifade ederek birinci haftayı sonlandırmışlardır.

Ders video kayıt gözlemleri ve hem uygulayıcı-gözlemci sınıf öğretmeni adayları hem de ilkokul 4. sınıf öğrencileri ile yapılan görüşmeler sonucunda ise model oluşturma etkinliklerinin STEM içerisinde belirli bir konu çerçevesinde kullanımının öğrencilerin matematik becerisini geliştirdiği, yapılan uygulamadan daha iyi sonuçlar alındığı, problem çözümünde matematiğin fen, mühendislik gibi alanlara göre ön plana çıktığı, matematiğin somut hale gelmesini sağladığı ifade edilebilir. Ayrıca model oluşturma etkinliklerinin, STEM eğitimi yaklaşımının matematik dersinde kullanılmasında bir yöntem olarak kullanılabileceği söylenebilir.

Ürün Taslaklarının Oluşturulması ve Mühendislik Tasarım Sürecine Geçiş

Ürün taslaklarının oluşturulması ve mühendislik tasarım sürecine geçiş aşamasının ilk boyutunda öğretmen adaylarının öğrencilerden modelleme problemlerinin çözümü olan matematiksel modellerini ve problemin içinde yer alan fen bilimleri dersi kazanımlarını temele alarak tasarlamalarını istedikleri ürünün iki boyutlu taslaklarını oluşturmalarını istediği

görülmüştür. Çoğunlukla matematiksel modellemenin yapılmasının hemen akabinde gerçekleştirilen bu boyutun iki haftalık sürecin ilk haftası içerisinde tamamlandığı anlaşılmaktadır. İkinci hafta ise mühendislik tasarım sürecine tekrar geçiş amacı ile öğretmen adayları tarafından dersin başında modelleme probleminin içinde yer alan fen bilimleri dersi kazanım veya kazanımları tekrar vurgulanmıştır. İlk hafta yapılanlar hatırlatılarak öğrencilerin sürece tekrar dahil olmasına yönelik çabalarda bulunulmuştur.

Ürün Tasarımının Yapılması

Sınıf öğretmeni adayları tarafından ürün taslakları oluşturulduktan sonra öğrencilerden önceki haftadan istenilen malzemeleri kullanarak taslaklarını üç boyutlu model haline getirmeleri istendiği gözlemlenmiştir. Grup çalışması ile yürütülen ürün tasarımının yapılması aşaması öğretmen adaylarının sınıf yönetiminde en çok zorlandığı ve en pasif kaldıkları aşama olarak ortaya çıkmaktadır. Bu aşamada bütün öğretmen adaylarının yaşadığı ortak sorun öğrencilerden istenen malzemelerin eksik getirilmesi ve bunun sonucunda öğretmen adaylarının yaşadıkları problemlerdir. Malzeme eksikliği yaşandığı durumlarda gruplar arası paylaşımlarla veya öğretmen adaylarının önceden düşünerek sınıfa getirdiği malzeme takviyesiyle sorun çözülmeye çalışılmıştır.

Ürünlerin Sunumu ve Değerlendirme

Öğrenciler tasarladıkları ürünleri üç boyutlu model haline getirdikten sonra öğretmen adayları grup içinde seçilen bir sözcü tarafından ürünlerinin sunumunu istemiştir. Öğrenciler modellerini tanıtmışlar, özelliklerini anlatmışlardır ve diğer gruplar tarafından tanıtılan modeller hakkında görüşler alınmıştır. Ürünlerin sunumundan sonra öğretmen adayları sürecin son aşaması olan değerlendirmeye geçmiş, çoğunlukla kâğıt kalem testlerini kullanarak değerlendirme çalışmalarını yapılmışlardır. Ancak burada dikkat çeken nokta değerlendirme çalışmalarına ayrılan sürenin yetersiz olmasından kaynaklanan yetiştirememe problemlerinin yaşanmasıdır. Süre sorunu nedeniyle değerlendirme soruları ya ev ödevi olarak verilmiş ya da öğrenciler tarafından hızlıca tamamlanması istenerek dersin son anlarında toplanmıştır. Sınıf öğretmeni adaylarının ölçme değerlendirme açısından genelde tek bir yönteme bağlı kaldığı, ürün, akran, öz ve süreç değerlendirme açısından eksik kaldığı söylenebilir. Yine başka bir eksik yön de değerlendirmelerin puan olarak bir karşılığının olmamasıdır. Sadece bir öğretmen adayı soruları doğru yanlış olarak değerlendirmiş, ancak bu da öğrencilere puan olarak geri dönüt olarak verilmemiştir. Bu durum öğretmen adaylarının değerlendirme yöntemleri açısından bilgi ve deneyim eksikliğinden kaynaklanmış olabileceği gibi yapılabilecek değerlendirme yöntemlerinin çeşitliliğinin zaman ve uygulanabilirlik açısından zor olmasından da kaynaklanıyor olabilir.

Model Oluşturma Etkinlikleri Temelli STEM Uygulamalarına İlişkin Görüşler

Model Oluşturma Etkinlikleri Temelli STEM Uygulamalarına İlişkin Görüşler teması üç kategori ve dört alt kategoriden oluşmaktadır. Bu kategori ve alt kategoriler yalnızca uygulamayı yapan sınıf öğretmeni adayları ile yapılan yarı yapılandırılmış görüşmeler ve günlük değerlendirmeleri, uygulamayı gözlemleyen sınıf öğretmeni adaylarıyla yapılan görüşmeler ve günlük gözlem raporları ile ilkokul 4. sınıf öğrencilerinin yazılı görüşlerine dayanarak yapılan analiz sonucu elde edilmiştir. Ders video kayıtlarının gözlemleri ile bağdaştırılamayan ve gözlemlerden elde edilemeyen bulguların yer aldığı bu temanın altında “Model Oluşturma

Etkinlikleri Temelli STEM Eğitimi Uygulama Süreci", "Bir Sonraki Etkinlik ve Mesleki Yaşama İlişkin Görüşler" ve "İlkokul Öğrencilerinin Beceri Gelişimine İlişkin Görüşler" isimli üç kategori yer almaktadır. Bunun yanında Model Oluşturma Etkinlikleri Temelli STEM Eğitimi Uygulama Süreci kategorisi "Model Oluşturma Etkinlikleri Temelli STEM Eğitiminin Uygulanabilirliği" ve "Uygulamaya Yardımcı Olan Unsurlar" alt kategorilerinden oluşmaktadır. İlkokul Öğrencilerinin Beceri Gelişimine İlişkin Görüşler kategorisi ise "21. Yüzyıl Becerilerini Kazanma" ve "Diğer Beceriler" alt kategorilerinden oluşmaktadır.

Model Oluşturma Etkinlikleri Temelli STEM Eğitimi Uygulama Süreci

Model oluşturma etkinlikleri temelli STEM eğitimi uygulama süreci kategorisi "model oluşturma etkinlikleri temelli STEM eğitiminin uygulanabilirliği" ve "uygulamaya yardımcı olan unsurlar" alt kategorilerinden oluşmaktadır. Model Oluşturma Etkinlikleri Temelli STEM Eğitiminin Uygulanabilirliği alt kategorisi, kullanılan yaklaşımın ilkokul 4. sınıf matematik dersinde uygulanabilirliğini etkileyen, öğretmen adayının kontrolünün dışında yer alan, uygulamanın yapılıp yapılamayacağını etkileyen genel durumları ifade etmektedir. Bu alt kategorinin kodları "fiziki şartlar", "öğrenci seviyesi", "müfredat durumu", "sosyo-ekonomik düzey" şeklinde belirlenmiştir.

Model oluşturma etkinlikleri temelli STEM eğitimi uygulama süreci kategorisinde uygulamaya yardımcı olan unsurlar alt kategorisi, Model oluşturma etkinlikleri temelli STEM eğitiminin ilkokul 4. sınıf matematik dersinde uygularken sınıf öğretmeni adaylarını ve uygulamayı olumlu yönde etkileyen durumları ifade etmektedir. Bu kategorinin kodları "sınıf öğretmeni desteği", "öğrencileri gruplandırma", "uygun konu seçimi" ve "öğrenci hazırbulunuşluğu" şeklinde belirlenmiştir.

Bir Sonraki Etkinlik ve Mesleki Yaşama İlişkin Görüşler

Bu kategori, sınıf öğretmeni adaylarının model oluşturma etkinlikleri temelli STEM eğitiminin ilkokul 4. sınıf matematik dersinde uygulanması sonucu hem bir sonraki tasarlayacakları ve uygulayacakları etkinlik açısından hem de mesleki yaşamlarında kullanmaları açısından görüşlerinin analizi ile elde edilen bulguları kapsamaktadır. Bu kategorinin kodları "zamanı planlama", "kazanım ve konu seçimi" ve "mesleki yaşamında kullanma" şeklinde belirlenmiştir.

İlkokul Öğrencilerinin Beceri Gelişimine İlişkin Görüşler

Model oluşturma etkinlikleri temelli STEM eğitimi yaklaşımının ilkokul 4. sınıf matematik dersinde uygulaması sürecinde uygulanan etkinliklerin ilkokul öğrencilerinin beceri gelişimine üzerindeki etkileri kategorisi "21. Yüzyıl becerilerini kazanma" ve "Diğer Beceriler" olmak üzere iki alt kategoriden oluşmaktadır. 21. Yüzyıl becerilerini kazanma alt kategorisi model oluşturma etkinlikleri temelli STEM eğitimi yaklaşımının ilkokul 4. sınıf matematik dersinde uygulanması sonucu STEM yaklaşımının hedeflediği temel 21. yy. becerilerinin kazanımının ilkokul dördüncü sınıf öğrencilerinde gözlemlenme durumuna ilişkin bulguları kapsamaktadır. Bu alt kategorinin kodları "iş birliği yapma", "iletişim", "yaratıcılık" ve "eleştirel düşünme" şeklinde belirlenmiştir.

Tartışma ve Sonuç

Öğrenci seviyesi model oluşturma etkinlikleri temelli STEM yaklaşımının uygulanabilirliğini etkileyen faktörlerden biri olarak ortaya çıkmıştır. Öğretmen adayları ilk etkinliklerinde ilkokul 4. sınıf öğrenci seviyesine uygun model oluşturma etkinlikleri temelli STEM yaklaşımına yönelik etkinlik tasarlamakta ve uygulamakta zorlanmışlardır. Ancak diğer etkinliklerde kazandıkları tecrübelerle öğrenci seviyesi konusunda yaşadıkları zorlukları aştıkları ortaya çıkmıştır. Alanyazına bakıldığında benzer şekilde STEM etkinlerinde öğrenci seviyesinin önemli olduğunu, sınıf seviyesi arttıkça STEM disiplinlerinin ilişkilendirilme düzeyinin arttığını ve etkinlikleri uygulamada etkili bir faktör olduğunu belirten araştırmalar bulunmaktadır (Kaya ve Ayar, 2020; Korucu ve Kabak, 2021). Bu doğrultuda katılımcıların ilk etkinliklerinde zorlanması anlam kazanmaktadır. STEM etkinliklerinin uygulandığı sınıflarda başarı artışı, konuyu daha iyi anlama ve kalıcı öğrenme gibi olumlu sonuçları vardır (Acar, Tertemiz ve Taşdemir, 2018; Alumbaugh, 2015; Becker ve Park, 2011; Bolat, 2020; Herdem ve Ünal, 2018; Kanadlı, 2019; Seage ve Türegün, 2020; Siregar, Rosli, Maat ve Capraro, 2020). Bunun yanında Akgündüz ve Akpınar'ın (2018) yaptığı çalışmada okul öncesi eğitimde dahi STEM uygulamalarının öğrencileri hem akademik başarı hem de beceri gelişimi açısından olumlu etkilediği ve Becker ve Park'ın (2011) okul düzeylerine göre STEM yaklaşımının en büyük etki büyüklüğünü ilkokul düzeyinde bulduğu sonuçlarına bakıldığında da ilkokul düzeyinde de STEM eğitimi uygulamaları yapılabileceği düşünülebilir. Bu çalışmada da ilkokul 4.sınıf öğrencileri seviyesinde STEM etkinlikleri uygulanabileceği ve yapılan etkinliklerin öğrenciler üzerinde olumlu katkılar yapabileceği sonuçlarına ulaşılmıştır.

Uygulanabilirliği etkileyen faktörlerden müfredat durumu ile ifade edilen durum, ilkokul matematik ve fen bilimleri dersi ünite, konu ve kazanımlarının model oluşturma etkinlikleri temelli STEM yaklaşımının okullarda gerçekleştirilmesine yönelik kısmen uygun olduğunu kapsamaktadır. Alanyazında bilgiye dayalı sınav sistemi çerçevesinde şekillenen mevcut okul müfredatlarının STEM eğitimi yaklaşımı uygulamalarını sınırlandırdığı sonucuna ulaşılan çalışmalar mevcuttur. Bu sınırların öğrencilerin sınav kaygısından kaynaklandığı ifade edilmiştir (Doğan, 2019; Kanadlı, 2019; Kaya ve Ayar, 2020; Korucu ve Kabak, 2021; Mumcuoğlu Topaloğlu, 2020; Uğraş, 2017). MEB öğretim programlarında Türkiye Yeterlikler Çerçevesi kapsamında öğrencilerden beklenen yeterliklerin STEM'in beklentileriyle çoğunlukla benzeştiği görülmektedir. Ancak MEB (2016) STEM eylem planında öğretim programlarının STEM eğitimini içerecek biçimde güncellenmesi adımı bulunmasına rağmen, ilkokul matematik öğretim programında STEM ile ilgili herhangi bir kazanım veya beceri bulunmamaktadır. Fen bilimleri öğretim programında ise her ünitenin sonunda STEM çalışması yer almakta ve hatta öğrencilerin yaptıkları ürünlerin bilim şenliği adı altında sene sonunda sunulması önerilmektedir. Benzer şekilde matematik öğretim programında da STEM'i entegre edecek şekilde eklemelerin yapılmasının gerekli olduğu söylenebilir. Bu çalışmada elde edilen müfredat durumunun STEM uygulamalarına kısmen uygun olduğu yönündeki bulgularla da bu durum örtüşmektedir.

Katılımcıların görüşlerine göre matematik dersi başka bir disiplin (fen, sanat, mühendislik gibi) veya disiplinlerle ilişkilendirildiğinde öğrencilerin matematiğe olan ilgisinin arttığı söylenebilir. Alanyazına bakıldığında STEM uygulamalarının öğrencilerin bir disiplinin sınırını aşarak disiplinler arası yaklaşımla öğrenmelerine olanak sağladığı görülmektedir (Eroğlu ve

Bektaş, 2016; Kanadlı, 2019; Kaya ve Ayar, 2020; Kopcha vd., 2017; Siew, Amir ve Chong, 2015; Uğraş, 2017). Aynı zamanda STEM eğitiminin disiplinler arası öğretime olanak vermesiyle öğrencilerin yaratıcı düşünme becerilerini olumlu yönde etkilediği (Gülhan ve Şahin, 2018) ve öğretmen adaylarının da disiplinler arası eğitim algıları üzerinde olumlu etkisinin bulunduğunu görmek mümkündür (Herdem ve Ünal, 2018; Korucu ve Kabak, 2021; Yıldırım ve Gelmez-Burakgazi, 2020). Ayrıca öğrencilerin disiplinler arası yaklaşımla sunulan STEM etkinliklerini tercih ettiğinin görüldüğü çalışmalara rastlanmaktadır (Doğan, 2019; Hiğde, 2018). Ancak STEM etkinlikleri kapsamında diğer disiplinlere nazaran matematiğin günlük hayatla ilişkilendirilmesi hususunda zayıf kaldığı (Akgündüz ve Akpınar, 2018), disiplinler arası şekilde tasarlanan matematik dersinin öğrencilerin problem çözme becerilerine anlamlı bir etkisinin olmadığı (Dickerson, Eckhoff, Stewart, Chappell ve Hathcock, 2014; Elliott , Oty, McArthur ve Clark, 2001) ve STEM'i oluşturan disiplinler içerisinde matematiğin diğer disiplinlere göre başarı bağlamında en az etki büyüklüğüne sahip olduğu (Becker ve Park, 2011) çalışmalar da bulunmaktadır. Bu çalışmada katılımcılar tarafından model oluşturma etkinlikleri temelli STEM yaklaşımının uygulanmasının öğrencilerin matematiğe karşı olan ilgilerini arttırdığı yönünde olumlu görüş belirtildiği düşünüldüğünde matematiğin günlük hayatla daha güçlü bir şekilde ilişkilendirilmesi açısından faydalı olabileceği ifade edilebilir.

Matematiği temele alma ve matematik dersi kazanım ve konularının STEM etkinliği içine yerleştirme açısından katılımcılar bağlam entegrasyonu kurmakta zorlandıklarını ifade etmişlerdir. Yapılan gözlemlerde de bazı öğretmen adaylarının bağlam entegrasyonu kurmakta zorluk yaşadıkları görülmektedir. Alanyazına bakıldığında benzer şekilde farklı disiplinleri bir bağlamda birleştirmenin zorluğunu işaret eden çalışmalar görmek mümkündür (Estapa ve Tank, 2017; Firdaus, Wardani, Altaftazani, Kelana ve Rahayu, 2020; Kaya ve Ayar, 2020; Lidinillah, Mulyana, Karlimah ve Hamdu, 2019; Uğraş ve Genç, 2018; Weber, Fox, Levings ve Bouwma-Gearhart, 2013). Bağlam entegrasyonunda zorlanmanın nedenleri arasında ise STEM etkinliklerinin nasıl bütünleştirileceğine dair yeterli bilgiye sahip olmamanın, kaynak ve destek eksikliğinin bulunduğu düşünülebilir (Weber, Fox, Levings ve Bouwma-Gearhart, 2013). Weber, Fox, Levings ve Bouwma-Gearhart'ın (2013) işaret ettiği entegrasyona ilişkin yeterli bilgiye sahip olmama, kaynak ve destek eksikliği gibi durumlar giderildiğinde bağlam entegrasyonununda yaşanan sorunların azalacağı düşünülebilir.

Katılımcılar, STEM'in matematik dersinde uygulanmasında model oluşturma etkinliklerinin uygun bir yöntem olabileceği yönünde görüş belirtmiştir. Konuyla ilgili yapılan çalışmalar da STEM'in matematik başarısında etkili olduğunu (Berk, 2020; Bolat, 2020; Hakim, Sulatri, Mudrikah ve Ahmatika, 2019; Hiğde, 2018; Kim ve Choi, 2012; Prawvichien, Siripun ve Yuenyong, 2018; Siregar, Rosli, Maat ve Capraro, 2019) ve öğrencilerin matematiğe yönelik tutumlarını olumlu yönde etkilediğini göstermektedir (Ching, Yang, Wang, Baek, Swanson ve Chittoori, 2019). Aynı zamanda STEM etkinlileri kapsamında öğrenciler matematik bilgilerini pratikte nasıl uygulayabileceklerini de deneyimlemektedirler (Kopcha vd., 2017; Wieselmann, Roehrig ve Kim, 2020). Doğan, Gürbüz, Çavuş-Erdem ve Şahin (2019) disiplinler arası matematiksel modelleme çerçevesi kullanarak STEM etkinlikleri yapılabileceğini ve bu durumun gerçek dünya problemlerinin çözümünde yaşanılan zorlukların üstesinden gelmek için bir araç olabileceğini ifade etmişlerdir. Doğan'ın (2019) araştırmasına bakıldığında matematiği temele alarak STEM etkinliklerinin uygulanmasının matematik konularını eğlenceli ve daha anlaşılır hale

getirebileceği görülebilmektedir. Diğer disiplinlere nazaran matematiği STEM etkinlikleri içerisine yerleştirmenin zorluğu da aynı zamanda bilinmektedir (Lidinillah, Mulyana, Karlimah ve Hamdu, 2019). Bu çalışmada da katılımcılar STEM etkinliklerinde matematiğin temele alınması noktasında zorluk yaşadıklarını ifade etmişler ancak model oluşturma etkinliklerinin bu zorluğu aşmak için uygun bir yöntem olduğunu belirtmişlerdir.

Katılımcılar etkinlik sonunda ölçme değerlendirme aşamasında genellikle kâğıt kalem testlerini, sunum yaptırmayı ve ürün değerlendirmeyi kullandıklarını ifade etmişlerdir. Akran değerlendirmeyi genellikle ürün sunumu sonrası diğer gruplarda yer alan öğrencilere yorum yaptırarak kullanmışlar ancak değerlendirme formu kullanmadıkları görülmektedir. Öz değerlendirme noktasında ise eksik kaldıkları söylenebilir. Yapılan gözlemler ve katılımcıların etkinlik dosyalarının incelemesi sonucuda benzer bir durum görülmektedir. Alanyazında STEM etkinliklerinde ölçme ve değerlendirmenin önemli bir yere sahip olduğu, bu yolla öğrencilerin performans ve öğrenme düzeylerine yönelik bilgi edinilebileceği ve etkinliklerin bu bilgiler ışığında düzenlenebileceği belirtilmektedir (Pulat, 2020; Zengin, Kaya ve Pektaş, 2020). STEM etkinlikleri kullanılarak gerçekleştirilen çalışmaların büyük bir çoğunluğunda da ölçme ve değerlendirme yapıldığı anlaşılmaktadır. Ölçme ve değerlendirme boyutunda STEM etkinliklerinin değerlendirme aşamasında diğer yöntemlere nazaran sunum yönteminin daha sık kullanılabilmesi (Pulat, 2020) 21. yy. becerileri kapsamında iletişim becerisinin gelişimi için de önemlidir. Bu çalışmada da değerlendirme türleri açısından eksikleri olmasına rağmen katılımcıların kullandıkları değerlendirme çeşitlerinin yeterli sayıda olduğu düşünülebilir.

Model oluşturma etkinlikleri temelli STEM yaklaşımını katılımcıların mesleki yaşamlarında kullanma durumu; etkinlik yapma sıklığı, temele alınacak ders ve motivasyon unsurlarını kapsamaktadır. Etkinliklerin her zaman yapılamayacağını ancak sağladığı faydalar düşünüldüğünde dönemde bir defa da olsa mutlaka yapılması gerektiği ifade edilmiştir. Benzer şekilde öğretmenlerin STEM temelli etkinlikleri çeşitli kriterler göz önünde bulundurarak derste uygulayamadıkları buna karşın ders dışı egzersiz olarak kullandıklarına yönelik bulgulara rastlamak mümkündür (Eroğlu ve Bektaş, 2016). Ancak öğrencilerin gözünden bakıldığında ise bu tür etkinliklerin daha sık uygulanmasının talep edildiği de görülebilmektedir (Doğan, 2019). Hangi sıklıkla kullanılırsa kullanılsın öğretmen adaylarının gelecekte bu tür etkinlikleri kullanmak için çeşitli motivasyonlarının olduğu görülmüştür. Katılımcıların gelecekte bu tür etkinlikleri kullanma konusunda öğrencilerin etkinliklere ilgisinin olması, gerçek yaşamla probleminin çözülmeye çalışılması, öğrenciye temel 21. yy. becerilerini kazandırması ve ders tekrarı olması gibi durumlar motivasyon kaynaklarını oluşturmaktadır. Alanyazına bakıldığında STEM uygulamalarına yönelik öğretmenlerin ve öğretmen adaylarının genellikle olumlu tutum geliştirdiği, mesleki gelişime katkı sağladığının düşünüldüğü görülmektedir (Alumbaugh, 2015; Herdem ve Ünal, 2018; Kaya ve Ayar, 2020; Korucu ve Kabak, 2021; Uğraş, 2017; Uğraş ve Genç, 2018).

Katılımcıların görüşlerine göre model oluşturma etkinlikleri temelli STEM yaklaşımının ilkokul 4. sınıf matematik dersinde uygulanması sonucu STEM yaklaşımının hedeflediği temel 21. yy. becerilerinin (iş birliği yapma, iletişim, yaratıcılık ve eleştirel düşünme) ilkokul dördüncü sınıf öğrencilerinde gözlemlendiği belirlenmiştir. Yapılan pek çok araştırma da bu bulguya benzer şekilde STEM uygulamalarının öğrencilerin 21. yy. becerilerini olumlu yönde etkilediğini

göstermektedir (Akgündüz ve Akpınar, 2018; Hiğde, 2018; Kanadlı, 2019; Kaya ve Ayar, 2020; Korucu ve kabak, 2021; Uğraş, 2017; Uğraş ve Genç, 2018). Ancak bazı araştırmalarda da STEM etkinliklerinin STEM 21. yy. becerileri üzerinde bir etkiye sahip olmadığı da göze çarpmaktadır (Doğan, 2019). Doğan (2019)'ın çalışması ile bu çalışma arasındaki farklılık, iki araştırma arasındaki veri toplama aracı (görüşme- başarı testi), örneklem (öğretmen adayı- yedinci sınıf öğrencisi) ve yöntem (nitel – nicel) farklılıklarından kaynaklanıyor olabilir.

Model oluşturma etkinlikleri temelli STEM yaklaşımının uygulanması sonucu katılımcılar öğrencilerin, ilgi duyma ve motivasyon, soyut düşünme, psikomotor beceriler, uzamsal düşünme, deneyim, verilen zamanı kullanma, grupla çalışma ve matematiksel modelleme konularında olumlu ve olumsuz deneyimler yaşadığını ifade etmişlerdir. Yapılan STEM etkinliklerinin çoğunun; öğrencilerin süreç boyunca kendi kararlarını vermesine, kendi araştırmalarını yapmasına fırsat tanıdığı, anlamlı öğrenmeyi sağlayan güncel öğretim yaklaşımlarıyla beslendiği, kalıcı, etkili öğrenmeyi sağladığı ve temelinde öğrenci merkezli olarak tasarlandığı görülmektedir (Kaya ve Ayar, 2020; Pulat, 2020). Yaparak ve yaşayarak öğrenmenin diğer öğrenme biçimleri arasındaki oranı düşünüldüğünde STEM etkinliklerinin öğrenci için uygun bir öğrenme ortamı sağladığı düşünülebilir.

Katılımcılar model oluşturma etkinlikleri temelli STEM yaklaşımının uygulanması sonucu öğrencilerin, derse ve konuya ilişkin ilgi ve motivasyonlarının arttığını ifade etmişlerdir. Ayrıca bu artışta yapılan uygulamanın öğrencilere diğer derslere göre farklı gelmesinin, uygulama sonucunda ürün oluşturmanın, uygulama sürecinde öğrencinin aktif katılımının ve uygulama sürecinin öğrenciye eğlenceli gelmesinin etkili olduğunu belirtmişlerdir. İlkokul öğrencilerinin de etkinlik yaptıkları derslerin diğer derslere göre daha eğlenceli olduğunu belirten ifadeleri bulunmaktadır. Alanyazında görüldüğü üzere birçok değişkene (cinsiyet, ebeveyn eğitim düzeyi, bilgisayar veya internete sahip olma durumu vb.) bağlı olarak STEM'e yönelik tutumlarda farklılık yaşanabilmesine karşın (Azgın ve Şenler, 2019; Korucu ve Kabak, 2021) genel olarak bu çalışmaya benzer şekilde STEM uygulamalarının öğrencilere eğlenceli geldiğini, öğrenilen konuya yönelik öğrencilerin ilgi ve motivasyonlarını arttırdığını gösteren çalışmalara rastlamak mümkündür (Acar, 2018; Acar, Tertemiz ve Taşdemir, 2018; Afriana, Permanasari ve Fitriani, 2016; Akgündüz ve Akpınar, 2018; Arık ve Benli Özdemir, 2019; Berk, 2020; Bolat, 2020; Ching vd., 2019; Doğan, 2019; Eroğlu ve Bektaş, 2016; Hacıoğlu ve Başpınar, 2020; Kanadlı, 2019; Kaya ve Ayar, 2020; Kopcha vd., 2017; Korucu ve Kabak, 2021; Pekbay, Saka ve Kaptan, 2020; Sarı ve Katrancı, 2020; Siew, Amir ve Chong, 2015; Toma,ve Greca, 2018;Uğraş, 2017; Ültay, Emeksiz ve Durmuş, 2020; Yasak, 2017).

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Attitude Scale Development Study on the Education of Root Values

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Abstract

The purpose of this study is to develop a measurement tool to measure the attitudes of teacher candidates towards the core values education. For this purpose, an item pool was created by reviewing the related literature and receiving support from area experts. The 5-Point Likert scale has been created with the obtained data from 458 teacher candidates who continue their education in different classes and branches at the faculty of education and the faculty of sports sciences in a state university from Ankara in the spring term of the academic year 2020/21. Conducted at the measurement development stage, the results of the Confirmatory Factor Analysis (CFA) have shown that the scale structure unites under 5 factors that are "acquisition of core values," "interest in core values," "core values for individuals," "necessity of core values" and "core values in terms of course and student" while the structure consists 34 items and factor loadings are varying between .40 and .88. The correlation analysis of the scale has indicated that the correlation coefficients of the items in the scale factors are higher than .20. Moreover, a positive correlation among the factors of the scale was found. Besides, the developed scale is explained 55.89% of the total variance and Cronbach's Alpha value for the whole scale is .93. The present study shows that the developed measurement tool has a valid and reliable structure that might be utilized to measure the attitudes of teacher candidates towards the core values education.

Keywords: Teacher candidates, core values, attitude, scale development.

Introduction

Revealing the meaning of human life and has been drawing attention of various thinkers since ancient times, the term value is known as a concept that is studied, pondered and made efforts about in terms of various disciplines from philosophy to economics, from sociology to psychology, while keeping its place as the common denominator of individual, social or universal perspectives (Gökalp, 2021, s.125) as an indispensable feature in the relationship between life and human (Günör, 2021, s. 83).

Some definitions of the value concept describe the subject of the value as what needs to be, while others are state as the facts that will ensure the continuity of the society. In general terms, the value concept characterized as cultural elements and beliefs that regulate people's behavior and help to hold individuals together (Türkyılmaz, 2021, s. 161); intangible but generalized principles that emerge as a result of strong emotional connections between members of a community to sit in judgment on certain behaviors and purposes (Theodorson and Theodorson, 1979); deep-seated beliefs that establish a framework for how people think, how they decide and how they act (Brand, 1999, s. 42) and the principles, the basic beliefs, and the ideals that guide individuals' behavior and address to the criteria by which certain future behaviors are judged to be good or worthwhile (Halstead, 2005, s. 4; Halstead & Taylor, 2000, s. 169).

The diverseness of the definitions of the value reveals how it has a special place for people and society. Because it has a place in the peaceful, healthy, and happy continuity of individuals and societies, not as a concept that is given up, ignored, marginalized, but always cherished and even cannot be shared. Values have such a special position at society particularly, and preserving the importance of them, transferring them to future generations with values education are take place in different ways in various environments for sure. According to Cummings (2009) and Toomey (2009), educational institutions in the environments in question are considered as places

where the confidence and self-sufficiency required for children are established in a planned, programmed, and systematic way among the young people still growing up, through providing more to what they have previously learned about the values both by the environment and by the family.

Values education in schools has penetrated almost every part of these institutions. In other words, it contributes to the values education in the forms of a sportive activity at school, the subjects covered in the courses, and even the way of discussing them. Although the spheres of activity of values education in schools seems to be broad, the lectures and curriculum have the most important position for values education. By taking into consideration this importance, changes are brought up occasionally in the schools' course curriculum based on some reasons and requirements. Regarded to this, in 2018, Turkey experienced some changes in secondary schools' curriculum by adding the title "Our Values" to the secondary schools' curriculum, which focuses on students' acquisition of core values and includes ten core values: justice, friendship, integrity, self-control, patience, respect, love, responsibility, patriotism, and charitableness. As for all related curriculum, this change is briefly described as "values will come to life in the teaching/learning process through approaching them both on their own, with the associated sub-values and together with other core values" (MEB, 2018).

It is aimed to integrate the core values into all course curriculum in the same manner with the other core values-included curriculum. Without a doubt, this aim is closely related to the thoughts, attitudes, competencies, readiness, and knowledge levels of the related courses' teachers towards the core values and their education. Because without knowing the teachers' approach towards core values, assigning responsibilities to them for the core values education would not be accurate. In this context, the present study aims to develop a measurement tool that identifies the attitudes of future teachers of different courses in secondary schools towards core values education.

Existing literature includes: pre-school values scale for children in pre-school period for values education (Neslitürk & Çeliköz, 2015); Basic democratic values scale for secondary school students (Uygun & Engin, 2014), teacher ethical values scale (Gündüz & Coşkun, 2012), effective citizenship values scale (Çalışkan & Yıldırım, 2020) and values education scale (Beldağ, Özdemir and Nalçacı, 2016); human values scale for high school students (Dilmaç, 2007); values scale for university students (Coşkun & Yıldırım, 2009), value scale (Dilmaç, Arıcak, & Cesur, 2014), personal values inventory (Asan, Ekşi, Doğan, & Ekşi, 2008) and the attitude scale for values education (Çetin, 2018); value-centered school culture scale for teachers (Çelik, 2019); value education competencies scale for education administrators (Okudan, 2010) and values education in physical education and sports lessons (Kangalgil, Özgül, Temel, Kural, & Karagöz, 2021). However, in 2018, there was no measurement tool to identify the attitudes of teacher candidates prepared to teach all the lessons in the secondary school for the core values education in the secondary schools' curriculum. In this context, the present study is expected to contribute to future studies on the core values education focusing on the teachers of different branches of secondary school and the teacher candidates preparing for the teaching of these branches.

Method

The Research Method

Since it aims to develop a measurement tool, the current study is cross-sectional research. In the existing literature, cross-sectional scanning is expressed as "collection of all data for research in a certain period of time without any intervention" (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2017; Durna, 2017).

Participant Group

The participant group of the study consists 4th grade, 458 teacher candidates (326 female and 132 male) who continue their education in different classes and branches at the faculty of education and the faculty of sports sciences in a state university from Ankara in the spring term of the academic year 2020/21. The participant group selected through the convenience sampling method involves the students of Turkish Education (64 people), Mathematics Education (52 people), Social Sciences Education (85 people), Science Education (53 people), English Language Education (43 people), Arts and Business Education (39 people), Music Education (28 people), Physical Education and Sports Teaching (36 people), Computer and Instructional Technologies Education (58 people)departments. The participant group was easily reached, and this can be explained by the fact that some of the researchers and the faculty members working in the related departments were already know each other. This situation ensured the applicability of the research data within a short time and without any problems. On the other hand, in the factor analysis conducted to test the validity of scale development efforts, the information that 300 samples are "good," 500 samples are "very good," and 1000 samples are "excellent", and the number of participants should be 3, 5, 7, or even 10 times the number of observed variables (Büyüköztürk, 2002) are found in the literature on the number of participant groups (Tabachnick and Fidell, 2012). In this respect, the fact that 458 teacher candidates participating in the current research is more than 8 times of the 55 items in the scale indicates that the conditions specified in the literature are satisfied.

The Data Collection and Scale Development Process

In the process of creating items for the developed scale, the literature on values and core values (Asan, Ekşi, Doğan and Ekşi, 2008; Beldağ, Özdemir and Nalçacı, 2016; Çalışkan and Yıldırım, 2020; Çelik, 2019; Çetin, 2018; Coşkun and Yıldırım, 2009; Dilmaç, 2007; Dilmaç, Arıcak and Cesur, 2014; Gündüz and Coşkun, 2012; Kangalgil, Özgül, Temel, Kural and Karagöz, 2021; Okudan, 2010; Neslitürk and Çeliköz, 2015; Uygun and Engin, 2014) was reviewed, and an item pool consisting of 59 questions was developed based on the information obtained from the studies discussed. The questions in the draft item pool were first sent via e-mail to four area experts working on values and core values education. Thereafter, the area experts contacted were informed about the purpose of using the draft scale items. The area experts responded within approximately one week, suggesting that the four items on the scale have the same subject as the other items, they cannot measure attitude and should be removed from the scale. After evaluating the expert advice, researchers approved the suggestion of removing the four items, and they removed the items in question. Thus, a total of 55 items remained in the draft scale, and the remaining items were presented with five-point options to identify the attitudes of the target

group towards core values education (1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly Agree). The researchers sent the final form of the scale draft to the participant group, either directly or via the Google form, in the electronic environment through the faculty members with whom the researchers had previously met. Gathering the delivered forms took approximately two weeks. Afterwards, the participants were reminded again, and they were waited to fill in the forms for one more week. Since not many forms were filled in the meantime, data collection ceased.

The Data Analysis

Collected data from 465 teacher candidates who took and sent the draft data collection form were downloaded from the Google form as Microsoft Excel. After finishing the necessary simplifications on the file and creating the required database within SPSS 18.0 software, the Excel-formatted file have converted to SPSS. Afterward, in order to identify the extreme values, the Z values in the data set were examined for conducting the subsequent analysis of the data in the data set properly. As a result of the examination, since the research should not involve data other than between -3 and +3 (Büyüköztürk, Çokluk, and Köklü, 2013), 7 data forms that are not within the acceptable range for the z-score value were removed from the data set. Thus, the analysis was conducted on the remaining 458 scale forms. The analysis of the research data was conducted on the SPSS 18.0 software. In the first step, the Kaiser Meyer Olkin (KMO) was performed to identify whether all the data are appropriate for confirmatory factor analysis (CFA), whether the sample is adequate, and whether the factor extraction process is proper, and Bartlett's Test of Sphericity was performed to reveal the correlation between the variables. The results obtained have found that the data is appropriate for CFA, and the analysis was determined to be performed in order to reveal the draft measurement tool's general structure and to find out whether the workability of the constituent elements of the measurement tool meets the expectations. Through gathering more than one interrelated variable in scale development efforts, CFA aims to reveal new, conceptually significant, and fewer variables precisely (Büyüköztürk, 2014). Therefore, principal components analysis revealed the construction decomposition of the structure created with CFA. The Promax Rotation was implemented in the analysis. With the analyzes performed, coefficient alpha, item total and item-corrected total correlations, factor loadings values and explained common variances, correlation matrix in the total score and factors of the scale, arithmetic mean, and standard deviation values were calculated. While evaluating the general structure of the developed scale roughly, attention was paid to KMO values to be above 0.50 (Field, 2009), Bartlett's Test of Sphericity indicates to be significant, the difference between the rotated factor loadings to be less than .10, and the overlapping items to be at an acceptable level, whereas the others are to be removed from the scale (Büyüköztürk, 2014), and the total of explained variance in the scale to be at least 41% (Kline, 2011).

Ethical Permits of Research

All rules stated to be complied with within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed in this study. None of the actions mentioned under the heading of "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, have been carried out.

Ethics Committee Permission Information

Name of the committee that made the ethical evaluation = Gazi University Ethics Commission

Date of ethical review decision= 12.01.2021

Ethics assessment document issue number= 21

Results

The Results of the Confirmatory Factor Analysis

The CFA was conducted to ensure the construct validity of the Attitude Scale for Core Values Education (ASfCVE). At first, Kaiser Meyer Olkin (KMO) values which indicate the adequacy level of the participant group number of the draft scale consisting of 55 items in total, and the significance level of Bartlett's Test of Sphericity were examined. The KMO value of the draft scale turned out to be above 0.50 (KMO=.94), which is the minimum acceptable value for KMO, and the result of Bartlett's Test of Sphericity indicated significant ($\chi 2$= 7398,322 df= 561; p<0.000). Afterward, based on the measured values, the draft scale was considered as appropriate for principal components analysis. In the first stage of subsequent principal component analysis, 11 overlapping items and 10 items that factor loadings indicates below .30 are removed from the scale. This process revealed the number of remaining items in the draft scale and the eigenvalue of the scale (See. Figure 1).

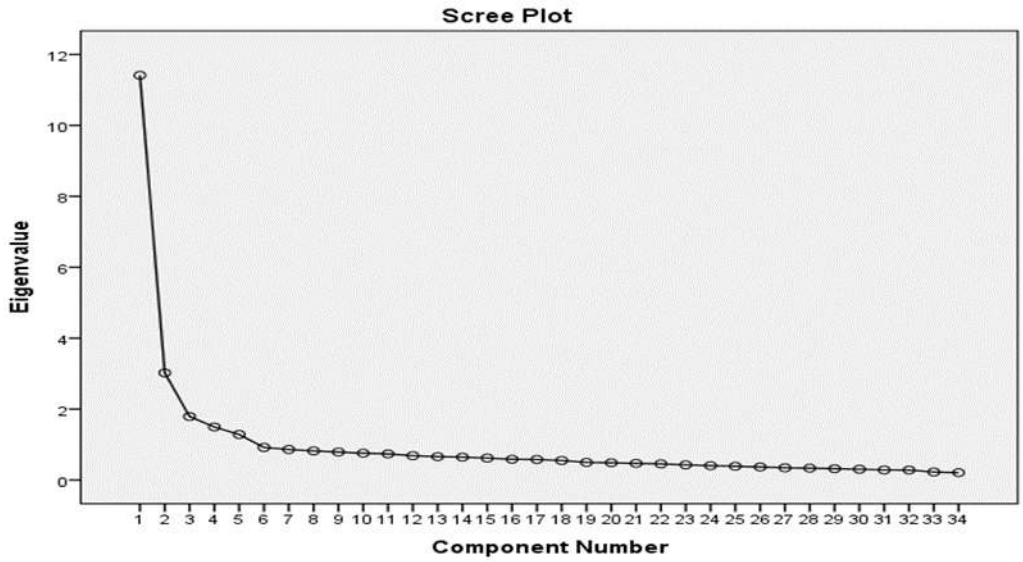

Figure 1: The Slope graph of ASfCVE

The plains appearing between the two points in the graph drawn based on the eigenvalues of each factor in the figure above represent the factor forming that scale. The graph shows that the plains representing the five factors in the scale contribute more to the total variance. The fact that other factors are becoming slope beginning from the sixth declining point may prove that these factors contribute less to the total variance of the scale and are at similar levels to each other (Çokluk, Şekercioğlu and Büyüköztürk, 2010). This situation shows that the related scale has a structure of 34 items consisting of 5 factors, and sudden decreases are taken into place. The Table 1 presents the total variance and eigenvalues of the scale.

Table 1. *The factor eigenvalues and variances of ASfCVE*

Order of Factor	Factors	Factor Values	Proportion of Variance (%)	Proportion of Total Variance (%)
1.	Acquisition of Core Values	11,412	33,57	33.57.
2.	Interest in Core Values	3,021	8,89	42,45
3.	Core Values for Individuals	1,791	5,27	47,72
4.	Necessity of Core Values	1,495	4,40	52,12
5.	Core Values in terms of Course and Student	1,284	3,78	55,89

As presented in Table 1, the developed scale consists 5 factors. The slope graph of the 5-factor structure forming the scale given in figure 1 supports the findings. Based on the factors in the scale, the total explained variance of the 5 factors is U.89. The proportion of explained variance of each factor is 3.57, 8.89%, 5.27%, 4.40%, and 3.78% respectively. The results show that the proportion of explained variance above 41% is adequate for structures with more than one factor in the literature (Kline, 2011). In this respect, the developed scale may have parallels in the explanations stated in the literature. On the other hand, the Table 2 presents the factor loadings values of the items forming the scale

Table 2. *The ıtem factor loadings of ASfCVE*

Factor name	Article No.	Item Factor Loadings					Reliability coefficient (α)
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	
Acquisition of Core Values	21	,88					,91
	23	,86					
	22	,84					
	24	,79					
	19	,79					
	18	,78					
	20	,61					
	16	,59					
	26	,55					
Interest in Core Values	46		,78				,85
	44		,71				
	51		,68				
	37		,66				
	41		,65				
	42		,64				
	50		,63				
	38		,58				
Core Values for Individuals	47			,78			,80
	39			,73			
	45			,70			
	36			,65			
	43			,59			
	52			,53			
Necessity of Core Values	2				,73		,79
	5				,72		
	3				,69		
	6				,67		
	1				,62		
Core Values in terms of Course and Student	33					,68	,78
	30					,64	
	28					,62	
	53					,49	
	55					,43	
	25					,40	
Overall							,93

The factor information presented in Table 2 shows that the factor loadings of the 9 items of the first factor vary between .55 and .88. The item factors are as follows; "I think the core values are related to my branch", "I think extracurricular activities are beneficial for acquisition of core values" "I think the core values can be acquired through in-class activities", "I think the school is an effective institution for acquiring the core values", "I think the topics should be associated with the core values in the courses", I think cooperating with families for the acquisition of the core values is essential", "I cooperate with other branch teachers for acquiring core values to the students.", "I think the core values should be emphasized in the school environment" and "I think extracurricular activities have to be included in order to ensure the students have acquired the core values permanently." Considering the common subjects of each item factors, the current factor is named as "Acquisition Core Values". Factor loadings' analysis of 8 items in the second factor shows that the loadings vary between .58 and .78. The item factors are as follows; "I am not interested in core values education", "I am familiar with core values", "I think core values are an abstract concepts", "I create activities to acquiring core values to students", "I believe core values are the basic values of the society", "I think core values are not taking place in society", "Integrating core values into all curriculum inclines students different point of views" and "I am not interested in core values". Considering the common subject of each item factors, the current factor is named as "Interest in Core Values". Factor loadings' analysis of 6 items in the third factor indicates that the loadings are vary between .53 and .78. The items are as follows; "Core values are indispensable to me," "I enjoy explaining core values," "I think core values are not universal," "I think core values should be lecturing in the classroom using various teaching methods and techniques," "I believe core values are taking place in human life," and "Core values education is effective for increasing students' interest in lessons". Considering the item factors, the current factor is named as "Core values for individuals". Factor loadings' analysis of 5 items in the fourth factor shows that the factor items are vary between .62 and .73 The factor items are as follows; "I think core values are not necessary", "I think core values education is necessary", "I approve the integration of core values into the curriculum", I think core values education is not a priority" and "I think core values are needed for the self-improvement of students to be solid". Considering the item factors, the current factor is named as "Necessity of core values". Finally, the factor loadings' analysis of the 6 items in the fourth factor indicates that the factor items vary between .40 and .68. The items are as follows: "I think core values should be specific to each course," "I think core values should be the source for the future activities in the courses", "I think core values should increase in number," "I self-sacrifice to acquiring my students core values," "Making an effort to educate core values proud me," and "I think core values are appropriate the level of the students." Considering the item factors, the current factor is named as "Core values in terms of course and student." The item contents were examined for naming the relevant factors. As stated in the literature (Şencan, 2005), the contents of the relevant item factors with higher loadings values are utilizable for naming the factor. On the other hand, the item loadings values of the relevant factor are defined as the coefficient that reveals the correlation between the item and the factor (Büyüköztürk, 2014). In this context, the high factor loadings of an item inform about the level of the factor in representing the factor that belongs. In social sciences, an item factor loading higher than .45 is considered good. Therefore, except for two items (55, 25) in the scale, factor loadings of the other items vary between .49 and .88. This situation shows that the items in the scale are representing

the factors that they belong to at a good level. Besides, Cronbach's Alpha values are as follows: the whole scale presented in Table 2 is .93, acquisition of core values is .91, interest in core values is .85, core values for individuals are .80, the necessity of core values is .79, and core values in terms of course and student is .78. According to the literature (George & Mallery, 2010), Cronbach's alpha values as follows: $\alpha<0.5$ indicates the reliability of the scale is unacceptable, $0.5\leq\alpha<0.6$ is poor, $0.6\leq\alpha<0.7$ is acceptable, $0.7\leq\alpha<0.9$ is good, and ≥0.9 is excellent. From this point of view, Cronbach's alpha values of the whole scale are excellent, and the reliability value of each factor is good. On the other hand, Table 3 presents the item factor correlation and corrected correlation scores calculated to reveal the correlation between the item factors in order to identify the serviceability level of the scale.

Table 3. *Item-Factor Scores Correlation and Corrected Correlation Analysis*

	items	21	23	22	24	19	18	20	16	26
F1	r	,77**	,80**	,77**	,77**	,83**	,78**	,74**	,72**	,75**
	Corrected	,70	,74	,70	,70	,77	,71	,66	,63	,68
	items	46	44	51	37	41	42	50	38	
F2	r	,78**	,65**	,65**	,70**	,70**	,70**	,65**	,75**	
	Corrected	,69	,54	,51	,61	,60	,57	,53	,65	
	items	47	39	45	36	43	52			
F3	r	,74**	,78**	,67**	,72**	,72**	,62**			
	Corrected	,61	,67	,46	,59	,56	,46			
	items	2	5	3	6	1				
F4	r	,73**	,77**	,76**	,72**	,75**				
	Corrected	,55	,61	,59	,52	,62				
	items	33	30	28	53	55	25			
F5	r	,59**	,64**	,76**	,71**	,80**	,67**			
	Corrected	,38	,46	,61	,56	,68	,52			

N=458; **=p<.001

As seen in Table 3, the item-factor correlation coefficient in the first factor of the scale varies between 0.72 and 0.83, in the second factor between 0.65 and 0.78, in the third factor between 0.62 and 0.78, in the fourth factor between 0.72 and 0.77, and in the fifth factor between 0.59 and 0.80. The table shows that each item has a significant ($p<0.001$) and positive correlation with its factor. As stated in the literature (Yüksel, 2009; Korkmaz & Yeşil, 2011), these coefficients do not inform about the validity coefficient of each item and the consistency of the relevant items with the factors, that is, the serviceability level of the factor. On the other hand, the table above shows the calculation of the corrected correlations' values between each item and the total factor score tested without the item score. The calculation indicates that the corrected item factor correlation coefficient in the first factor varies between 0.63 and 0.77, in the second factor between 0.51 and 0.69, in the third factor between 0.46 and 0.67, in the fourth factor between 0.52 and 0.62, and in the fifth factor between 0.38 and 0.68. According to the literature (Büyüköztürk, 2014; Tavşancıl, 2010), corrected item correlation values higher than 0.20 indicate that the related item has significant serviceability for the relevant factor. In this context, the fact that all items in the scale are higher than 0.20 stated in the literature may prove the qualification of the relevant items for significant contribution to the purpose they want to measure.

Table 4. *Correlation matrix, arithmetic mean and standard deviation values for the total score and the factors of ASfCVE*

	1	2	3	4	5	x̄	ss
Acquisition of Core Values	1					14,96	6,38
Interest in Core Values	,38**	1				17,64	7,38
Core values for individuals	,55**	,45**	1			12,07	4,77
Necessity of core values	,64**	,39**	,50**	1		8,32	3,65
Core values in terms of course and student	,69**	,39**	,57**	,58**	1	11,26	4,03
Total Score of ASfCVE	,83**	,73**	,73**	,75**	,79**	64.25	20,34

The correlation coefficients of the factors of ASfCVE presented in table 4 shows that there is a weak positive correlation between sub-dimension of the acquisition of core values and the sub-dimension of interest in core values, a moderate positive correlation with the sub-dimension of core values for individuals, a high positive correlation with the necessity of core values and the sub-dimensions of core values in terms of course and student, and a strong positive correlation with the whole scale; there is a moderate positive correlation between the sub-dimension of interest in core values, and the sub-dimension of core values for individuals, a weak positive correlation between necessity of core values and the sub-dimensions of core values in terms of course and student, and a high positive correlation with the whole scale; there is a moderate positive correlation between the sub-dimension of core values for individuals and necessity of core values and the sub-dimensions of core values in terms of course and student, a high positive correlation with the whole scale; there is a moderate positive correlation between the sub-dimension of necessity of core values and the sub-dimension of core values in terms of course and student, and a strong positive correlation with the whole scale; and a high positive correlation between the sub-dimension of core values in terms of course and student and the whole scale.

Discussion and Conclusion

The current study aimed to develop a valid and reliable measurement tool used for measuring the attitudes of teacher candidates towards core values education. For this purpose, principal components analysis was applied to measure the construct validity of the draft scale, and a 5-factor structure with a total of 55.89% explained variances was reached. As stated in the literature (Kline, 2011), in the case of more than one-factor structure appearing in the developed scales, the proportion of the explained variance by the total factors should be 41% and above. On the other hand, each factor of the developed five-factor scale was named considering the subjects of the items with high item loadings in the relevant factor. Hereof, the first factor named as the acquisition of core values consists 9 items, the second factor named as the interest in core values consists 8 items, the third factor named as core values for individuals consists 6 items, the fourth factor named as the necessity of core values consists 5 items, and the sixth factor named as core values in terms of course and student consists 6 items. Therefore, the CFA results show that the factor loadings of the item in the 5-factor structure vary between .40 and .88. This situation supports the statement in the literature (Tavşancıl, 2010) that factor loadings above .30 in the scale may be considered adequate.

Moreover, the reliability analysis of the scale has shown that Cronbach's Alpha for the whole scale is .93, for the acquisition of core values is .91, for the interest in core values is .85, for the core values for individuals is .80, for the necessity of core values is .79, and for the core values from the view of course and student is .78. According to George and Mallery (2010), a Cronbach

alpha value of $\alpha<0.5$ for reliability indicates the reliability of the scale is unacceptable, $0.5\leq\alpha<0.6$ is weak, $0.6\leq\alpha<0.7$ is acceptable, $0.7\leq\alpha<0.9$ is good, and ≥0.9. is might be excellent. From this point of view, Cronbach alpha value of the whole scale is excellent, and the reliability value of each factor is good. The measured values might be important as they correspond to the opinions of some research (Kayış, 2010; Özgüven, 2011; Şencan, 2005) that "Cronbach's alpha reliability coefficient might be taken into account to reach a conclusion about the reliability of the prepared measurement tool, and in the case of the reliability coefficient is above .80, it can be considered as a highly reliable measurement tool."

On the other hand, the correlation analysis conducted to reveal the correlation between the item factors in the scale and to measure the serviceability level of the factor has shown that the item correlation values vary between .59 and .83, and corrected correlation analysis has indicated that item values vary between .38 and .77. As emphasized in the literature (Yüksel, 2009; Korkmaz and Yeşil, 2011) , these values indicate the serviceability level of each item in relevant factor, and the values above .20 demonstrate that the factor items contribute significantly to the purpose it wants to measure. When considered the correlation coefficients between the factors of the scale, a positive significant relationship between the dimensions and between the whole scale and its factors are observed.

As a result, being analyzed in terms of its validity and reliability, ASfCVE consists five different dimensions and 34 items. Each item in the scale was scored in 5-Point Likert as 1 strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree. The developed scale includes the reversed items as well. 34 minimum and 170 maximum could be scored in the whole scale. The scale is appropriate for teacher candidates, and the estimated answering time is 15 minutes. As a result, the developed scale is a measurement tool that may help researchers for measuring the attitudes of teacher candidates towards the core values education.

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Genişletilmiş Türkçe Özet

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Kök Değerlerin Eğitimine İlişkin Tutum Ölçeği Geliştirme Çalışması

Giriş

Değerler insanların davranışlarını düzenleyen ve bireyleri bir arada tutmaya yardımcı olan kültürel unsurlar ve inançlar bütünü (Türkyılmaz, 2021:161) ve bazı davranışlar ve amaçlar için hüküm verebilmek için ve bir topluluğun üyelerinin duygusal manada kuvvetli bağları sonucu ortaya çıkmış somut olmayan ama genelleştirilmiş ilkeler (Theodorson ve Theodorson, 1979) olarak tanımlanmaktadır.

İnsanlık için büyük öneme sahip olan değerlerin gelecek kuşaklara aktarılması meselesi değerler eğitimini gündeme getirmiştir. Genellikle planlı ve programlı bir şekilde okullarda gerçekleştirilen değerler eğitimi faaliyeti, bu kurumların hemen her yerine nüfuz etmiş durumdadır. Yani, okulda gerçekleştirilen sportif bir faaliyetler, derslerde işlenen farklı konular hatta bu konuların işleniş biçimleri bile genel manada değerler eğitimine katkı sunmaktadır. Her ne kadar değerler eğitiminin okullardaki faaliyet alanları geniş bir şekilde görülse de okutulmakta olan derslerin ve bunların müfredatlarının değerler eğitiminde en önemli yere sahip olduğunu söylemek yanlış olmaz. Bu önem göz önünde bulundurularak zaman zaman okullarda okutulan derslerin öğretim programlarında da bazı sebep ve ihtiyaçlar gerekçe gösterilerek değişikliklere gidilmektedir. Türkiye'de de 2018 yılında ortaokullarda okutulan derslerin öğretim programlarında bu bağlamda bazı değişiklikler yaşanmış ve ortaokuldaki derslerin öğretim programlarına "Değerlerimiz" ismiyle bir başlık eklenerek adalet, dostluk, dürüstlük, öz denetim, sabır, saygı, sevgi, sorumluluk, vatanseverlik ve yardımseverlik olmak üzere on adet kök değere yer verilmiştir.

İlgili programlarda yer aldığı şekliyle kök değerlerin tüm programlarda kazandırılması hedeflenmiştir. Bu hedef elbette ilgili derslerin öğreticileri konumunda olan öğretmenlerin kök

değerlere, bunların eğitimine yönelik düşünceleri, tutumları, yeterlikleri, hazır oluş durumları ve bilgi düzeyleri ile yakından ilgilidir. Çünkü öğretmenlerin kök değerlere yaklaşımlarını bilmeden onlara kök değerlerin eğitiminde sorumluluklar yüklemek çok doğru olmaz. Bu bağlamda mevcut çalışma ortaokuldaki farklı derslerin öğretmenleri olmaya aday lisans öğrencilerinin kök değerlerin eğitimine ilişkin tutumlarını belirlemeye yarayacak bir ölçme aracı geliştirmek amacıyla gerçekleştirilmiştir.

Yöntem

Mevcut araştırma, ölçme aracı oluşturmak amacıyla gerçekleştirildiğinden tarama modellerinden biri olan kesitsel taramaya uygun olarak yapılandırılmıştır.

Çalışmanın katılımcı grubu 2020-2021 eğitim öğretim yılının bahar döneminde Ankara ilinde bulunan bir devlet üniversitesinin eğitim fakültesi ile spor bilimleri fakültesinde öğrenimlerine farklı sınıflarda ve çeşitli branşlarda devam eden 458 (326 kadın 132 erkek) dördüncü sınıf öğretmen adayından oluşmaktadır. Kolay ulaşılabilir örnekleme yoluyla belirlenmiş olan katılımcı grubu Türkçe eğitimi (64 kişi), Matematik eğitimi (52 kişi), Sosyal bilgiler eğitimi (85 kişi), Fen bilgisi eğitimi (53 kişi), İngiliz dili eğitimi (43 kişi), Resim-iş eğitimi (39 kişi), Müzik eğitimi (28 kişi), Beden eğitimi ve spor öğretmenliği (36 kişi), Bilgisayar ve öğretim teknolojileri eğitimi (58 kişi) bölüm/anabilim dallarında öğrenim görmektedir.

Geliştirilen ölçeğin maddelerinin oluşturulma sürecinde öncelikli olarak değerler ve kök değerlerle ilgili alan yazın taranmış ve ele alınan çalışmalardan elde edilen bilgilerden hareketle 59 sorudan oluşan ölçek madde havuzu oluşturulmuştur. Taslak haldeki madde havuzundaki sorular öncelikle değerler ve kök değerler eğitimi konusunda çalışmaları bulunan dört alan uzmanına mail yoluyla ulaştırılmıştır. Taslak haldeki veri toplama formunu doldurup gönderen 465 öğretmen adayından elde edilen veriler öncelikle Microsoft Excel olarak Google formdan indirilmiştir. Bu dosya içerisinde gerekli sadeleştirmeler yapıldıktan sonra SPSS 18.0 analiz programında gerekli veri tabanı oluşturularak daha önce Excel halinde bulunan dosya SPSS'e aktarılmıştır.

Bulgular

Kök Değerlerin Eğitimine İlişkin Tutum Ölçeğinin (KDEİTÖ) yapı geçerliliğini sağlamak için AFA yapılmıştır. Ancak ilk olarak toplamda 55 maddeden oluşan taslak haldeki ölçeğin uygulanan katılımcı grubu sayısı açısından yeterlik değerini gösteren Kaiser Meyer Olkin (KMO) değerlerine ve Bartlett Küresellik testi anlamlılık katsayısına bakılmıştır. Taslak haldeki ölçeğin KMO değerinin en alt sınır olarak kabul edilen 0.50'nin üzerinde olduğu (KMO=.94), Bartlett Küresellik testi sonucunun da anlamlı olduğu görülmüştür (χ^2= 7398,322 df= 561; p<0.000). Daha sonra tespit edilen değerlerden hareketle taslak haldeki ölçeğin temel bileşenler analizi için uygun olduğu kararına varılmıştır. Sonrasında gerçekleştirilen temel bileşenler analizinin ilk aşamasında ölçekteki maddeler arasında binişiklik gösteren 11 madde ile faktör yükleri .30'un altında kalan 10 madde ölçekten çıkarılmıştır.

Geliştirilen ölçek 5 faktörden meydana gelmektedir. Ölçeği oluşturan bu 5 faktörlü yapının toplam varyans açıklama oranı %55,89'dur.

Faktör bilgilerine bakıldığında ilk faktörü oluşturan 9 maddenin faktör yükleri .55 ile .88 arasında değişim gösterdiği anlaşılmaktadır. Bu faktörü oluşturan maddelere bakıldığında; "Kök değerlerin branşımla ilişkili olduğunu düşünüyorum", "Ders dışı etkinliklerin kök değerlerin kazandırılmasında fayda sağlayacağını düşünüyorum" "Kök değerlerin ders içi etkinliklerle kazandırılacağını düşünüyorum", "Kök değerlerin kazandırılmasında okulun etkili bir kurum olduğunu düşünüyorum", "Ders sürecinde konuların kök değerlerle ilişkilendirilmesi gerektiğini düşünüyorum", "Kök değerlerin kazandırılması için ailelerle iş birliği yapılması gerektiğini düşünüyorum", "Öğrencilere kök değerleri kazandırma sürecinde diğer branş öğretmenleri ile iş birliği yaparım.", "Kök değerlerin okul ortamında vurgulanması gerektiğini düşünüyorum" ve "Öğrenciye aktarılan kök değerlerin öğrencide kalıcılığını sağlamak için ders dışı uygulamalara yer verilmesi gerektiğini düşünüyorum" şeklindedir. Bu faktördeki maddelerin ortak konusu dikkate alındığında mevcut faktörün adı "Kök değerlerin kazandırılması" olarak belirlenmiştir. İkinci faktördeki 8 maddenin faktör yükleri incelendiğinde yüklerin .58 ile .78 arasında değiştiği görülmektedir. Bu faktörü oluşturan maddelere bakıldığında; "Kök değerlerin eğitimine ilgi duymuyorum", "Kök değerler hakkında bilgi sahibiyim", "Kök değerlerin soyut kavramlar yığını olduğunu düşünüyorum", "Kök değerleri öğrencilere kazandırmak için etkinlikler oluştururum", "Kök değerlerin toplumun temel değerleri olduğuna inanırım", "Kök değerlerin toplumda karşılığı olmadığını düşünürüm", "Kök değerlerin tüm ders programlarında yer alması öğrencilere farklı bakış açıları kazandırır" ve "Kök değerler ilgimi çekmez" şeklindedir. Bu faktördeki maddelerin ortak teması göz önünde bulundurulduğunda faktörün adı "Kök değerlere ilgi" olarak belirlenmiştir. Üçüncü faktörde yer alan 6 maddenin faktör yüklerine bakıldığında .53 ile .78 aralığında olduğu görülmektedir. Buradaki maddelere bakıldığında "Kök değerler benim için vazgeçilmezdir", "Kök değerleri anlatmaktan keyif alırım", "Kök değerleri evrensel bulmuyorum", "Kök değerlerin sınıf içinde çeşitli öğretim yöntem ve teknikleriyle verilmesi gerektiğini düşünüyorum", "Kök değerlerin insan hayatında karşılığı olduğuna inanırım" ve "Kök değerlerin eğitimi öğrencilerin derslere yönelik ilgisini artırmada etkilidir" şeklindedir. Bu faktördeki maddeler dikkate alındığında ilgili faktörün adı "Bireyler için kök değerler" olarak düşünülmüştür. Dördüncü faktörde yer alan 5 maddenin faktör yük değerleri incelendiğinde faktördeki maddelerin .62 ile .73 arasında değiştiği görülmektedir. Bu faktörde yer alan maddeler incelendiğinde; "Kök değerleri gerekli bulmuyorum", "Kök değerlerin eğitimini gerekli buluyorum", "Kök değerlerin bütün ders programlarında yer almasını doğru buluyorum", "Kök değerlerin eğitimini öncelikli bulmuyorum" ve "Öğrencilerde sağlam bir kişilik gelişimi için kök değerlere ihtiyaç olduğunu düşünüyorum" şeklindedir. Faktördeki maddeler göz önünde bulundurulduğunda ise ilgili faktörün adı "Kök değerlerin gerekliliği" olarak belirlenmiştir. Son olarak beşinci faktörde yer alan 6 maddenin faktör yük değerleri incelendiğinde faktördeki maddelerin .40 ile .68 arasında farklılaştığı görülmektedir. Buradaki maddeler incelendiğinde; "Her derse özgü kök değerler olması gerektiğini düşünüyorum", "Derslerde yapılacak etkinliklerin kaynağının kök değerler olması gerektiğini düşünüyorum", "Kök değerlerin sayıca artırılması gerektiğini düşünüyorum", "Öğrencilerime kök değerleri kazandırmak için fedakârlıklarda bulunurum", "Kök değerlerin eğitimi ile ilgili harcadığım çaba bana gurur verir" ve "Kök değerlerin öğrencilerinin seviyelerine uygun olduğunu düşünüyorum" şeklindedir. Bu faktörde yer alan maddeler incelendiğinde ilgili faktörün adı "Ders ve öğrenci açısından kök değerler" olarak belirlenmiştir. İlgili faktörlerin adlarının belirlenmesinde maddelerin içerikleri incelenmiştir. Bu

işlem sırasında ilgili faktördeki maddelerin yük değerleri fazla olanların içeriğinin, faktör ismini belirlemede kullanılabileceği alanyazında (Şencan, 2005) ifade edilmektedir. Öte yandan ilgili faktördeki madde yük değerlerinin maddenin faktör ile bağlantısını ortaya koyan katsayı olarak tanımlandığı bilinmektedir (Büyüköztürk, 2014). Bu bağlamda faktörde yer alan bir maddenin faktör yükünün yüksek olması ait olduğu faktörü temsil etme düzeyi hakkında bilgi vermektedir. Sosyal bilimlerde madde faktör yükünün .45'den yüksek olması iyi olarak kabul edilmektedir. Dolayısıyla ölçekteki iki madde hariç (55, 25) diğer maddelerin faktör yüklerinin .49 ile .88 arasında değiştiği görülmektedir. Bu durum ölçekteki maddelerin ait oldukları faktörü genel olarak iyi düzeyde temsil ettiği söylenebilir. Diğer taraftan Tablo 2'de yer alan ölçeğin geneline ilişkin Crombach's Alpha değerinin .93 görülmüştür.

Tartışma ve Sonuç

Mevcut çalışma, öğretmen adaylarının kök değerlerin eğitimine ilişkin tutumlarını belirlemede kullanılacak geçerli ve güvenilir bir ölçme aracı geliştirmek amacıyla hazırlanmıştır. Bu amaç doğrultusunda, öncelikle taslak haldeki ölçeğin yapı geçerliğini belirlemek amacıyla temel bileşenler analizi yapılmış ve sonuç olarak 5 faktörden oluşan ve toplam varyansın %55,89'unu açıkladığı belirlenen bir yapıya ulaşılmıştır. Alan yazında (Kline, 2011) geliştirilen ölçeklerde birden fazla faktör yapısı ortaya çıkıyorsa faktörlerin toplamının açıkladığı varyansın yüzdesinin %41 ve üzerinde olması gerektiği belirtilmektedir. Öte yandan geliştirilen beş faktörlü ölçeğin her bir faktörüne ilgili faktörde madde yükü yüksek olan maddelerin konuları dikkate alınarak faktör isimlendirmeleri yapılmıştır. Buna göre birinci faktör kök değerlerin kazandırılması olarak isimlendirilmiş ve 9 maddeden; ikinci faktör kök değerlere ilgi olarak isimlendirilmiş ve 8 maddeden; üçüncü faktör bireyler için kök değerler olarak isimlendirilmiş ve 6 maddeden; dördüncü faktör kök değerlerin gerekliliği olarak isimlendirilmiş ve 5 maddeden ve son olarak beşinci faktör ders ve öğrenci açısından kök değerler olarak isimlendirilmiş ve 6 maddeden oluştuğu görülmüştür. Yapılan AFA neticesinde 5 faktörlü yapıdaki maddelerin faktör yüklerinin .40 ile .88 arasında değiştiği görülmektedir. Bu durum alanyazında (Tavşancıl, 2010) ölçekteki faktör yük değerlerinin .30'un üzerinde olmasının yeterli görülebileceğine yönelik açıklamayı destekler niteliktedir.

Bunun yanında ölçeğin güvenirliğine yönelik yapılan analiz neticesinde ölçeğin geneline ilişkin crombach's alpha değerinin .93 olduğu belirlenmiştir. George ve Mallery, (2010) güvenirlik için saptanan cronbach alpha değerinin $\alpha<0.5$ olmasının ölçek güvenilirliğinin kabul edilmez olduğunu, $0.5\leq\alpha<0.6$ zayıf olduğunu, $0.6\leq\alpha<0.7$ kabul edilebilir olduğunu, $0.7\leq\alpha<0.9$ iyi olduğunu ve ≥0.9 mükemmel düzeyde olabileceğini vurgulamaktadır. Buradan hareketle ölçeğin geneline ilişkin cronbach alpha değerinin mükemmel düzeyde, her bir faktörün güvenirlik değerinin ise iyi düzeyde olduğu söylenebilir.

Sonuç olarak geçerlik ve güvenirlik analizleri yapılmış olan KDEİTÖ'nin beş farklı boyuttan ve 34 maddeden oluştuğu görülmektedir. Geliştirilen ölçekte ters maddelere de yer verilmiştir. Ölçeğin tamamından elde edilecek puan en az 34, en fazla 170'dir. Ölçek öğretmen adaylarına uygun olup tahmini cevaplama süresi 15 dakikadır. Sonuç olarak geliştirilen ölçeğin öğretmen adaylarının kök değerlerin eğitimine ilişkin tutumları ölçmek adına araştırmacılara yardımcı olacak bir ölçme aracı olduğu söylenebilir.

EK 1.

	KÖK DEĞERLERİN EĞİTİMİNE İLİŞKİN TUTUM ÖLÇEĞİ Değerli Öğretmen Adayları, Sizlerle yürüteceğimiz bu çalışma, 2018 yılında öğretim programlarında yer alan kök değerlerin (Adalet, Dostluk, Dürüstlük, Özdenetim, Sabır, Saygı, Sevgi, Sorumluluk, Vatanseverlik, Yardımseverlik) eğitimine ilişkin tutumlarınızı ortaya çıkarabilmek için hazırlanmıştır. Bu çalışmadan elde edilen veriler hiçbir suretle başka amaç için kullanılmayacaktır. Çalışmaya içtenlikle katılımızı ister, katkılarınız için şimdiden teşekkür ederiz.	**Tamamen Katılıyorum**	**Kısmen Katılıyorum**	**Kararsızım**	**Katılmıyorum**	**Kesinlikle Katılmıyorum**
F1	Kök değerlerin branşımla ilişkili olduğunu düşünüyorum.					
	Ders dışı etkinliklerin kök değerlerin kazandırılmasında fayda sağlayacağını düşünüyorum.					
	Kök değerlerin ders içi etkinliklerle kazandırılacağını düşünüyorum.					
	Kök değerlerin kazandırılmasında okulun etkili bir kurum olduğunu düşünüyorum.					
	Ders sürecinde konuların kök değerlerle ilişkilendirilmesi gerektiğini düşünüyorum.					
	Kök değerlerin kazandırılması için ailelerle iş birliği yapılması gerektiğini düşünüyorum.					
	Öğrencilere kök değerleri kazandırma sürecinde diğer branş öğretmenleri ile iş birliği yaparım.					
	Kök değerlerin okul ortamında vurgulanması gerektiğini düşünüyorum.					
	Öğrenciye aktarılan kök değerlerin öğrencide kalıcılığını sağlamak için ders dışı uygulamalara yer verilmesi gerektiğini düşünüyorum.					
F2	Kök değerlerin eğitimine ilgi duymuyorum.					
	Kök değerler hakkında bilgi sahibiyim.					
	Kök değerlerin soyut kavramlar yığını olduğunu düşünüyorum.					
	Kök değerleri öğrencilere kazandırmak için etkinlikler oluştururum.					
	Kök değerlerin toplumun temel değerleri olduğuna inanırım.					
	Kök değerlerin toplumda karşılığı olmadığını düşünürüm.					
	Kök değerlerin tüm ders programlarında yer alması öğrencilere farklı bakış açıları kazandırır.					
	Kök değerler ilgimi çekmez.					
F3	Kök değerler benim için vazgeçilmezdir.					
	Kök değerleri anlatmaktan keyif alırım.					
	Kök değerleri evrensel bulmuyorum.					
	Kök değerlerin sınıf içinde çeşitli öğretim yöntem ve teknikleriyle verilmesi gerektiğini düşünüyorum.					
	Kök değerlerin insan hayatında karşılığı olduğuna inanırım.					
	Kök değerlerin eğitimi öğrencilerin derslere yönelik ilgisini artırmada etkilidir.					
F4	Kök değerleri gerekli bulmuyorum.					
	Kök değerlerin eğitimini gerekli buluyorum.					
	Kök değerlerin bütün ders programlarında yer almasını doğru buluyorum.					
	Kök değerlerin eğitimini öncelikli bulmuyorum.					
	Öğrencilerde sağlam bir kişilik gelişimi için kök değerlere ihtiyaç olduğunu düşünüyorum.					
F5	Her derse özgü kök değerler olması gerektiğini düşünüyorum.					
	Derslerde yapılacak etkinliklerin kaynağının kök değerler olması gerektiğini düşünüyorum.					
	Kök değerlerin sayıca artırılması gerektiğini düşünüyorum.					
	Öğrencilerime kök değerleri kazandırmak için fedakârlıklarda bulunurum.					
	Kök değerlerin eğitimi ile ilgili harcadığım çaba bana gurur verir.					
	Kök değerlerin öğrencilerinin seviyelerine uygun olduğunu düşünüyorum.					

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Analysing Social Studies Textbooks in the Perspective of UNESCO's Global Citizenship Education Paradigm*

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Abstract

The aim of this study is to analyse the inclusion of the global citizenship education paradigm (GCED) developed by UNESCO in social studies textbooks. For this purpose, the case study model, which is one of the qualitative research designs, was used in the research. The data source of the study consists of 4th, 5th, 6th and 7th grade social studies textbooks prepared according to the 2018 curriculum. The fields related to global citizenship education in the textbooks have been determined under the guidance of the Global Citizenship Education Paradigm (GCED) developed by UNESCO. The "Global Citizenship Education Review Form" was prepared by the researcher with reference to the publication titled "Global Citizenship Education: Topics and Learning Objectives", which is the first pedagogical guide of the GCED paradigm. As a result of the research, it has seen that social studies textbooks do not directly include the concepts of "global citizen", "global citizenship", "global citizenship education". It has been determined that social studies textbooks support the cognitive and socio-emotional dimensions of UNESCO's understanding of global citizenship education, but do not sufficiently support the behavioral dimension. Therefore, the goal of raising individuals who feel the responsibility of others and turn this responsibility into action has not been adequately achieved in the textbooks. Anothert result of the research is that the information that guides the actions of individuals in social studies textbooks is conveyed without prompting students to think critically.

Keywords: Globalization, global citizenship, global citizensihip education, social studies, social studies textbooks, unesco

Introduction

The phenomenon of globalization nowadays affects not only states, institutions, and structures, but also societies and individuals all over the world in all dimensions. Due to the different dimensions, philosophical approaches, and past experiences, there is no consensual definition of the concept. Although the concept of globalization started to be used in the 1960s (Held and McGrew, 2003, p. 1), it has a history in Western thought dating back to the Ancient Greek and Roman Stoics (Carter, 2005). It is known that there were many periods in the past when people and societies came closer to each other, cultures fused and economies were in a relationship. The globalization of that period was confined to the experiences of a limited portion of the population due to the political structure and high transportation and communication costs (Keohane and Nye Jr., 2003, p. 78). Keohane and Nye Jr. (2003, p. 75) state that today's globalization has two distinctive features that distinguish it from the experiences of the past, the first distinguishing feature is its speed and the multiplicity of connections. The other distinguishing feature of modern globalization is distance. In modern globalization, distances across continents are more important than distances between regions.

Currently, the most commonly associated field with the concept of globalization is economics. Globalization in this field is usually referred to changes in the capitalist organization of production and society. These changes are expressed as the expansion of a process of capital accumulation that until today has been largely national and limited to the borders of the nation-state (Petras and Veltmeyer, 2001, p. 11). Globalization is also used to refer to the expansion and depth of international flows of trade, capital, technology, and information within a single integrated global market (Petras and Veltmeyer, 2001, p. 11). However, definitions of globalization that are reduced to economic or technological areas are not accepted by globalists. Globalists consider globalization to be a process dominated by interrelated social dynamics,

military, political and cultural spheres (Held and McGrew, 2003, p.7). Increased interaction and its consequences are not limited to the economic sphere but are also a social phenomenon, as Giddens (1990, p. 64) defines globalization as "the concentration of worldwide social relations that link local events in distant regions in such a way as to shape events occurring miles away". Therefore, today's globalization is a phenomenon involving complex cultural, economic, and social structures.

With the end of the Cold War, globalization weakened the ability of nation-states to regulate their economies, and non-state structures working together with the economic instruments at their disposal, but independent of them, undermined the power of states by using these instruments (Griffin, 1995, p. 361), raising doubts about globalization. We also see the negative consequences of globalization in the development of consumer culture. Consumption habits are changing as a result of increasing competition with the global economy. Popular global culture, which fuels consumption, causes globalization to be perceived as a threat. Individuals have begun to be identified as consumers, either to find new consumers or among those who are already addicted to consumption, with products that are often personalized or culturally specific (Allman and Wallis, 1995, p. 30). This tendency, which is identified with global culture, refers to the standardization of cultures and homogenization of consumption through the spread of mass goods and economic development (Spring, 2001, p.7). In the 2023 Education Vision document, in addition to the consumer society, other negative consequences of globalization are described as follows;

> "...Otherwise, we will all have to bear the consequences of global humanitarian crises such as conflicts and international terrorism, migration movements, environmental and health problems, economic interventions, racism, and xenophobia, to name just a few examples. We cannot accept an understanding of a civilization that overly sanctifies competition by saying "information society", fuels consumption by saying "technology", and that excludes everyone except its society when it comes to "humanity" (MoNE, 2018, p. 7).

Raising individuals who can manage the crises and changes mentioned in the 2023 Education Vision has become both a duty and an obligation. In a changing world, there is a need for a new understanding of citizenship that understands both the benefits and the problems of globalization, takes an active role in solving problems, and can adapt to the globalizing world. Citizenship has now evolved into an understanding that is intertwined locally, nationally, and globally (Tuomi, Jacott, and Lundgren, 2008; cited in Tünkler, 2020). This new understanding has led to the emergence of global citizenship and the need to raise global citizens has led to the emergence of global citizenship education.

UNESCO states that global citizenship is not a political identity but a sense of belonging to a wider community and common humanity. UNESCO also underlines that global citizenship emphasizes political, economic, social, and cultural mutual solidarity and interdependence between local, national, and global (UNESCO, 2014). It is an indisputable reality that education systems should review and update all elements to raise individuals with this understanding. Kan (2009) stated that a broad universal citizen model should be drawn in education programs to raise effective global citizens.

UNESCO, which is committed to realizing the goal of raising global citizens, which has become the agenda of the whole world with Goal 4 of the 2030 Agenda for Sustainable

Development at the UN level, monitors global and thematic indicators related to global citizenship as standardized metadata. We see the reflections of UNESCO's definition of global citizenship in these metadata. UNESCO's main goals related to global citizenship education, which are determined under the heading "Curriculum Content", are stated as follows:

- Peace and non-violence,
- Human rights and fundamental freedoms:
- Cultural diversity and tolerance:
- The survival and well-being of humankind (UNESCO, 2018a)

Developed countries have made an effort to organize their education systems to raise individuals with this new understanding of citizenship. Especially in these countries, many studies have been conducted on global citizenship and global citizenship education. (Lee, 1989; İbrahim, 2005; OECD, 2006, 2018; Gibson, Rimmington, & Landwehr-Brown, 2008; Schattle, 2008; Ananiadou and Claro, 2009; Gaudelli, 2009; Bromley, 2011; Kotowski, 2011; Moon and Koo, 2011; Oxley and Morris, 2013; Cabezudo, 2014; UNESCO, 2014, 2015, 2016, 2018a, 2018b; Oxfam Institute, 2015; Osler and Starkey, 2015; Young, 2016; Goren and Yemini, 2017; Huo, 2020; Estellés, and Fischman, 2020; Trang, 2021). These studies show that especially since the 2000s, global citizenship has been researched in every aspect abroad. Despite the large number of studies conducted abroad, it is seen that there are not enough studies on global citizenship and global citizenship education in our country. When the literature is examined, there are studies examining the global citizenship levels of teachers, preservice teachers, school administrators, and primary and secondary school students, their attitudes, opinions, and perceptions towards global citizenship, and studies examining social studies, citizenship, and democracy education curricula in terms of global citizenship education and examining the phenomenon of globalization only in the 7th grade social studies textbook (Göl, 2013; Ceylan, 2014; Uydaş, 2014; Çelikten, 2015; Çolak, 2015; Balbağ, 2016; Balbağ and Türkcan, 2017; Durmuş, 2017; Yüksel, 2018; Günaydın, 2019; Özkan, 2020; Akhan & Kaymak, 2021; Kanar, 2021; Türk and Atasoy, 2021). However, it is seen that there is no research in the literature on how social studies textbooks should be in terms of global citizenship education and how and how much global citizenship education is included in the textbooks. Aslan (2016) stated that the education system in general and social studies education, in particular, cannot maintain its traditional structure and functioning in the face of the globalization phenomenon and that change is a necessity. It is important to know whether this change is taking place or not, and if there is a change, which philosophy/understandings in global citizenship education are adopted by the education system in our country. The 2030 Agenda for Sustainable Development, which all member countries have committed to, has goals and objectives that reflect the perspectives of different paradigms. The GCED paradigm developed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) was adopted as the global citizenship education approach in this study because it gives importance to human and cultural values instead of an educational environment based on competition and does not look at globalization only from an economic perspective. Therefore, in this study, the reflection of global citizenship education on social studies textbooks was examined and evaluated according to UNESCO's global citizenship education paradigm.

Method

Research Model

The present research was conducted with a qualitative approach due to its subject matter and case study, one of the qualitative research designs, was preferred. The most characteristic feature of qualitative case studies is the in-depth investigation and description of one or more situations in detail (Yıldırım and Şimşek, 2011; Bloor and Wood, 2006). In the present research, the phenomenon of global citizenship education in social studies textbooks was accepted as a case.

Study Group

The study group of the research was determined by criterion sampling, as one of the purposeful sampling methods. The basic understanding of the criterion sampling method is to study situations that meet the criteria previously prepared by the researcher (Yıldırım and Şimşek, 2011, p.112). The criterion previously determined for this research is the social studies textbooks prepared and taught according to the 2018 social studies curriculum.

2018 social studies textbooks prepared according to the social studies curriculum;

4th Grade: Tüysüz, S. (2019). Primary School Social Studies 4 Textbook. Tuna Publishing Ind. and Tra. CO., Ankara.

5th Grade: Şahin, E. (No Date), Secondary School and Imam Hatip Secondary School Social Studies 5 Textbook. Anadol Publishing, Ankara.

6th Grade: Yıldırım, C., Kaplan F., Kuru, H., Yılmaz, M. (2019). Secondary School and Imam Hatip Secondary School Social Studies 6 Textbook. State Books First Edition.

7th Grade: Gültekin, G., Akpınar, M., Nohutcu, M., Özerdoğan, P., Aygün, S. (2019) Secondary School and İmam Hatip Secondary School Social Studies 7 Textbook. State Books Second Edition.

Data Collection

The data in the present study were collected through document analysis. The analytical process in document analysis includes finding, selecting, evaluating, interpreting, and synthesizing the data in the documents (Bowen, 2009; as cited in Özkan, 2019, p.2). There are a series of stages (Yıldırım and Şimşek, 2011, pp. 193-201) that should be followed systematically when conducting research with document analysis. Detailed information about these stages is given below. *a) Reaching the documents:* Social studies textbooks were accessed from the eba.gov.tr address of MoNE. *b) Checking authenticity:* Since the social studies textbooks were obtained from eba.gov.tr established by MoNE, there was no authenticity problem. *c) Comprehending the documents:* This is the stage where the researcher gathers information to establish the relationship between the research questions and the documents and to better understand the context in which the documents were developed (Özkan, 2019, p. 32). At this stage, the social studies curricula were examined first. Then, according to the characteristics of the relevant social studies curricula, textbooks were reviewed within the framework of the research questions.

Analyzing the Data

Content analysis, which is used in qualitative research, was used to reveal the place of global citizenship education in social studies textbooks. "Content analysis is an approach that investigates social reality by objectively and systematically classifying, quantifying and inferring the message contained in verbal, written and other materials in terms of meaning or grammar" (Tavşancıl and Aslan, 2001, p. 22). Bailey (1982) stated that documents can be analyzed in 4 stages: selecting a sample from the data subject to analysis, developing categories, determining the unit of analysis, and quantification. These stages of the research are explained below respectively.

1. Selecting a sample from the data subject to analysis: In the selected social studies textbooks, only lectures were included and the table of contents, preparation and evaluation questions, and bibliography were excluded from the analysis.

2. Developing categories: An important stage of content analysis is the category development stage. Categories are structures covering the units of analysis (Baş and Akturan, 2008, p. 123). There are two different approaches to categorization. The first approach is to take an existing category system, and the second approach is to group similar items by determining the differences and similarities of message items according to other items (Bilgin, 2006, p.14,19). In other words, categories are created afterward. Both approaches were utilized in this study. In determining the categories and subcategories, the guide titled "Global Citizenship Education: Topics and Learning Objectives" (UNESCO, 2015) prepared by UNESCO according to the global citizenship education framework paradigm was taken into consideration. In this document, it is emphasized that global citizenship education has three basic dimensions (Cognitive, Socio-Emotional, and Behavioral). According to these learning areas, the inclusion of UNESCO's global citizenship approach (GCED) in the textbooks was carried out with the GCED Review Form prepared by the researcher. While preparing the review form, the basic student characteristics (p.23) in the UNESCO (2015) guideline, and the age group of the students in grades 4-7 in which the social studies course is taught in Turkey (p.23) were taken into consideration. The "headings and learning objectives" (p.31) and their main themes (p.38-41), the objectives that students are aimed to achieve with global citizenship education (p.16), and keywords (p.43) were utilized.

3. Determining the unit of analysis: Units of analysis can be in many different forms such as words, sentences, paragraphs, etc. In the present study, sentences and paragraphs were used as units of analysis. Accordingly, the frequency of occurrence of categories and subcategories in sentences or paragraphs was determined.

Table 1. *Sample coding from the unit of analysis*

Sentence or Paragraph (Unit of Analysis)	Code	Subcategory	Category
With the development and spread of the General Network, more foreign words have started to enter our language.	Change	National Issues/Problems	Topics/issues
In daily life, some people can use Turkish and foreign words in the same sentence.	Language	National Identity Consciousness	Identity Consciousness/Acceptance

4. Quantification: In the present study, quantification was used to compare global citizenship education in social studies textbooks according to categories and subcategories, years, and grade levels. During quantification, if the relevant category or subcategory was present in the document, a value of "1" was given. Thus, it was determined how many times each category and subcategory was repeated in social studies textbooks. Thus, both the dimensions of global citizenship education and the distribution of categories in social studies textbooks were determined.

Using the Data

Since the data used in the research are public data and the nature of the content of the subject, institutions, organizations, and individuals cannot suffer any damage.

Validity of the Research

The characteristics of the documents analyzed for the validity of the research and the stages of the creation of the "GCED Review Form" used to collect data were explained in detail. While creating the findings, the common features of the findings were written and direct quotations were made from the textbooks. Each stage of the research process was subjected to an external evaluation by two experts and both the process and the accuracy of the products obtained were evaluated and arrangements and corrections were made in line with their suggestions.

Reliability of the Research

Different techniques are used for the reliability of research. One of these techniques is "time reliability" in which the same researcher codes and analyses the same documents at different times (Balcı, 2009, p. 174; Tavşancıl and Aslan, 2001, p. 81). In this study, due to the large amount of data to be analyzed and the lack of a researcher who is an expert in global citizenship education and who can code this dense data set, the time reliability technique was used. Accordingly, the researcher repeatedly coded the social studies textbooks according to all categories and subcategories in the "GCED Review Form", and as a result of this process, a consensus was reached by consulting the expert opinion in the codings where there was hesitation.

Ethical Permits of Research

In this study, all the rules specified in the "Directive on Scientific Research and Publication Ethics of Higher Education Institutions" were followed. None of the actions specified under the second section of the Directive, "Actions Against Scientific Research and Publication Ethics", have been carried out.

Findings

Analyzing the Cognitive Dimension of UNESCO's Global Citizenship Education Approach in Social Studies Textbooks

The distribution of the cognitive dimension of UNESCO's understanding of global citizenship education in 4th, 5th, 6th, and 7th grade social studies textbooks according to categories and subcategories is given in Table 2.

Table 2. *Distribution of the cognitive dimension of UNESCO's global citizenship education in 4th, 5th, 6th and 7th grade social studies textbooks according to categories and subcategories*

Categories	Subcategories	4th Grade	5th Grade	6th Grade	7th Grade	Total
		f	f	f	f	f
Issues and Problems	Local Issues and Problems (Identification)	-	1	-	-	1
	Local Issues and Problems (Causes)	-	-	-	-	-
	Local Issues and Problems (Solution Suggestions)	-	-	-	-	-
	National Issues and Problems (Identification)	17	21	27	30	95
	National Issues and Problems (Causes)	-	7	-	-	7
	National Issues and Problems (Solution Suggestions)	6	3	-	-	9
	Global Issues and Problems (Definitions)	1	3	1	9	14
	Global Issues and Problems (Causes)	-	-	-	1	1
	Global Issues / Problems Solution Suggestions	-	-	-	-	-
Systems And Structures	Local Systems and Structures (Identification)	3	4	-	-	7
	Local Systems and Structures (Reasons for Establishment)	-	-	-	-	-
	Local Systems and Structures (Structural Problems)	-	-	-	-	-
	National Systems and Structures (Identification)	15	20	23	23	81
	National Systems and Structures (Reasons for Establishment)	2	1	-	-	3
	National Systems and Structures (Structural Problems)	-	-	-	-	-
	Global Systems and Structures (Description)	-	1	-	-	1
	Global Systems and Structures (Reasons for Establishment)	-	1	-	-	1
	Global Systems and Structures (Structural Problems)	-	-	-	-	-
Interaction and Engagement	The Effects of Global Changes on People	18	13	12	26	69
	Interaction and Interdependence between Local/National and Global Systems	6	11	7	23	47
	Interaction and Interdependence between Local/National and Global Systems	1	-	1	13	15
Cognitive Skills	Critical Thinking Skills	-	5	-	-	5
	Inquiry Learning Skills	3	2	-	-	5
	Media Literacy	1	5	4	6	16
	Digital Literacy	6	11	14	13	44
	Analytical Thinking Skills	4	-	19	7	30
	Decision Making Skills	-	-	-	-	-
	Empathy Skills	2	-	-	1	3
	Problem Solving Skills	-	-	-	-	-
	Technology Literacy	7	-	-	-	7
	Creative Thinking Skills	7	2	-	-	9
Citizenship	Legal and Constitutional Duties of the Individual	1	4	6	3	14
	Legal and Constitutional Rights of the Individual	-	27	19	21	67
	Relationship of the Individual with International Voluntary Organisations and Institutions	-	-	-	-	-
	Rights Arising from International Law Texts	9	6	-	2	17
	Citizenship Approaches/Similarities	-	-	-	-	-
	Citizenship Approaches Differences	-	-	-	-	-
TOTAL		109	148	133	178	568

The cognitive dimension in social studies textbooks was determined as the most common dimension in the textbooks with a total of 568 statements.

In the category of issues and problems, there are a total of 127 statements (22.36% of the total cognitive dimension) in the textbooks. The subcategories with the highest number of

statements in this category are the subcategories related to national issues and problems with 121 statements, while the subcategory with the lowest number of statements is the subcategory of local issues and problems with 1 statement. In the subcategories of national issues and problems, disaster awareness and natural disasters were the most frequently identified expressions with 24 expressions. Conscious consumption was emphasized in the textbooks and it was included in the 4th grade textbook with 7 expressions in total. The expressions identified with the code of disadvantaged groups are mainly trying to gain empathy skills and are included in the 4th grade textbook as follows: "*The woman had difficulty in driving her chair because the pavements were not built by the disabled. Despite this, she was able to get to the front of the ATM, albeit with difficulty."* (MoNE, 2019a.p.27). Current concerns arising from popular culture (consumerism, destruction of existing culture) are included in the textbooks. The fact that popular culture increases consumption under the name of identity acquisition is conveyed by emphasizing both cultural change and conscious consumption. Efforts to raise awareness about how the media is used by popular culture were also included in the 6th grade textbook. "*The most effective tool for popular culture to influence society is the media. Popular culture, television, general network, newspapers, etc. are tried to be placed in the life of society through media tools."* (MoNE, 2019b, p. 250). In the 7th grade textbook, the changes made by changing and developing communication tools in social life are conveyed (MoNE, 2019c, p. 28). Developments in communication technology are conveyed in the 7th grade textbook not only with the changes it creates but also as a need, a basic human right (MoNE, 2019c, p. 31). However, the consequences of not knowing our rights and responsibilities in communication are not mentioned in the textbooks. Technology addiction and committing crimes with the misuse of social media (MoNE, n.d., pp.96-97) are some of the consequences mentioned in the 5th grade textbook. The phenomenon of migration; especially the settlement of educated individuals in foreign countries (brain drain) is included in the 7th grade textbook as a negative phenomenon (MoNE, 2019c, p.113). The phenomenon of internal migration is conveyed not only with its material aspect but also with the cultural interactions it creates. In the 7th grade textbook, the importance of education is another topic covered in issues and problems (MoNE, 2019c, p.111). Expectations from education are conveyed in the 6th grade textbook with a focus on country development: ***"****Countries become strong to the extent that they transform their manpower into qualified manpower through education. The characteristics of qualified manpower are as follows: "They are entrepreneurs, they love their work****."*** (MoNE, 2019b, p. 221)." An understanding that sees education as human capital and emphasizes the functions of nation-states in maximizing the employability performance of their citizens is identified in the textbook with these statements. Coups against the democratic order are mentioned in the 7th grade textbook (MoNE, 2019c, p.212), but no explanation is given about the forces that pose a threat to the country's problems. In the 6th grade textbook, the subject of gender is conveyed with the value given to women in our nation, what has been done for the development of women's place in society and the rights provided, as well as violence against women, which is one of the current problems (MoNE, 2019b, p.221), with expressions appropriate to gender discrimination and opposition to violence. Copyright and patent rights were among the other topics covered in the textbooks (MoNE, 2019b, p. 221; MoNE, 2019c, p. 35). The transfer of issues and problems independent of systems and structures is also seen in the transfer of global issues and problems in the 5th grade textbook. "*Some gases released into the atmosphere from industrial plants trap*

sunlight and cause an increase in the greenhouse effect. As a result, the average temperature of our Earth increases. Global warming is the increase in the average temperature of the Earth's atmosphere with the increase in the greenhouse effect." (MoNE, n.d., p. 85). In the 5th Grade textbook, it is stated that fundamental rights are under the guarantee of the Constitution in our country, but they are not guaranteed in some countries (MoNE, n.d., p. 169). Sustainability is one of the other topics covered in the 6th grade textbook (MoNE, 2019b, p. 221). However, the statements focus on individuals and remain in the definition dimension. In general, global issues and problems (global climate change, terrorism, starvation, migration, floods, and natural disasters) were mentioned in the 7th grade textbook without specifying their relationship with systems and structures, and the consequences of some global problems (starvation and migration) were also included in the textbook (MoNE, 2019c, pp. 219-220). Current issues and problems are also mentioned in global issues and problems. Global warming (MoNE, n.d., p.85), deprivation of basic rights at the global level (MoNE, n.d., p.167), and change are among the issues identified in the 5th grade textbook. In the 7th grade textbook, the positive developments experienced during the Industrial Revolution process were conveyed (MoNE, 2019c, p.165-166), but the colonialism in the period and the actions of the first countries that carried out the Industrial Revolution in the global level, which also affect today, were not included in the textbook.

In the systems and structures category, a total of 93 statements (16.37% of all statements in the cognitive dimension) were found in the textbooks. In the subcategory of local systems and structures (identification), 7 statements were identified. Of the 84 statements in the subcategories of national systems and structures, 81 were in the subcategory of definition, and 3 were in the subcategory of reasons for establishment. The continuity and changes of systems and structures were included in the 4th grade textbook (MoNE, 2019a.p.12), the purposes of the establishment and working principles of NGOs were included in the 6th grade textbook (MoNE, 2019b, p. 206), and the missions of NGOs to help, solidarity and cooperation and the goals of supporting existing systems and structures were included in the 5th grade textbook.

In the textbooks, the judicial power and its functioning, the principle of the rule of law, and individuals' access to justice were included in the 7th grade textbook (MoNE, 2019c. p. 208, (MoNE, 2019c. p. 31), and the statements that the decisions of judicial power can be audited were included in the 6th grade textbook (MoNE, 2019b, p. 202). The actions taken against the system and structures are included in the 6th grade textbook with the following statements with the narration of the 15 July coup attempt: "*No matter who uses the authority, the authority in the real sense belongs to the nation, which is the true owner of the will. However, in some periods, illegal groups who are uncomfortable with this authority used by the nation have tried to take over the structures formed by the will of the nation by using force. Such acts attempted against the will of the nation are called coups. Coups are not against the government, but directly against the nation."* (MoNE, 2019b, p.209).

Examples of cooperation, interaction, and interdependence between national and global systems and structures are rare in textbooks. In the 5th grade textbook, the only example of cooperation between systems and structures is the vaccination of refugees who took refuge in our country (MoNE, n.d., p.28).

In the interaction and engagement category, a total of 131 statements (23.06% of all statements in the cognitive dimension) were found in the textbooks. The subcategory of the effects of global changes on people is the most common in the category with 69 statements. In this subcategory, the effects of the globalized world on individuals with the code word "Global Threats and Opportunities" were conveyed in the 4th grade textbook with the following statements "*I am very happy when I receive encouraging letters from local and foreign car designers who like my drawings. Recently, a world-renowned car designer sent me a signed book of his."* (MoNE, 2019a.p.19). Fairness in global systems and structures and the opportunities they create are also present in the 4th grade textbook with the expressions of children (MoNE, 2019a, p.19). However, the expressions are limited to individual development and competition. It is seen in the 5th grade textbook that technological developments increase interactions between individuals and societies (MoNE, n.d., p.97). The dark side of colonialism after the geographical discoveries is conveyed in the 7th grade textbook (MoNE, 2019c, p.66) and the experiences of colonialism in our country are conveyed in the 4th grade textbook (MoNE, 2019a.p.153).

The effects of conflicts on the lives of individuals are included in textbooks. The effects of conflicts on the lives, beliefs, and other areas of individuals and societies were conveyed both in history (Talas, Malazgirt, and Crusades) and in the present-day Syrian Civil War. One of the code words with the most frequent expressions in this subcategory is the code word "Interaction in Culture and Civilisation", which refers to the contributions of past civilizations to today's civilization. As an example of how widespread the interaction and interdependence between societies is, the following statements can be shown in the 7th grade textbook; "*Like the expression "china", which means quality dinnerware in English, the word "china" is a name derived from the word "China" and is a name given to the Chinese who introduced the art of porcelain to the world."* (MoNE, 2019c, p.89).

The reality of globalization shows itself in different dimensions in the textbook. In the subcategory of interaction and commitment between local/national and global systems, international conventions created by global systems and structures and accepted by states were included in the 4th grade textbook (MoNE, 2019a.p.153), the interaction between systems and structures was included in the 5th grade textbook (MoNE, n.d., p.28), and the inclusive aspect of international systems and structures was included in the 6th grade textbook (MoNE, 2019b, p. 246). However, the textbooks do not mention the methods that an individual or society can follow when the obligations arising from the conventions are not fulfilled. The only exception is the following statements in the 6th grade textbook: "*Furthermore, citizens can apply to the European Court of Human Rights (ECHR) after using all domestic legal remedies."* (MoNE, 2019b, p.203). Questioning inequalities in global governance systems is one of the aims of global citizenship education. However, there are no statements in the textbooks about the problems that occur and may occur in global systems and structures.

In the subcategory of interaction and interdependence between local/national and global issues/problems, refugees and conflicts code and current issues and problems were included in the textbooks. The civil war in Syria and the refugee problem were included in every grade level except the 5th grade. For example, in the 4th grade textbook, this issue was conveyed by associating it with "empathy", "solidarity" and Turkish foreign policy. **"***Turkey closely follows the Syrian crisis*

just beyond its borders and takes defense measures against terrorist organizations in the region. It also supports international initiatives to protect Syria's territorial integrity and to resolve the conflict peacefully." (MoNE, 2019a, p.181). In the textbook, issues and problems are presented only with their apparent consequences. The causes, their relevance to systems and structures, the responsibilities that global systems and the global community should assume for a solution, and the factors that prevent a solution are not included in the textbook. Similarly, the relationship between the colonialism of the past and contemporary issues and problems is not included in the textbook.

In the cognitive skills category, a total of 119 statements (20.96% of all cognitive statements) are included in the textbooks. The most frequently covered cognitive skills are digital literacy and analytical thinking skills. Critical thinking skills and enquiring learning skills were included in the textbooks with only 5 statements each. In parallel with the increasing importance of developing technologies, especially communication technologies, in the lives of individuals and society, it has been determined that some skills are predominantly included in textbooks.

In the category of citizenship, there are a total of 98 statements (17.25% of all cognitive statements) in the textbooks. It is seen that the statements are mostly about rights and duties and rights arising from international legal texts. In the textbooks, individuals are encouraged not only to learn about their rights but also to demand them, as can be seen in the following statements in the 4th grade textbook: "*However, every child has the right to nutrition, immunization against diseases and quality health care. I expect the rulers of our country and the world to find solutions to these problems as soon as possible."* (MoNE, 2019a, p. 155). However, the textbook does not include legal procedures, methods that can be followed, or what the individual or society should do if the demands are not fulfilled. In the textbooks, fundamental rights are mentioned without any relation to the relevant international law texts (MoNE, n.d., p.169). Although the references suggest that citizenship rights are only related to sovereign states, the statement that individuals can apply to the European Court of Human Rights when they think that the decisions of the legal system in our country are wrong is also included in the 6th grade textbook (MoNE, 2019b, p.203). The 7th grade textbook identifies the understanding of the social state with the principle of equality that protects the rights and freedoms of citizens (MoNE, 2019c, p.208). The principles of the rule of law (MoNE, 2019b, p. 193), the concept of participatory democracy (MoNE, 2019b, p. 204), the right to communication (MoNE, 2019c, p. 33), equality, freedom of movement, freedom of thought, freedom of religion, conscience and worship, and the right to vote and be elected are other rights and freedoms included in the textbooks. The development and change of the concept of citizenship are conveyed through the development and changes in Europe. Citizenship in the feudal system (MoNE, 2019c, p.160), periods when the views of the church were valid (MoNE, 2019c, p.150), the French Declaration of Citizens and Human Rights, and the Universal Declarations of Human Rights (MoNE, 2019c, p.150) and the historical course of this change are described in the 7th grade textbook. Although information about the development of the concept of citizenship is given, today's understanding of citizenship is not included in the textbooks.

Analyzing the Socio-Emotional Dimension of UNESCO's Global Citizenship Education Approach in Social Studies Textbooks

The distribution of the inclusion of UNESCO's understanding of global citizenship education in the socio-emotional dimension in 4th, 5th, 6th, and 7th grade social studies textbooks according to categories and subcategories is given in Table 3.

Table 3. *Distribution of the coverage of UNESCO's understanding of global citizenship education in the socio-emotional dimension in 4th, 5th, 6th and 7th grade social studies textbooks according to categories and subcategories*

Categories	Subcategories	4th Grade	5th Grade	6th Grade	7th Grade	TOTAL
		f	f	f	f	f
Identitiy Consciousness	Commitment to Fundamental Rights	-	8	-	-	8
	The Position of Individual Identity Consciousness in Multiple Relationships	5	10	18	1	34
	The Position of Social Identity Consciousness in Multiple Relations	6	2	8	3	19
	The Position of National Identity Consciousness in Multiple Relations	8	14	37	44	103
	Global Identity Consciousness	4	8	2	12	26
	Sensitivity to Global Issues / Problems	-	-	-	-	-
	Developing Perspective on Humanitarian Issues	10	11	7	25	53
	Relations between identities	-	-	2	11	13
	Forms of Relationship between Identities	4	6	4	8	22
Attitudes and Values	Attitudes and Values towards Diversity and Diversity	32	4	9	23	68
	Awareness of Differences and Diversity	2	1	3	-	6
	Being open to differences and diversity	16	-	-	-	16
Social Skills	Resisting All Forms of Social Oppression	-	-	-	-	-
	Violence Prevention	-	-	-	-	-
	Communication Skills	1	-	-	17	18
	Empathy	9	-	-	-	9
	Conciliation and Mediation	-	-	-	-	-
	Conflict Management	2	-	-	-	2
	Emotion Management	-	-	-	-	-
	Social Engagement	2	-	-	-	2
	Collaboration	-	-	-	1	1
	Entrepreneurship	-	3	2	-	5
TOTAL		101	67	92	145	405

The socio-emotional dimension was included in social studies textbooks with a total of 405 statements.

In the identity consciousness category, there are 278 statements in total (68,64% of the socio-emotional dimension). This category has the highest number of expressions in the socio-emotional dimension in the textbooks. The importance of fundamental rights was included in the 5th grade textbook with the following statements: "*Individuals of a society where fundamental rights and freedoms are protected and utilized live in peace and security. In such societies, justice*

and equality are more easily achieved among people." (MoNE, n.d., p.170). In the subcategory of the position of individual identity consciousness in multiple relationships, a total of 34 statements were identified in the textbooks. The need to define the attitudes and behaviors determined for the individual as the roles of the individual and to exhibit the behaviors expected of them was included in detail in the 6th grade textbook (MoNE, 2019b, p.12).

In the subcategory of the position of social identity consciousness in multiple relations, a total of 19 statements were identified in the textbooks. The subcategory of the position of national identity consciousness in multiple relations was the subcategory with the highest number of statements in this category with 103 statements. The elements of our national culture were conveyed in a detailed and multifaceted manner (offering coffee, kissing hands on holidays, laying dowry). The importance of our religious beliefs in our national identity is stated in the 6th grade textbook with the following statements: "*Our religion has an important place in our acquisition of values such as love, respect, truthfulness, compassion, courage, benevolence, responsibility, fairness, love of homeland and nation."* (MoNE, 2019b, p. 19). The identification of national identity with the religion of Islam is found in the 6th grade textbook (MoNE, 2019b, p. 18).

National identity is conveyed in the 6th grade textbook with elements such as benevolence, hospitality, and love of animals (MoNE, 2019b, p. 19), which are stated to have existed during the Ottoman Empire, especially through the narratives of foreign travelers and state officials. Under the Turkish identity, "friendship", "brotherhood" and "cooperation" were emphasized. Some of the Turkish-Ottoman identity characteristics defined are as follows: Strong family structure, solidarity in the neighborhood, hospitality, doing secret favors, and protecting animals.

Gender was included in the 6th grade textbook with the importance Turks attach to women (MoNE, 2019b, p.217). The concept of justice was conveyed in the 7th grade textbook by stating its importance as a state custom in ancient Turkish states (MoNE, 2019c, p. 199).

In the subcategory of the position of global identity awareness in multiple relations, a total of 12 statements were identified in the textbooks. Cultures and civilizations outside our borders must be included in the 4th grade textbook with positive expressions. Expressions such as the Japanese's hospitality (MoNE, 2019a, p.191), the Finns' loyalty to their families, hospitality, responsibility, reliability, and honesty (MoNE, 2019a, p.175) are in line with the GCED objectives. In addition, the common points of humanity are emphasized in the 5th grade textbook with the transfer of common heritage (MoNE, n.d., p.191).

In the subcategory of developing a perspective on humanitarian issues, a total of 53 statements were identified in the textbooks. Continuity in culture and civilization, especially the developments in science and technology, was included in the 4th grade textbook (MoNE, 2019a, p.98). These transfers draw attention as a positive approach in terms of understanding the development of today's civilization and not attributing it to a single person or culture.

In the subcategory of relations between identities, a total of 13 statements were identified in the textbooks. Statements conveying the encounters of religious identities are included in the 7th grade textbook (MoNE, 2019c, p.65). In contrast to the hostility of the Christian world against the Islamic world, the environment of tolerance in the Islamic world is conveyed in the 7th grade textbook with the following statements: "*We realized that your state was rising day by day and*

surpassing our state. We saw that the villagers who came under your father's rule were satisfied and did not seek us again, and we were drawn to this comfort." (MoNE, 2019c, p.57).

In the subcategory of forms of inter-identity relations, a total of 22 statements were identified in the textbooks. The place of tourism in relations was mentioned in the 5th grade textbook.

In the category of attitudes and values, there are a total of 90 statements in the textbooks (22'22% of the socio-emotional dimension). In the subcategory of attitudes and values towards difference and diversity, there are 68 statements in total. In this subcategory, language, religion, race, and gender discrimination are strongly opposed in the 4th grade textbook (MoNE, 2019a, p.29). Combating prejudices (MoNE, 2019b, p. 32) and undesirable behaviors caused by prejudices are mentioned in the 6th grade textbook (MoNE, 2019b, p. 27). Inclusion is one of the most common code words in textbooks. Especially in connection with religious identity, inclusiveness is mentioned in the 7th grade textbooks in terms of "living together" (MoNE, 2019c, p. 37), or with past examples such as the "Nation" system and multiculturalism in the Ottoman Empire (MoNE, 2019c, p. 62) and the aid provided by foundations regardless of religion, language, race and thought (MoNE, 2019c, p. 169).

In the subcategory of awareness of differences and diversity, there are a total of 6 statements in the textbooks. To create this awareness, the reasons for differences were included in a narrative transferred from individuals to societies (MoNE, 2019a, p. 193), and in the subcategory of being open to differences and diversity, a total of 16 statements were identified in the textbooks.

In the social skills category, a total of 37 statements (9.14% of all statements in the socio-emotional dimension) were included in the textbooks. Communication and empathy skills are the most frequently identified social skills with 18 and 9 statements, respectively. Examples of the statements in the 7th grade textbook related to these skills are as follows: "*For this reason, every behavior of ours affects our environment. Positive communication behaviors that seem very small in our daily lives can have great effects.*" (MoNE, 2019c, 18).

Examining the Behavioural Dimension of UNESCO's Global Citizenship Education Approach in Social Studies Textbooks

The distribution of the behavioral dimension of UNESCO's understanding of global citizenship education in 4th, 5th, 6th, and 7th grade social studies textbooks according to categories and subcategories is given in Table 4.

Table 4. *The distribution of the behavioral dimension of UNESCO's understanding of global citizenship education in 4th, 5th, 6th, and 7th grade social studies textbooks according to categories and subcategories*

Categories	Subcategories	4th Grade	5th Grade	6th Grade	7th Grade	TOTAL
		f	f	f	f	f
Active Citizeenship	Individual Participation Local	3	3	3	5	14
	Individual Participation National	-	-	-	-	-
	Individual Participation Global	-	-	-	-	-
	Collective Participation Local	2	1	3	-	6
	Collective Participation National	1	1	4	3	9
	Collective Participation/Global	5	1	6	3	15
	Political Participation at the Local Level	-	-	-	-	-
	Political Participation at National Level	-	1	5	3	9
	Political Participation at the Global Level	-	-	-	-	-
	Ethical Behaviour at the Local Level	3	-	-	-	3
	Ethical Behaviour at National Level	-	-	3	-	3
	Ethical Behaviour at the Global Level	-	-	-	-	-
	Planning and Organisation	-	-	-	-	-
	Working in Co-operation	-	-	-	-	-
	Being a Role Model	4	-	1	-	5
TOTAL		18	7	25	14	64

A total of 64 statements in social studies textbooks are included in the "Active Citizenship" category. A total of 14 statements were identified in the local subcategory of individual participation. The statements generally convey examples of individual participation in projects, competitions, and similar activities initiated by official institutions (MoNE, 2019a, p.44). Some examples are conveyed in the 5th grade textbook in connection with the national culture of the actions initiated by individuals with the following statements: "*Yasin said, "We see ourselves as deficient in recycling. However, this is a value that comes from our own culture. I want to take our brand abroad to prove that recycling has an important place in Turkish culture."* (MoNE, n.d., p.139). The place and importance of systems and structures in individuals' rights-seeking actions are conveyed in the 6th grade textbook (MoNE, 2019b, p.40).

In the collective participation local subcategory, only 6 statements were identified in the textbooks. As it was determined in the local subcategory of individual participation, the statements conveyed not the actions initiated by individuals, but the actions in which individuals were participants in the 4th grade textbook with the following statements: "*Narin Sözen Oruç said, "We are trying to give values education to students with the project called "Let Every Class Have an Orphan Sibling". In this way, our children learn tolerance, love, and empathy.*" (MoNE, 2019a, 27).

In the collective participation national subcategory, only 9 statements were identified in the textbooks. Statements conveying what was done as a nation during our War of Independence were evaluated in this subcategory (MoNE, 2019a, p. 57). The statements convey both exemplary behaviors and actions that individuals can take to improve the world.

In the global subcategory of collective participation, 15 statements were identified in the textbooks. The statements generally convey the work of NGOs in the 4th grade textbook (MoNE, 2019a, 123). The cooperation of national and global systems is included in the 5th grade textbook with the following statements: "*With the contributions of the World Health Organisation and*

UNICEF, the Ministry of Health of Turkey launched a vaccination campaign for guests (refugee, migrant, etc.) children under the age of 5." (MoNE, n.d., 28). Global cooperation for the global benefit in systems and structures was conveyed through the actions of the systems and structures of the Republic of Turkey at the global level (MoNE, 2019b, p.242). In the subcategory of political participation at the national level, 9 statements were identified in the textbooks. Although the 6th grade textbook emphasizes the importance of participation in elections (MoNE, 2019b, p.210), political participation is not limited to elections in the textbooks. In the Grade 6 textbook, the prevention of the coup attempt with the actions of the people (MoNE, 2019b, p.209) emphasizes the importance of individual participation at the national level. The importance of NGOs, media, or public opinion formation in political participation is also mentioned in the 6th grade textbook (MoNE, 2019b, p.204). In the subcategory of ethical behavior at the local level, 3 statements were identified in the textbooks. One of the statements identified with the code word "saving" was included in the 4th grade textbook (MoNE, 2019a, p. 141).

In the subcategory of ethical behavior at the national level, 3 statements were identified in the textbooks. The statements aim to raise awareness against the piracy of works such as ideas, thoughts, and works of art (MoNE, 2019b, 151). In the subcategory of being a role model, 5 statements were identified in the textbooks. The heroic actions of women in the War of Independence and especially the actions of women; taking responsibility, and standing up against injustice and inequality are behaviors expected from global citizens.

Analyzing the Distribution of UNESCO's Understanding of Global Citizenship Education in Social Studies Textbooks According to Dimensions

The cognitive, socio-emotional, and behavioral dimensions of UNESCO's understanding of global citizenship education in 4th, 5th, 6th, and 7th grade social studies textbooks are given in Table 5.

Table 5. *Distribution of UNESCO's understanding of global citizenship education in 4th, 5th, 6th and 7th grade social studies textbooks according to dimensions*

Cognitive Dimension		Socio-Emotional Dımension		Behavioural Dimension	
f	f	f	f	f	%
568	54,77	405	39.05	64	6.17

When Table 5 is examined, it is seen that the cognitive dimension of global citizenship education is the most common dimension of global citizenship education in 4th, 5th, 6th, and 7th grade social studies textbooks with a rate of 54.77%, followed by the socio-emotional dimension with a rate of 39.05%. The behavioral dimension (6.17%) was the least common dimension of global citizenship education in social studies textbooks. According to these findings, it can be said that social studies textbooks support the cognitive and socio-emotional dimensions of UNESCO's understanding of global citizenship education, but do not support the behavioral dimension very much.

Conclusion and Discussion

The present research was conducted based on the document "Global citizenship education: topics and learning objectives" (GCED) prepared by UNESCO to respond to the guidance needs of member countries in incorporating global citizenship education into their

education systems (UNESCO, 2015, p.7). GCED includes three basic conceptual dimensions (cognitive, socio-emotional, and behavioral) that are common to various definitions and interpretations of global citizenship education. All of these dimensions of global citizenship education are discussed below based on the findings.

When the GCED learning outcomes are analyzed, they include not only the acquisition of knowledge but also its interpretation and critical questioning of knowledge (UNESCO, 2015). The adequate and effective reflection of UNESCO's cognitive goals of global citizenship education in textbooks will show the level of realization of these goals in textbooks.

"Topic and problems" was the category with the most statements in the cognitive dimension in social studies textbooks. Social studies is an important course because it enables children to be aware of the problems of today's societies by focusing on the past and the present (Arın and Deveci, 2008, p. 171). To teach current issues, students need to be equipped with the appropriate tools to cope with the problems they face or will face in every moment of their lives, from local to global (McBee, 1996). In today's world, issues and problems are often interrelated and interactive. NCSS also emphasizes this interaction by stating that human experience is an increasingly globalized phenomenon in which people are constantly affected by transnational, intercultural, multicultural, and multiethnic interactions (NCSS, no date). The emergence of the first Covid-19 case in Wuhan, China on 31 December 2019 (URL 1) shows us how fragile and interconnected our world is, and how important it is to understand the interactions between the issues and problems concerning our world. These interactions and relationships make it compulsory for us to understand the interactions of local and national issues and problems with issues and problems at the global level.

When the textbooks are analyzed, it is seen that national issues and problems are conveyed predominantly, while local and global issues and problems are conveyed less. In all the social studies textbooks analyzed, local/national/global issues and problems were mostly conveyed at the level of description, and expressions about the causes and solution suggestions were very few in the textbooks. The reasons for and solutions to these issues and problems are explained without a critical perspective and adequate mention of the effects of historical, geographical, political, economic, religious, technological, media, or other factors. However, according to the GCED paradigm, individuals need to recognize the engagement with local, national, and global issues, structures and processes. In addition, individuals are expected to question the relationships between contemporary issues and problems with global issues and problems and with existing systems and structures.

In social studies textbooks, interactions and interdependencies between issues and problems are conveyed through global changes affecting culture, negativities caused by the strengthening of popular culture, and refugees. However, refugees are presented only as a result and the subject is associated with "empathy", "solidarity" and Turkish foreign policy. The current Covid-19 pandemic is important in terms of showing the relations between systems and structures with issues and problems. The pandemic also reminded us of the existence of global institutions that had not attracted our attention before, their importance in today's world, and their role in issues and problems that transcend nation-state borders.

The causes of popular culture and the possible consequences of the misuse of communication technologies are included in the textbooks from a broad perspective (economic, technological, media, and culture). The effects of historical, geographical, political, economic, religious, technological, media, or other factors are not sufficiently addressed in the presentation of other issues and problems. Statements at the level of knowledge transfer do not encourage students to conduct research, analyze data or critically approach the information conveyed in the process of acquiring knowledge. When the textbooks are analyzed, it is also seen that the relations of issues and problems with systems and structures are not specified.

When the social studies textbooks are analyzed, it is seen that the subcategory with the most expressions in the systems and structures category is national systems and structures and the subcategory with the least expressions is local systems and structures. The statements about systems and structures in social studies textbooks remained mostly at the level of definition. There are very few statements about the problems of systems and structures. This situation does not allow learners to question to what extent local/national and global systems and structures have been able to fulfill their founding purposes in the historical process and why they have not been able to fulfill these purposes sufficiently.

When the learning objectives in the GCED paradigm (UNESCO, 2015, p.32) are analyzed, the importance of systems and structures in global citizenship education is seen. Therefore, it can be said that there are differences between UNESCO's and 2018 social studies curriculum's views of systems and structures. In the 2018 social studies curriculum, the necessity of systems and structures is emphasized. GCED, on the other hand, aims to convey the interactions and interdependencies between systems and structures, as well as a critical approach to systems and structures (good governance, rule of law, and transparency). The GCED states that the meaning of decisions taken not only in the individual's nation-state but also at the global level, anywhere in the world, for the individual and society should be considered (UNESCO, 2015). However, when the textbooks were analyzed, it was seen that the interactions and interdependencies between systems and structures were not adequately conveyed. We see this situation in the statements reflecting international conventions in the textbooks. The rights gained by the conventions to the individual were included in the textbooks without mentioning the relations of these conventions with global systems and structures. Some of the studies carried out by global systems and structures in cooperation with national systems and structures in our country are included in the textbooks without any reference to global systems and structures. In social studies textbooks, very few statements were identified in which interactions and interdependencies between systems and structures were included. Statements stating that refugees in our country are vaccinated in cooperation with global systems and structures (MoNE, 2018d, p.28) and that citizens can apply to the ECHR when internal legal procedures in our country are completed (MoNE, 2018d, p.203) are examples of these limited transfers. Inequalities and injustices in systems and structures are not mentioned or criticized in social studies textbooks. How can decisions made somewhere in the world affect the current and future well-being of people and the environment? Thinking about this question and its answers is one of the learning objectives of global citizenship education (UNESCO, 2015, p.32). Social studies textbooks do not seek to answer this question and only mention the effects of some international conventions. The effects of factors that influence individuals' perspectives (gender, age, religion, ethnicity, culture, socio-economic and

geographical context, ideologies and belief systems, or other conditions) on systems and structures emphasize another aspect of global citizenship education (UNESCO, 2015, p.34). However, these factors affecting systems and structures are not mentioned in social studies textbooks.

Good governance, rule of law, democratic processes, and transparency (UNESCO, 2015, p.32) are considered within systems and structures in global citizenship education. The importance of the rule of law and democratic processes is emphasized in social studies textbooks. However, transparency, which is a principle related to the accountability and control of systems and structures, was not included in the textbooks. The fact that only the responsibilities of systems and structures are mentioned in the textbooks without stating that they are structures established by human beings for human beings and by human beings and that they can be audited can be considered as a deficiency in the textbooks. Another deficiency identified is that it does not make learners critically question the extent to which systems and structures fulfill their responsibilities.

In the category of interaction and interdependence, the subcategory with the highest number of statements in social studies textbooks is “the effects of global changes on people”. Statements in the subcategories of "interaction and connectedness between local/national and global systems" and “interaction and interdependence between local/national and global issues/problems" were limited. This situation prevents students from learning global citizenship issues in the social studies course in a context-based way. Since context-based learning is a learning approach that focuses on the importance of the context of knowledge in real life (Rose, 2012, p. 799), the content of social studies textbooks should enlighten students about why they should learn global citizenship knowledge and how they should use this knowledge.

In social studies textbooks, it was determined that current interactions and loyalties were emphasized in the interaction and loyalty category. However, conveying the fact that today's civilization is not born from a single source can be seen as an important basis for today's cultural uniformization. It is important to explain the existence and contributions of other cultures against the uniformization and consumer culture triggered by popular culture. In the textbooks, interactions with the global world are evaluated from the perspective of the nation-state. In textbooks where the material dimensions of global interactions are emphasized, the approach to education is conveyed with a focus on national development (MoNE, 2019b, p. 221). The textbooks emphasize common heritage and global peace. However, the encounters between societies and cultures are conveyed through wars and conflicts. The interactions of global systems and structures with national systems and structures are presented in some case studies, albeit very few. The importance of raising students' awareness to understand the prejudices caused by the negative situations experienced in the past (colonialism, genocides, wars of economic and cultural domination) and to prevent these negativities from happening again is obvious. However, it is seen that the effects of the colonial period are not sufficiently reflected in social studies textbooks.

The reality that decisions taken anywhere in the world can affect individuals’ own lives is not included in the textbooks. The fact that beliefs and values influence social and political decision-making processes at local, national, regional, and global levels (UNESCO, 2015) is another GCED objective that is not included in the textbooks. In the social studies textbooks, the effects of the globalizing world on individuals are described with the code word “global threats

and opportunities" and the opportunities in the education and employment market provided by globalization. The inclusion of current issues and problems in the textbooks with the code word "refugees and conflicts" in the subcategory of interaction and engagement between local/national and global issues/problems will contribute to students following these current events and problems with interest, developing critical thinking and problem-solving skills, better understanding the world in which they live as citizens, increasing their awareness at the global level, and gaining affective characteristics such as tolerance and empathy (Sömen, 2020).

In social studies textbooks, statements related to critical thinking and inquiry learning skills are less common than statements related to media literacy, digital literacy, and partially technology literacy skills. Altay (2020) examined secondary school social studies textbooks in terms of skills and found that critical thinking, decision-making, and problem-solving skills, which are important for global citizenship education, are among the least common skills in textbooks. Demir and Özyurt (2021) examined the achievements in the 2018 social studies curriculum and the activities and questions in 4th , 5th , 6th, and 7th grade social studies textbooks in terms of 21st century skills. As a result of their research, they suggest that social studies textbooks and curricula should be enriched to develop students' 21st century skills and should be inclusive in terms of 21st century skills. These findings show that social studies textbooks do not sufficiently support global citizenship education in terms of cognitive skills.

UNESCO emphasizes critical citizenship literacy (UNESCO, 2015, p.23), which reflects the change in the concept of citizenship in global citizenship education and reinterprets citizenship. It is stated in the literature that the primary course that can reflect this new understanding of citizenship, which is changing with the globalizing world today, is the social studies course, which has an important place in the citizenship education of countries (Keskin, 2009; Öztürk, 2009; NCSS, 1994. cited in Kuş and Aksu, 2017, p.19). Therefore, social studies textbooks are expected to reflect this new understanding of citizenship in their content. According to the findings of the study, it was determined that in the category of citizenship, the legal and constitutional rights of the individual were given more space in social studies textbooks than the legal and constitutional duties of the individual. No statements were found in the subcategories of the citizenship category such as the relationship of the individual with international voluntary institutions and organizations, citizenship approaches/similarities, and citizenship approaches/differences. However, similarities and differences in different definitions of citizenship are one of the topics targeted to be learned with GCED (UNESCO, 2015). With this learning objective, in which the effects of similarities and differences in rights and duties on today's understanding of citizenship can be examined, it will be easier for us to understand others in our common world with a focus on rights and responsibilities. In Global citizenship education, it is aimed at learning about the similarities and differences in rules and decisions in different societies, and how they are acquired and owned (including history, geography, and culture) (UNESCO, 2015, p.32), rather than simply transferring existing rights and obligations. In the social studies, textbooks examined, efforts to recognize others were made through the transmission of daily life habits, certain cultural norms, or, exceptionally, differences in beliefs. However, citizenship practices and achievements in different geographies are not explained both historically and currently. Democratic political debates and actions are not included except for the actions of the people against the 15 July Coup Attempt. In social studies textbooks, it is stated that fundamental rights are protected by

achievement stories and international conventions and institutions. However, the reality is that fundamental rights are not only under the guarantee of sovereign states but also defended by "the entire human community as a whole" and have to be protected all over the world through global systems and structures (Carter, 2005, p.26) is not included in the textbooks. Social studies textbooks also do not display a critical approach to global systems and structures in terms of violations of fundamental rights.

UNESCO defines the socio-emotional dimension of global citizenship education as "values, attitudes and social skills that enable learners to develop emotionally, psycho-socially and physically and to live respectfully and peacefully with others" (UNESCO, 2015, p.22). Firstly the individual must define himself/herself and be aware of his/her identity characteristics while positioning others in this dimension This is possible with good identity awareness.

Identity, which is an important element of the social integration process, has an important place in social studies curricula both in Turkey and in the world. In the 2018 social studies curriculum, this important topic is covered in a concentrated manner in the learning area of "Individual and Society". In UNESCO's framework paradigm for global citizenship education, identity is central and emphasized as one of the important foundations for understanding the global dimension of citizenship. In this document, the importance of the individual discovering his/her individual, social and national identity characteristics is also stated and it is stated that in global citizenship education, individuals should learn their own identities and how they position these identities in multiple relationships (e.g. family, friends, school, local community, country) (UNESCO, 2015, p.23). It should not be forgotten that the encounters of individuals and societies with differences and diversity today are much more than in the past. Therefore, global citizenship education aims to enable students to recognize and appreciate differences and multiple identities (culture, language, religion, gender, and common humanity) and to develop skills to live in an increasingly diverse world (UNESCO, 2015, p.16). In line with these goals, global citizenship education that will be provided to individuals from an early age for they to have a correct sense of identity will make important contributions to the common future of the world. It is important how identity awareness is given in textbooks, which is an important part of this education. In the present study, it is seen that religious identity in social studies textbooks in the subcategories of individual, social, and national identity is conveyed by identifying it with national identity. The textbooks also include texts that teach religious identity, attitudes, and values. In addition, efforts to raise awareness of students against cultural uniformization and cultural degeneration by highlighting the elements of national identity defined by religious identity were also observed in the textbooks. Şen (2019), in his research examining the 2018 social studies curriculum, states that this curriculum has shifted towards an ethno-religious nationalism compared to previous curricula.

Studies (Acaralp, 2009) have shown that although we have exhibited the culture of living together despite all the differences for centuries, today we are segregated even within ourselves at the micro level. Education has important duties in eliminating these segregations. However, it is seen in the present study that social studies textbooks do not convey the importance of identity in multiple relationships, which would contribute to the reduction of segregation.

In social studies textbooks, identity is tried to be gained by defining individual roles. There are limited statements in social studies textbooks about developing positive relationships with people from diverse and different backgrounds (UNESCO, 2015, p.35). Statements about the value of different cultures and societies and different perspectives beyond one's own experiences (UNESCO, 2015, p.36) are included at a certain level in social studies textbooks. Multiple identities belonging to and related to different groups (UNESCO, 2015, p.35), which are included in global citizenship education, are conveyed in social studies textbooks. There are also efforts to understand the similarities and differences between societies and cultures (beliefs, language, traditions, religion, lifestyles, ethnicity) (UNESCO, 2015, p.36) in social studies textbooks.

The inclusiveness of religious identity in the textbooks is conveyed concerning the positive attitudes and values that are aimed to be acquired. Confrontations between religious identities are generally conveyed through conflicts, injustices, and negative expressions in textbooks. Even if the statements conveying historical realities are generally true, the only reason for the events is likely religious differences, which may foster negative feelings in students towards others.

Textbooks should convey the interactions with others and the contributions of these interactions to civilization by using positive and constructive language. When social studies textbooks are examined, it is conveyed that civilizations have influenced each other starting from the oldest civilizations (Sumer, Babylon, Assyria) until today. This interaction is explained in social studies textbooks with an emphasis on common heritage and its concrete existence today. How are we connected to the wider world beyond our immediate environment and through different methods (media, travel, music, sports, culture)? (UNESCO, 2015, p.35) The answers given to the question were generally focused on conflicts, trade, and tourism. The goal of gaining an understanding of a common identity potential (a sense of belonging to common humanity, respect for differences, and diversity) is included in social studies textbooks with the importance given to common heritage.

In UNESCO's global citizenship education guideline document, the learning objectives include the goal of "showing respect and appreciation for difference and diversity, developing empathy and solidarity towards other individuals and social groups" (UNESCO, 2015, p.31). As the ultimate goal of global citizenship education, the learning of common values (respect, tolerance and understanding, solidarity, empathy, care, equality, inclusiveness, and human dignity) (UNESCO, 2015, p.36) is emphasized in learning to live together in peace. These aims and objectives show that individuals should have certain attitudes and values for global citizenship education. Therefore, social studies textbooks, which are an important element of global citizenship education, should include content that will provide these attitudes and values. In the present research, a total of 90 statements were identified in the category of attitudes and values in social studies textbooks. The subcategory with the highest number of statements in the category of attitudes and values in textbooks is the attitudes and values towards difference and diversity subcategory. Recognizing others, being inclusive, helping, respecting, and empathy are the most frequently encountered attitudes and values that are also targeted in global citizenship education. It is thought that the increasing refugee population in our country has affected the 2018 social studies curriculum. This situation may be a reason why the common values determined for peaceful coexistence, which is one of the main goals of global citizenship education, are frequently

seen in social studies textbooks. Being inclusive, respect for differences, fighting against stereotypes and prejudice, tolerance shown with our religious identity in the past periods and experiences of living together in peace, and efforts to create awareness about individual differences for social differences are also included in the textbooks. Young (2016) analyzed South Korean textbooks and found similar results. Based on the results of this study, there is an increase in global citizenship themes aiming to embrace cultural differences in South Korean textbooks. Despite this increase, the researcher concluded that children from families with different cultures feel discrimination from their peers in schools. This situation shows that the socio-emotional dimension of global citizenship education cannot be gained only through textbooks and that this education should be handled in a multidimensional and inclusive manner.

Social skills are "the ability to understand the feelings, thoughts and behaviors of other individuals in various interactions, both one's own and by empathizing and to show behaviors by that understanding" (Çubukçu and Gültekin, 2006, p.167). The skills (communication, negotiation, conflict management, and resolution, accepting different perspectives, non-violence, reconciliation and mediation, emotion management, etc.) (UNESCO, 2015, p.35-36), which are also the ultimate goal of global citizenship education, are examined in this category. In the study, there were no statements about resisting all kinds of social pressure, preventing violence, reconciliation and mediation, and emotion management skills in social studies textbooks. It is thought that the reason why communication, empathy, and entrepreneurship skills are more than other social skills in these textbooks is the developing and increasing understanding of communication, refugees, and employment-oriented education.

The least covered dimension of global citizenship education in the textbooks was the behavior dimension. The subcategories in which there are no statements in this dimension are political participation at the global level and planning and organization subcategories. Considering that learning that does not turn into action and behavior is not accepted as real learning, it can be said that the behavioral dimension, which is an important dimension of global citizenship education, is the weakest point of social studies textbooks in terms of global citizenship education. Türk and Atasoy (2021), in their research examining the 2018 social studies curriculum in terms of global citizenship education, found that the achievements were not distributed in a balanced manner according to the dimensions of global citizenship, and less emphasis was placed on the global participation dimension, which requires behavior. The fact that the concept of citizenship in social studies textbooks is conveyed only in the focus on rights and duties, and democratic political discussions and actions are not included shows that the liberal individualist view is mostly adopted in the understanding of active citizenship in social studies teaching in our country. According to the liberal individualist view, active citizenship is when individuals are expected to remain outside the state and contribute only in a certain way to the reproduction of the state in return for the benefits of organizational membership (citizenship) (Lawson, 2001, p. 166). By learning the types of civic engagement (advocacy, community service, media, formal governance processes such as voting) for individual and collective action not only in one's society but also in other cultures and societies (UNESCO, 2015, p.38), global citizens will be able to strive for solutions to global problems.

Recommedations

1. For an effective global citizenship education in social studies textbooks, it is thought that a balanced distribution of content covering all three dimensions of global citizenship education (cognitive, socio-emotional, behavioral) would be beneficial.

2. It was observed that global interactions of topics and problems were not included in social studies textbooks. Therefore, it is thought that the inclusion of topics and problems with their global interactions in the textbooks will help to better understand today's world problems.

3. Textbooks should include content that will encourage students to develop a critical approach towards the approaches of local, national, or global systems and structures to issues and problems, the decisions they make, and the implementation processes of these decisions.

4. It is thought that explaining the understanding of citizenship in our country by comparing it with the existing understandings of citizenship in the world in the textbooks will enable individuals to better understand the importance of citizenship rights.

5. Conducting the present study, which examines the inclusion of global citizenship education in social studies textbooks, for other textbooks taught at different levels of education would be beneficial in terms of bringing a holistic perspective to global citizenship education in the Turkish Education System.

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Sosyal Bilgiler Ders Kitaplarının UNESCO'nun Küresel Vatandaşlık Eğitim Paradigması Açısından İncelenmesi

Giriş

Küreselleşme olgusu günümüzde tüm dünyada her boyutu ile sadece devletleri, kurum ve yapıları değil toplumları ve bireyleri de etkilemektedir. Günümüzde küreselleşme kavramının en fazla ilişkilendirildiği alan ekonomidir. Ancak artan etkileşim ve bunun sonuçlarının sadece ekonomi alanı ile sınırlı olmadığını aynı zamanda toplumsal bir olgu olduğunu Giddens (1990, s. 64)'ın "Uzak bölgelerdeki yerel olayları kilometrelerce uzakta meydana gelen olaylarla şekillendirecek şekilde birbirine bağlayan dünya çapında sosyal ilişkilerin yoğunlaşması" olarak ifade ettiği küreselleşme tanımında da görmekteyiz. Dolayısıyla günümüz küreselleşmesi karmaşık kültürel, ekonomik ve toplumsal yapıları ilgilendiren bir olgudur.

Değişen dünya ile küreselleşmenin hem faydalarını hem de ortaya çıkardığı sorunları bilen, sorunların çözümünde aktif rol alan, küresel bir köye dönüşmüş dünyamıza uyum sağlayabilen yeni bir vatandaşlık anlayışına olan ihtiyaç küresel vatandaşlık kavramının; küresel vatandaşlar yetiştirme ihtiyacı da küresel vatandaşlık eğitimi kavramının ortaya çıkmasına neden olmuştur. Günümüzde vatandaşlık, yerel, ulusal ve küresel olarak iç içe geçmiş (Tuomi, Jacott ve Lundgren, 2008; akt: Tünkler, 2020) bir anlayışa evrilmiştir. United Nations Educational, Scientific and Cultural Organization (UNESCO) küresel vatandaşlığı siyasi bir kimlik olarak değil, daha geniş bir topluluğa ve ortak insanlığa ait olma duygusu olduğunu belirterek; yerel, ulusal ve küresel arasındaki politik, ekonomik, sosyal ve kültürel karşılıklı dayanışmayı ve birbirine bağlılığı vurguladığının altını çizmektedir (UNESCO, 2014). Bu anlayışa sahip bireylerin yetiştirilmesi için eğitim sistemlerinin tüm unsurlarını gözden geçirmesi ve güncellemesi tartışılmaz bir gerçekliktir.

Gelişmiş ülkeler; eğitim sistemlerini bu yeni vatandaşlık anlayışına uygun bireyler yetiştirmek için bir düzenleme çabası içerisine girmişler ve özellikle bu ülkelerde küresel

vatandaşlık ve küresel vatandaşlık eğitimi konusunda birçok araştırma yapılmıştır. Yurt dışında yapılan çok sayıda araştırmaya karşın ülkemizde küresel vatandaşlık, küresel vatandaşlık eğitimi ile ilgili yeterli çalışmanın olmadığı görülmektedir. Literatürde sosyal bilgiler ders kitaplarının küresel vatandaşlık eğitimi açısından nasıl olması gerektiği ve ders kitaplarının küresel vatandaşlık eğitimine nasıl ve ne kadar yer verildiğine dair herhangi bir araştırmanın olmadığı görülmektedir.

Küresel vatandaşlık eğitimi anlayışları arasında BM'ye bağlı bir kurum olarak 1946 yılında kurulan "Birleşmiş Milletler Eğitim, Bilim ve Kültür Örgütü (United Nations Educational, Scientific and Cultural Organization (UNESCO) tarafından geliştirilen Global Citizenship Education Paradigm (GCED) (Küresel Vatandaşlık Eğitim Paradigması), rekabete dayalı bir eğitim ortamı yerine insani ve kültürel değerlere önem vermesi ve küreselleşmeye sadece ekonomik boyutu ile bakmaması nedenleri ile bu araştırmada küresel vatandaşlık eğitim anlayışı olarak benimsenmiştir. Bu araştırmada da küresel vatandaşlık eğitiminin sosyal bilgiler ders kitaplarına olan yansıması UNESCO'nun küresel vatandaşlık eğitimi paradigmasına göre incelenmiş ve değerlendirilmiştir.

Yöntem

Bu araştırma konusu gereği nitel bir yaklaşımla yürütülmüş ve nitel araştırma desenlerinden durum çalışması tercih edilmiştir. Bu araştırmada sosyal bilgiler ders kitaplarında küresel vatandaşlık eğitimi olgusu bir durum olarak kabul edilmiştir.

Araştırmanın çalışma grubu belirlenirken amaçlı örnekleme yöntemlerinden birisi olan ölçüt örnekleme tercih edilmiştir. Bu araştırma için önceden tespit edilen ölçüt 2018 sosyal bilgiler dersi öğretim programına göre hazırlanmış ve okutulmakta olan sosyal bilgiler ders kitaplarıdır.

Araştırmada veriler sistemli bir şeklilde doküman incelemesi yoluyla toplanmıştır. Öncelikle analiz edilecek sosyal bilgiler ders kitaplarına MEB'in eba.gov.tr adresinden erişilmiştir. Bundan dolayı dokümanlarda bir orijinallik sorunu yaşanmamıştır. Dokümanların daha iyi anlaşılması için sosyal bilgiler dersi öğretim programları incelenmiş ve ders kitapları araştırma soruları çerçevesinde gözden geçirilmiştir.

Küresel vatandaşlık eğitiminin sosyal bilgiler ders kitaplarındaki yerini ortaya koymak için nitel araştırmalarda kullanılan içerik analizinden yararlanılmıştır. Kategoriler ve alt kategorilerin belirlenmesinde UNESCO'nun küresel vatandaşlık eğitimi çerçeve paradigmasına göre hazırladığı "Global Citizenship Education: Topics and Learning Objectives" (UNESCO, 2015**)** başlıklı kılavuz dikkate alınmıştır. Bu dokümanda küresel vatandaşlık eğitiminin üç temel boyutu (Bilişsel, Sosyo-Duygusal, Davranışsal) olduğu vurgulanmıştır. Bu öğrenme alanlarına göre, UNESCO'nun küresel vatandaşlık yaklaşımının (GCED) ders kitaplarında yer alma durumu araştırmacı tarafından hazırlanmış olan GCED İnceleme Formu ile gerçekleştirilmiştir.

Araştırmanın geçerliği

Araştırmanın geçerliği için incelenen dokümanların özellikleri ile veri toplamak için kullanılan "GCED İnceleme Formu'" nun oluşturulma safhaları detaylı bir şekilde açıklanmıştır. Bulgular oluşturulurken bulguların ortak özellikleri açıkça yazılarak ders kitaplarından doğrudan

alıntılar yapılmıştır. Araştırma sürecinin her aşaması iki uzman tarafından bir dış değerlendirmeye tabi tutulmuştur.

Araştırmanın Güvenirliği

Bu araştırmada analiz edilecek verilerin çokluğu, küresel vatandaşlık eğitimi konusunda uzman olan ve bu yoğun veri setini kodlayacak bir araştırmacının bulunamayışından dolayı zaman açısından güvenirlik tekniği kullanılmıştır. Buna göre araştırmacı defaatle sosyal bilgiler ders kitaplarını "GCED İnceleme Formunda" yer alan tüm kategori ve alt kategorilere göre kodlamış ve bu süreç sonucunda tereddüt yaşanılan kodlamalarda uzman görüşüne başvurularak bir görüş birliğine varılmıştır.

Araştırmanın Etik İzinleri

Yapılan bu çalışmada "Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi" kapsamında uyulması belirtilen tüm kurallara uyulmuştur. Yönergenin ikinci bölümü olan "Bilimsel Araştırma ve Yayın Etiğine Aykırı Eylemler" başlığı altında belirtilen eylemlerden hiçbiri gerçekleştirilmemiştir.

Bulgular

Sosyal Bilgiler Ders Kitaplarında UNESCO'nun Küresel Vatandaşlık Eğitimi Anlayışının Bilişsel Boyutunun İncelenmesi

Sosyal bilgiler ders kitaplarında bilişsel boyut, toplam 568 ifade ile ders kitaplarında en fazla yer alan boyut olarak belirlenmiştir.

Konular ve sorunlar kategorisinde ders kitaplarında toplamda 127 (Tüm bilişsel boyutun %22,36'sı) ifade yer almaktadır. Bu kategoride en fazla ifadenin yer aldığı alt kategoriler 121 ifade ile ulusal konular ve sorunlar ile ilgili alt kategoriler iken en az ifadenin yer aldığı alt kategori ise 1 ifade ile yerel konular ve sorunlar alt kategorisidir. Ulusal konu ve sorunlar alt kategorilerinde afet bilinci ve doğal afetlerin aktarıldığı ifadeler 24 ifade ile en sık belirlenen ifadeler olmuştur.

Sistemler ve yapılar kategorisinde ders kitaplarında toplamda 93 ifade (Tüm bilişsel boyuttaki ifadelerin %16,37'si) yer almaktadır. Yerel sistemler ve yapılar (tanımlama) alt kategorisinde 7 ifade belirlenmiştir. Ulusal sistemler ve yapılar alt kategorilerinde belirlenen 84 ifadenin 81 adedi tanımlama alt kategorisinde, 3 tanesi ise kurulma nedenleri alt kategorisindedir. Sistem ve yapıların sürekliliği ve değişimleri 4.sınıf ders kitabında (MEB, 2019a.s.12), STK'ların kurulma amaçları ve çalışma ilkeleri 6.sınıf ders kitabında (MEB, 2019b, s. 206), STK'ların yardımlaşma, dayanışma ve işbirliği misyonları ile var olan sistem ve yapılara destek olma hedefleri ise 5.sınıf ders kitabında yer almıştır. Ders kitaplarında ulusal ile küresel sistem ve yapılar arasındaki işbirliği, etkileşim ve bağlılık örnekleri azdır.

Etkileşim ve bağlılık kategorisinde ders kitaplarında toplamda 131 ifade (Tüm bilişsel boyuttaki ifadelerin % 23,06'sı) yer almaktadır. Küresel değişimlerin insanlar üzerindeki etkileri alt kategorisi 69 ifade ile kategoride en sık yer alan alt kategoridir. Bu alt kategoride "Küresel Tehdit ve Fırsatlar" kod kelimesi ile küreselleşen dünyanın bireylere etkileri 4.sınıf ders kitabında aktarılmıştır (MEB, 2019a.s.19). Küresel sistem ve yapılardaki adalet ve yarattığı fırsatlar yine çocukların ifadeleri ile 4.sınıf ders kitabında mevcuttur (MEB, 2019a, s.19).

Küreselleşme gerçeği ders kitabında kendini farklı boyutlarda göstermektedir. Yerel/ulusal ile küresel sistemler arasındaki etkileşim ve bağlılık alt kategorisinde küresel sistem ve yapılarca oluşturulan ve devletler tarafından kabul edilen uluslararası sözleşmeler 4.sınıf ders kitabında, (MEB, 2019a.s.153), sistem ve yapılar arasında etkileşim ulusal ve küresel sistemlerin ortaklaşa yaptıkları çalışma 5.sınıf ders kitabında (MEB, t.y., s.28), uluslararası sistem ve yapıların kapsayıcı yönü ise 6.sınıf ders kitabında (MEB, 2019b, s. 246) yer almıştır. Fakat ders kitaplarında sözleşmelerden doğan yükümlülüklerin yerine getirilmediğinde bireyin ya da toplumun izleyebilecekleri yöntemlere değinilmemiştir.

Ders kitabında, konular ve sorunlar sadece görünen sonuçları ile aktarılmıştır. Nedenleri, sistem ve yapılarla ilgileri, çözüm için küresel sistemler ve küresel toplumun üstlenmesi gereken sorumluluklar ve çözüme engel olan faktörler ders kitabında bulunmamaktadır. Benzeri şekilde geçmiş dönem sömürgeciliğinin günümüz konu ve sorunları ile ilişkileri de ders kitabında yer almamaktadır.

Bilişsel beceriler kategorisinde ders kitaplarında toplamda 119 ifade (Bütün bilişsel ifadelerin %20,96'sı) yer almaktadır. En çok işlenen bilişsel beceri, dijital okuryazarlık ve analitik düşünme becerileridir. Eleştirel düşünme becerisi ve sorgulayıcı öğrenme becerileri sadece 5'er ifade ile ders kitaplarında yer almıştır. Ders kitaplarında gelişen teknolojilerin, özellikle iletişim teknolojilerinin, birey ve toplum hayatındaki artan önemine paralel bir şekilde bazı becerilerin ders kitaplarında ağırlıklı olarak yer aldığı belirlenmiştir.

Vatandaşlık kategorisinde ders kitaplarında toplamda 98 ifade (Bütün bilişsel ifadelerin %17,25'i) yer almaktadır. İfadelerin daha çok haklar ve ödevler ve uluslararası hukuk metinlerinden doğan haklar konularında olduğu görülmektedir. Ders kitaplarında temel haklara, ilgili uluslararası hukuk metinleri ile ilişkisi kurulmaksızın, yer verilmiştir. (MEB, t.y., s.169). Aktarımlar vatandaşlık haklarının sadece egemen devletlerle ilgili olduğunu düşündürse de, ülkemizde hukuk sisteminin vereceği kararların bireylerce yanlış olduğu düşünüldüğünde Avrupa İnsan Hakları Mahkemesine başvurabileceklerinin belirtildiği ifade de 6.sınıf ders kitabında yer almaktadır (MEB, 2019b, s.203). Dünyada vatandaşlık kavramının gelişimi ve değişimi tarihsel bir seyir içinde 7.sınıf ders kitabında anlatılmıştır. Vatandaşlık kavramının gelişimi hakkında bilgi verildiği halde, günümüzdeki vatandaşlık anlayışları ise ders kitaplarında yer almamıştır.

Sosyal Bilgiler Ders Kitaplarında UNESCO'nun Küresel Vatandaşlık Eğitimi Anlayışının Sosyo-Duygusal Boyutunun İncelenmesi

Sosyal bilgiler ders kitaplarında sosyo-duygusal boyut toplamda 405 ifade ile yer almıştır.

Kimlik bilinci kategorisinde toplamda 278 ifade (Sosya-Duygusal boyutun %68,64'ü) yer almaktadır. Bu kategori ders kitaplarında sosyo-duygusal boyutta en fazla ifadenin olduğu kategoridir. Bireysel kimlik bilincinin çoklu ilişkilerde konumu alt kategorisinde ders kitaplarında toplam 34 ifade belirlenmiştir. Birey için belirlenmiş olan tutum ve davranışların bireyin rolleri olarak tanımlanması ve kendilerinden beklenen davranışları sergilemesi gereği 6.sınıf ders kitabında ayrıntılı bir şekilde yer almıştır (MEB, 2019b, s.12).

Toplumsal kimlik bilincinin çoklu ilişkilerde konumu alt kategorisinde ders kitaplarında toplam 19 ifade belirlenmiştir. Ulusal kimlik bilincinin çoklu ilişkilerde konumu alt kategorisi 103 ifade ile bu kategoride en fazla ifadenin yer aldığı alt kategori olmuştur.

Küresel kimlik bilincinin çoklu ilişkilerde konumu alt kategorisinde ders kitaplarında toplamda 12 ifade belirlenmiştir. Sınırlarımız dışındaki kültür ve medeniyetlerin 4.sınıf ders kitabında olumlu ifadelerle yer alması önemlidir.

İnsani konularda bakış açısı geliştirme alt kategorisinde ders kitaplarında toplam 53 ifade belirlenmiştir. Kültür ve medeniyetteki devamlılık özellikle bilim ve teknolojideki gelişimler aktarılarak 4.sınıf ders kitabında yer almıştır (MEB, 2019a, s.98). Bu aktarımlar günümüz medeniyetinin gelişiminin anlaşılması ve tek bir kişi ya da kültüre mal edilmemesi açısından olumlu bir yaklaşım olarak dikkat çekmektedir.

Kimlikler arası ilişkiler alt kategorisinde ders kitaplarında toplamda 13 ifade belirlenmiştir. Dini kimliklerin karşılaşmalarını aktaran ifadeler 7.sınıf ders kitabında yer almaktadır (MEB, 2019c, s.65). Kimlikler arası ilişki biçimleri alt kategorisinde ise ders kitaplarında toplamda 22 ifade belirlenmiştir.

Tutum ve değerler kategorisinde ders kitaplarında toplamda 90 ifade (Sosya-Duygusal boyutun %22'22'si) yer almaktadır. Farklılık ve çeşitliliğe yönelik tutum ve değerler alt kategorisinde toplamda 68 ifade bulunmaktadır. Bu alt kategoride; dil, din, ırk ve cinsiyet ayrımına 4.sınıf ders kitabında kesin ifadelerle karşı çıkılmaktadır (MEB, 2019a, s.29). Önyargılarla mücadele (MEB, 2019b, s. 32) ve önyargıların sebep olduğu istenmeyen davranışlar 6.sınıf ders kitabında ifade edilmiştir (MEB, 2019b, s. 27). Kapsayıcılık, ders kitaplarında en fazla yer alan kod kelimelerden birisidir. Özellikle dini kimlikle bağlantılı olarak "bir arada yaşam" (MEB, 2019c, s. 37), ya da geçmiş örneklerle, Osmanlı İmparatorluğundaki "Millet" sistemi ve çok kültürlülük (MEB, 2019c, s. 62) ile vakıfların din, dil, ırk, düşünce farkı gözetmeden yaptıkları yardımlar (MEB, 2019c, s. 169) ile kapsayıcılık 7.sınıf ders kitabında yer almaktadır.

Farklılıklara ve çeşitliliğe ilişkin farkındalık alt kategorisinde ders kitaplarında toplamda 6 ifade yer almaktadır. Bu farkındalığı oluşturabilmek için farklılıkların nedenleri bireylerden toplumlara aktarılan bir anlatımla yer almıştır. (MEB, 2019a, s. 193), Farklılıklara ve çeşitliliğe açık olma alt kategorisinde ise ders kitaplarında toplamda 16 ifade belirlenmiştir.

Sosyal beceriler kategorisinde toplamda 37 (Tüm Sosyo-duygusal boyuttaki ifadelerin %9,14'ü) ifade ders kitaplarında yer almaktadır. İletişim becerisi 18 ifade, empati becerisi de toplamda 9 ifade ile en fazla belirlenen sosyal becerilerdir.

Sosyal Bilgiler Ders Kitaplarında UNESCO'nun Küresel Vatandaşlık Eğitimi Anlayışının Davranışsal Boyutunun İncelenmesi

Sosyal bilgiler ders kitaplarında toplamda 64 ifade "Aktif Vatandaşlık" kategorisinde yer almaktadır. Bireysel katılım yerel alt kategorisinde toplamda 14 ifade belirlenmiştir. Sistem ve yapıların bireylerin hak arama eylemlerindeki yeri ve önemi 6.sınıf ders kitabında aktarılmıştır (MEB, 2019b, s.40).

Kolektif katılım yerel alt kategorisinde ders kitaplarında sadece 6 ifade belirlenmiştir. İfadeler bireysel katılım yerel alt kategorisinde belirlendiği gibi, bireylerin başlattıkları eylemleri değil, bireylerin katılımcı oldukları eylemleri 4.sınıf ders kitabında aktarmıştır (MEB,2019a, s. 27).

Kolektif katılım ulusal alt kategorisinde ders kitaplarında sadece 9 ifade belirlenmiştir. İstiklal Harbi sürecinde ulus olarak yapılanların aktarıldığı ifadeler bu alt kategoride

değerlendirilmiştir (MEB, 2019a, s. 57). İfadeler hem örnek davranışları, hem de bireylerin dünyayı düzeltebilmek için yapabilecekleri eylemleri aktarmaktadır.

Kolektif katılım küresel alt kategorisinde ders kitaplarında 15 ifade belirlenmiştir. İfadeler genel olarak STK'ların çalışmalarını 4.sınıf ders kitabında aktarmaktadır (MEB, 2019a, s. 123). Ulusal ve küresel sistemlerin işbirliği 5.sınıf ders kitabında yer almaktadır (MEB, t.y., 28). Ulusal düzeyde siyasi katılım alt kategorisinde ders kitaplarında 9 ifade belirlenmiştir. Siyasi katılımda, 6.sınıf ders kitabında seçimlere katılımın önemi vurgulansa da (MEB, 2019b, s.210), ders kitaplarında siyasi katılım, seçimlerle sınırlanmaksızın da yer almaktadır. 6.sınıf ders kitabında darbe girişiminin halkın eylemleri ile önlenmesi (MEB, 2019b, s.209) ile bireysel katılımın, ulusal boyuttaki önemi vurgulanmıştır. STK'lar, medya ya da kamuoyu oluşturmanın siyasi katılımdaki önemi ise 6.sınıf ders kitabında aktarılmıştır (MEB, 2019b, s.204). Yerel düzeyde etik davranış alt kategorisinde ders kitaplarında 3 ifade belirlenmiştir.

Ulusal düzeyde etik davranış alt kategorisinde ders kitaplarında 3 ifade belirlenmiştir. İfadeler, fikir, düşünce, sanat eseri gibi eserlerin korsan kullanımına karşı farkındalık oluşturabilmeyi hedeflemektedir (MEB, 2019b, 151). Örnek olma alt kategorisinde ise ders kitaplarında 5 ifade belirlenmiştir.

Sosyal Bilgiler Ders Kitaplarında UNESCO'nun Küresel Vatandaşlık Eğitimi Anlayışının Boyutlara Göre Dağılımın İncelenmesi

4, 5, 6 ve 7. sınıf sosyal bilgiler ders kitaplarında % 54,77'lik oranla en fazla küresel vatandaşlık eğitiminin bilişsel boyutuna yer verildiği, bu boyutu % 39,05'lik bir oranla sosyo-duygusal boyutun takip ettiği görülmektedir. Davranışsal boyut ise (%6.17'si) küresel vatandaşlık eğitiminin sosyal bilgiler ders kitaplarında en az yer verilen boyutu olmuştur. Bu bulgulara göre sosyal bilgiler ders kitaplarının UNESCO'nun küresel vatandaşlık eğitimi anlayışının daha çok bilişsel ve sosyo-duygusal boyutlarını desteklediği, ancak davranışsal boyutunu çok fazla desteklemediği söylenebilir.

Tartışma ve Sonuç

Sosyal bilgiler ders kitaplarında bilişsel boyutta en fazla ifadenin yer aldığı kategori "konu ve sorunlar" kategorisi olmuştur. Ders kitapları incelendiğinde ulusal konu ve sorunların ağırlıklı olarak aktarıldığı; yerel ve küresel konu ve sorunlarla ilgili aktarımların daha az olduğu görülmektedir. İncelenen tüm sosyal bilgiler ders kitaplarında yerel/ulusal/küresel konu ve sorunlar daha çok tanımlama düzeyinde aktarılmış olup nedenler ve çözüm önerilerine yönelik ifadeler ders kitaplarında çok az yer almıştır. Oysaki GCED; paradigmasına göre bireylerin yerel, ulusal ve küresel konuların, yapıların ve süreçlerin birbirleri ile olan bağlılıklarını fark etmeleri, günümüz konu ve sorunlarının; küresel konu ve sorunlarla ve var olan sistem ve yapılarla ilişkilerini sorgulamaları beklenmektedir. NCSS insan deneyiminin; insanların sürekli olarak ulus ötesi, kültürler arası, çok kültürlü, çok etnikli etkileşimlerden etkilendiğini ve giderek küreselleşen bir fenomen olduğunu belirterek bu etkileşime vurgu yapmaktadır (NCSS, tarih yok). Ders kitaplarında GCED ve NCSS tarafından belirtilen öncelikler konu ve sorunların aktarımlannda tespit edilememiştir.

Sosyal bilgiler ders kitaplarında konular ve sorunlar arasındaki etkileşim ve bağlılıklar; kültürü etkileyen küresel değişimlerle, güçlenen popüler kültürün neden olduğu olumsuzluklarla

ve mülteciler ile aktarılmıştır. Güncel Covid-19 salgını sistem ve yapıların, konu ve sorunlarla olan ilişkilerini göstermesi açısından önemlidir. Salgın, daha önce dikkatimizi çekmeyen küresel kurumların varlıklarını, günümüz dünyasındaki önemini ve ulus devlet sınırlarını aşan konu ve sorunlardaki rollerini de hatırlatmıştır.

Sosyal bilgiler ders kitapları incelendiğinde sistem ve yapılar kategorisinde en çok ifadenin olduğu alt kategorinin ulusal sistemler ve yapılar olduğu en az ifadenin olduğu alt kategorinin ise yerel sistemler ve yapılar olduğu görülmektedir. Sosyal bilgiler ders kitaplarında sistemler ve yapılarla ilgili olan ifadeler daha çok tanımlama düzeyinde kalmıştır. Sistem ve yapıların sorunları hakkında ise çok az ifade bulunmaktadır. Bu durum yerel/ulusal ve küresel sistem ve yapıların kuruluş amaçlarını tarihsel süreç içinde ne kadar yerine getirebildikleri ve neden yeteri kadar bu amaçlarını gerçekleştiremedikleri hakkında öğrenenlerin bir sorgulama yapmasına izin vermemektedir.

Ders kitapları incelendiğinde sistem ve yapılar arasındaki etkileşimler ve bağlılıkların yeterli düzeyde aktarılmadığı görülmüştür. Küresel sistem ve yapıların, ülkemizde ulusal sistem ve yapılarla işbirliği içerisinde yaptıkları çalışmaların bazılarında küresel sistem ve yapılara atıf yapılmaksızın ders kitaplarında yer almaktadır. Sosyal bilgiler ders kitaplarında sistemler ve yapılar arasındaki etkileşimlerin ve bağlılıkların yer aldığı çok az ifade belirlenmiştir. Dünyanın bir yerinde alınan kararların, insanların ve çevrenin mevcut ve gelecekteki refahını nasıl etkileyebilir? Bu soru ve sorunun cevaplarının düşünülmesi küresel vatandaşlık eğitiminin öğrenme hedeflerinden birisidir (UNESCO, 2015, s.32). Sosyal bilgiler ders kitaplarında bu soruya cevap aranmamış, sadece bazı uluslararası sözleşmelerin etkilerinden bahsedilmiştir.

Etkileşim ve bağlılık kategorisinde sosyal bilgiler ders kitaplarında en fazla ifadenin yer aldığı alt kategori "küresel değişimlerin insanlar üzerindeki etkileri" alt kategorisidir. "Yerel/ulusal ile küresel sistemler arasındaki etkileşim ve bağlılık" ile "yerel/ulusal ile küresel konular/ sorunlar arasındaki etkileşim ve bağlılık" alt kategorilerinde yer alan ifadeler ise sınırlı kalmıştır. Bu durum öğrencilerin sosyal bilgiler dersinde küresel vatandaşlık konularını bağlam temelli olarak öğrenmelerini engellemektedir.

Ders kitaplarında ortak mirasa, küresel barışa vurgu yapılmış olmasına rağmen küresel dünya ile etkileşimler ulus-devlet bakış açısıyla değerlendirilmiştir. Toplumların ve kültürlerin karşılaşmaları sadece savaşlar ve çatışmalar üzerinden aktarılmıştır. Küresel sistem ve yapıların, ulusal sistem ve yapılarla etkileşimleri ise çok az olarak bazı örnek olaylarda aktarılmıştır.

Sosyal bilgiler ders kitaplarında eleştirel düşünme ve sorgulayıcı öğrenme becerileri ile ilişkili olan ifadeler; medya okuryazarlığı, dijital okuryazarlık ve kısmen de teknoloji okuryazarlığı becerileri ile ilişkili olan ifadelere göre daha az yer aldığı görülmektedir. Nitekim Demir ve Özyurt (2021) sosyal bilgiler ders kitapları ve öğretim programının öğrencilerin 21.yüzyıl becerilerinin geliştirilmesine yönelik zenginleştirilmesi ve 21. yüzyıl becerileri açısından kapsayıcı bir nitelik kazandırılmasını önermektedir.

Araştırmanın bulgularına göre vatandaşlık kategorisinde sosyal bilgiler ders kitaplarında bireyin yasal ve anayasal haklarına, bireyin yasal ve anayasal ödevlerinden daha fazla yer verildiği tespit edilmiştir. Ders kitaplarında vatandaşlık kategorisinin alt kategorileri olan bireyin uluslararası gönüllü kuruluş ve organizasyonlarla ilişkisi, vatandaşlık yaklaşımları/benzerlikler

ve vatandaşlık yaklaşımları/farklılıklar alt kategorilerinde ise herhangi bir ifadeye rastlanmamıştır. Oysaki vatandaşlığın farklı tanımlarındaki benzerlikler ve farklılıklar GCED ile öğrenilmesi hedeflenen başlıklardan birisidir (UNESCO, 2015). Küresel vatandaşlık eğitiminde, sadece var olan haklar ve ödevlerin aktarımı yerine; farklı toplumlarda kurallar ve kararlardaki benzerlikler ve farklılıklar, bunları nasıl edindikleri ve sahiplendiklerinin (tarih, coğrafya, kültür dâhil olmak üzere) (UNESCO, 2015, s.32) öğrenilmesi amaçlanmaktadır. İncelenen sosyal bilgiler ders kitaplarında diğerlerini tanıma çabaları; günlük yaşam alışkanlıkları, belirli kültürel normlar ya da istisnai olarak inançlardaki farklılıkların aktarımları ile gerçekleştirilmiştir. Fakat farklı coğrafyalardaki vatandaşlık uygulamaları ve kazanımları hem tarihsel hem de güncel olarak açıklanmamıştır. Sosyal bilgiler ders kitaplarında temel hakların kazanım öyküleri ve uluslararası sözleşmeler ve kurumlarca korunduğu belirtilmiştir. Ancak, temel hakların sadece egemen devletlerin güvencesinde olmadığı, aynı zamanda "tüm insan topluluğunun bir bütün olarak" savunduğu ve küresel sistem ve yapılarla tüm dünyada, korunmak zorunda olduğu (Carter, 2005, s.26) gerçekliği ders kitaplarında yer almamaktadır. Sosyal bilgiler ders kitaplarında, temel hak ihlalleri konusunda küresel sistem ve yapılara eleştirel bir yaklaşım da sergilenmemiştir.

Toplumsal bütünleşme sürecinin önemli bir unsuru olan kimlik hem Türkiye'de hem de dünyada sosyal bilgiler ders programlarında önemli bir yere sahiptir. Bu araştırmada sosyal bilgiler ders kitaplarında bireysel, toplumsal ve ulusal kimlik alt kategorilerinde dini kimliğin özellikle milli kimlikle özdeşleştirilerek aktarıldığı görülmektedir. Ayrıca ders kitaplarında popüler kültürün neden olduğu kültürel tek tipleşme ve kültürel yozlaşmaya karşı, dini kimlikle tanımlanan milli kimlik öğeleri öne çıkarılarak öğrencileri bilinçlendirme çabaları da gözlenmiştir. Bu sonuçlar Şen (2019)'in 2018 sosyal bilgiler dersi öğretim programını incelediği araştırmasında programın, geçmiş programlara kıyasla etno-dinsel bir milliyetçiliğe kaydığı sonucunu ders kitapları açısından da desteklemektedir.

Sosyal bilgiler ders kitaplarında kimlik, bireysel rollerin tanımlanması ile kazandırılmaya çalışılmıştır. Sosyal bilgiler ders kitaplarında; çeşitli ve farklı geçmişlere sahip insanlarla olumlu ilişkiler geliştirmek (UNESCO, 2015, s.35) ile ilgili ifadeler sınırlı sayıda yer almıştır. Kendi deneyimlerinin ötesinde farklı kültürler ve toplumlar ile farklı bakış açılarının değerinin (UNESCO, 2015, s.36) anlatıldığı ifadeler ise sosyal bilgiler ders kitaplarında belirli düzeyde yer almaktadır. Küresel vatandaşlık eğitiminde yer alan, farklı gruplara ait ve ilişkili olan çoklu kimlikler (UNESCO, 2015, s.35) sosyal bilgiler ders kitaplarında aktarılmıştır. Sosyal bilgiler ders kitaplarında; toplumlar ve kültürler arasındaki benzerlikleri ve farklılıkları anlama (inançlar, dil, gelenekler, din, yaşam tarzları, etnik köken) (UNESCO, 2015, s.36) çabalarının olduğu da görülmektedir.

Sosyal bilgiler ders kitapları incelendiğinde en eski medeniyetlerden başlayarak günümüze kadar medeniyetlerin birbirlerini etkiledikleri aktarılmıştır. Bu etkileşim sosyal bilgiler ders kitaplarında ortak miras vurgusu ve günümüzdeki somut varlığı ile açıklanmıştır. Yakın çevremizin ötesinde ve farklı yöntemlerle (medya, seyahat, müzik, spor, kültür) daha geniş dünyaya nasıl bağlıyız? (UNESCO, 2015, s.35) Sorusuna verilen cevaplar genel olarak çatışmalar, ticaret ve turizm odaklı olarak verildiği görülmüştür. Ortak bir kimlik potansiyeli (ortak insanlığa aidiyet duygusu, farklılıklara ve çeşitliliklere saygı) anlayışı kazandırılma hedefi sosyal bilgiler ders kitaplarında ortak mirasa verilen önem ile sınırlı bir şekilde yer almaktadır.

Ders kitaplarında, tutum ve değerler kategorisinde en fazla ifadenin yer aldığı alt kategori farklılık ve çeşitliliğe yönelik tutum ve değerler alt kategorisidir. Ders kitaplarında diğerlerini tanıma, kapsayıcı olma, yardımlaşma, saygı ve empati en sık karşılaşılan ve küresel vatandaşlık eğitiminde de hedeflenen tutum ve değerler olarak karşımıza çıkmaktadır. Ülkemizde artan mülteci nüfusunun 2018 sosyal bilgiler dersi öğretim programını etkilediği düşünülmektedir. Kapsayıcı olma, farklılıklara saygı, kalıp ve önyargı ile mücadele etme, geçmiş dönemlerdeki dini kimliğimizle gösterilen hoşgörü ve barış içinde birlikte yaşama deneyimleri, bireysel farklılıklarla ilgili farkındalıkların toplumsal farklılıklar için de oluşturulma gayretleri ders kitaplarında yer almaktadır. Young (2016)'ın Güney Kore ders kitaplarını incelediği araştırmasında da benzer sonuçlar görülmektedir.

Araştırmada sosyal bilgiler ders kitaplarında her tür toplumsal baskıya direnme, şiddeti önleme, uzlaşma ve arabuluculuk, duygu yönetimi becerileri ile ilgili herhangi bir ifadeye rastlanmamıştır. Ders kitaplarında iletişim, empati ve girişimcilik becerilerinin diğer sosyal beceriler göre daha fazla olmasının nedeni olarak gelişen ve artan iletişim ve istihdam odaklı eğitim anlayışının olduğu düşünülmektedir.

Ders kitaplarında küresel vatandaşlık eğitiminin en az işlenen boyutu davranış boyutu olmuştur. Eyleme geçmeyen, davranışa dönüşmeyen bir öğrenmenin gerçek bir öğrenme olarak kabul edilmeyeceği düşünüldüğünde küresel vatandaşlık eğitiminin önemli bir boyutu olan davranışsal boyutun sosyal bilgiler ders kitaplarının küresel vatandaşlık eğitimi açısından en zayıf noktası olduğu söylenebilir. Nitekim Türk ve Atasoy (2021)'da küresel vatandaşlık eğitimi açısından 2018 sosyal bilgiler dersi öğretim programını inceledikleri araştırmalarında kazanımların küresel vatandaşlığın boyutlarına göre dengeli bir şekilde dağılmadığını, davranış gerektiren küresel katılım boyutuna daha az vurgu yapıldığını tespit etmişlerdir.

Sonuç olarak, sosyal bilgiler ders kitaplarında etkili bir küresel vatandaşlık eğitimi için küresel vatandaşlık eğitiminin her üç boyutunu da (Bilişsel, sosyo-duygusal, davranışsal) kapsayan içeriklerin dengeli bir şekilde dağılmasının faydalı olacağı düşünülmektedir. Ders kitaplarında konu ve sorunların küresel etkileşimleri ile yer almasının günümüz dünya sorunlarının daha iyi anlaşılmasına yardım edecektir. Ayrıca ders kitaplarında yerel, ulusal ya da küresel sistem ve yapıların; konu ve sorunlara yaklaşımları, verdikleri kararlar ve bu kararların uygulanma süreçlerine yönelik öğrencilerde eleştirel bir yaklaşım geliştirmelerini teşvik edecek içeriklerin yer alması gerekmektedir.

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Determining Student Opinions on Science Teaching Based on New Generation Questions in Online Teaching Environments

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Abstract

New generation questions are the complex questions that require students to understand what they read, make inferences, solve problems, analyze, think critically, and use scientific process skills. The features of questions asked in the international exams that intend to compare the educational achievement levels of countries are equivalent to new generation questions. However, in the literature, still there exist a limited number of studies on new generation questions. It is thought that analyzing the students' opinions on this type of questions may contribute to future studies. In this respect, this study intends to determine students' opinions on the science teaching approach based on new generation questions in online teaching environments. This research is conducted with survey design from the qualitative research methods. Within the scope of the study, in order to introduce new generation questions, 18 students from the 7th grade at a secondary school attended online interactive lessons related to the unit "Interaction of Light with Matter". In the follow-up process, students solved new generation questions about the relevant unit. The questions were carefully selected from the questions prepared by the Turkish Republic Ministry of National Education (MEB). During the implementation, in accordance with purposeful sampling, 4 students from each of the 2 groups that had high test scores and low test scores were selected to carry out semi-structured interviews. The transcribed interview minutes were analyzed, coded and categorized. The qualitative findings obtained from the research suggest that students are not familiar with new generation questions, questions are long, difficult to understand and challenging students to think.

Keywords: Science teaching, new generation questions, online learning environment

Introduction

Education plays one of the most crucial roles in the growth and development process of countries. In the competition of countries for development, science has an important place. Therefore, countries strive to provide their people with the most effective science education to improve science-literacy (Küçükyılmaz, 2016). Countries can reach the desired level of development only by keeping in step with the modern developments (Karamustafaoğlu, 2018). Updating the science education significantly contributes to the development of countries. In this respect, countries need international exams in order to compare and evaluate the quality of their education programs (MEB, 2019). PISA and TIMSS are among the important exams that are held for this purpose. Results obtained from the international exams make it possible for the countries to see the points in their education programs that need improvements so that they can make necessary changes (Gürbüz, 2019). Türkiye takes part in these exams and evaluate the results obtained. Türkiye has embraced the constructive approach in Science Curriculum since 2005. In this regard, Türkiye revised its science curriculum in 2013 and adapted inquiry-based approach in science lessons (MEB, 2018). The main goal of this new approach is to improve science-literacy in students. According to MEB, science-literate individuals are those who can solve problems, think analytically, and have scientific process skills (MEB, 2013).

Türkiye did not achieve the desired success until the PISA 2018 and TIMSS 2019 exams. Its scores in these years were higher compared to the results obtained in the previous years. The new understanding adapted in assessment and evaluation is the major factor that improved the scores of Türkiye in these exams. With this new approach, MEB redesigned the questions asked in the exams that it held within the scope of High School Placement System (LGS) (MEB, 2019). Türkiye has made significant changes in LGS since 2018 in terms of the nature of questions. It is

stated that the LGS questions are different from the ones that were asked in national exams in the previous years and they're designed to evaluate the higher-order thinking skills. These questions are designed to evaluate to what extent students understand what they read, make inferences, solve problems, analyze, think critically and use scientific process skills (MEB, 2021). These questions, which are very similar to the ones asked in international exams, are often called in the education system as new generation questions, skill-based questions or context-based questions (Erden, 2020; Kertil et al., 2021) Literature analysis shows that there are a limited number of studies on the new generation questions that recentl entered the Turkish education system. The relevant literature is limited with the studies on the criteria for preparing new generation questions (Elmas and Eryılmaz, 2015; Kabuklu et al., 2019), comparison of new generation questions and traditional questions (Sak, 2018; Tekbıyık and Akdeniz, 2010; Ünal, 2019), students' process of solving new generation questions (Nasırlıel, 2020), opinions of teachers and students on new generation questions (Ar, 2019; Erden, 2020; Kablan and Bozkuş, 2021; Kertil et al., 2021). It is also seen that there are international studies reviewing the nature and quality of the questions asked in international exams, in other words the necessary criteria that new generation questions must have (Ahmed and Pollitt, 2007; Chi et al., 2022; Hamberger, 2014; Roehl, 2015).

In addition to the limited number of studies on new generation questions in the literature, the focus of education systems has changed due to the pandemic we faced in the recent years. Educational activities moved to online learning environments as the focal-point changed in the education systems. Distance education models are suggested as a remedy to the lack and inefficiency of physical structures, tools, equipment and qualified teachers, as well as inequality in education (Kaya, 2002). Distance education is where the learner and the educator interact with each other with the help of various tools and equipment although they are physically in different places (İşman, 2022).

Today, the term distance education which moved from offline environments to online environments with the help of the advancements in technology are callied as "online learning" in recent studies (Telli and Altun, 2021). Online learning is considered the fifth generation of distance education. Online learning is the distance education model where the student and educator are not physically present in the same place at the same time period but they meet via Internet (Bektaş and Çakır, 2021). The lessons in online learning may be synchronous or asynchronous. In the synchronous method, the lessons are held when the student and educator are in different places at the same time period. Whereas in the asynchronous method, the student and educator are physically in different places and at different time periods (Yıldırım, 2020). Online learning environments, which are a part of the education, entered our lives very fast with the outbreak of the pandemic. With the outbreak of the Covid-19 pandemic in China in 2019, the disease took hold and countries across the world entered lockdowns causing closures and halting the daily life. People were ordered to remain indoors in order to prevent the spread of the disease. During the pandemic, Türkiye enforced lockdowns as well as school closures. To minimize the educational losses caused by the closures, learning and teaching activities moved to online platforms. Türkiye carried out online educational activities on EBA system. The educational activities continued with complementary activities at homes. The pandemic moved the education and teaching to online learning environments that consequently became highly important.

Teaching activities that were carried out on online learning environments became diversified. Nonetheless, transferring the new generation questions into online learning environments was inevitable. Taking and solving test questions is necessary in order to reinforce learning and improve retainment of the subject. Therefore, this study, which intends to determine the student opinions on science teaching based on new generation questions in online learning environments, is deemed valuable.

International Exams and New Generation Questions

International exams are unique tools for countries in order to see to which extent they have reached international educational standards, whether their educational systems are compatible with the others', and where they rank in the race of education (Çepni, 2019). International exams organized by international development and aid organizations are important in terms of meeting this demand (Yolsal, 2017). Among the most well-known exams are PISA and TIMSS. PISA is a survey study which is administered in every three years by the Organisation for Economic Cooperation and Development (OECD). It aims to measure the students' performance in reading, mathematics and science (MEB, 2019). The objective of PISA is to measure to which extent the students who took the basic education have acquired skills and competencies that are necessary in order to adapt to the daily life (Çepni, 2019). The question types used in PISA exams are multiple-choice questions, short-answer questions or open-ended long-answer questions. The questions are related to the problems and situations that students may face in the daily life (Çepni, 2019; MEB, 2019). TIMSS is an achievement monitoring survey administered in every 4 years at the fourth and eighth grades by the International Association for the Evaluation of Educational Achievement (IEA). TIMSS is an exam focusing on measuring students' educational achievements in science and mathematics. Additionally, it administers surveys to students, teachers, parents and also administrators to reveal the factors that affect students' achievements (MEB, 2020). It evaluates the learning dimension and thinking processes on the basis of the subjects that are included in the curriculum for fourth and eighth grades. Conducted in every four years, TIMSS offers a longitudinal option. TIMSS is conducted with different types of questions such as multiple-choice questions, long and short answer open-ended questions and performance tasks (Çepni, 2019).

It is seen that the questions that students answer in international exams are related to the problems and situations in the daily life (MEB, 2019, 2020). Türkiye has made many changes and improvements in its education system in accordance with the results obtained in the international exams (MEB, 2019). The changes that were made in high school national placement exam in 2018 are one of these changes. With the High School Placement Exam in 2018 (LGS), the questions started to be related to problems and situations in the daily life, requiring to use reading skills and think scientifically. In the literature, such questions are called as context-based, life-based, skill-based and new generation questions (Ar, 2019; Elmas and Eryılmaz, 2015; Erden, 2020; Kertil et al., 2021; Nasırlıel, 2020; Şan and İlhan, 2022; Ünal, 2019). New generation questions are the preferred term in this study although above-mentioned terms are present in the literature as well.

It is stated that LGS questions are designed to measure a variety of skills such as reading, interpreting, making inferences, problem solving, analyzing, critical thinking and scientific process skills (MEB, 2021). MEB released example questions on online enviroments to introduce

the new generation questions. Literature analysis shows that new generation questions should be prepared on the basis of certain criteria. Example situations that are given in the questions should be related to the real situations that individuals and communities are living in. Questions should be related to the concepts, formulas and laws of science. Questions should be authentic and original, not memorized, additionally they should require students to find the answers as a result of a process. The questions that are designed on the basis of these features are described as new generation questions.

There are studies on the features of new generation questions (Sak, 2018; Tekbıyık and Akdeniz, 2010; Ünal, 2019), the criteria that questions must have (Elmas and Eryılmaz, 2015), student and teacher opinions on new generation questions (Ar, 2019; Erden, 2020; Kablan and Bozkuş, 2021) Kertil et al., 2021), students' new generation question solving processes (Nasırlıel, 2020). This study has been conducted to determine the student opinions on science teaching based on new generation questions in online teaching environments.

Method

This study is conducted with survey design from qualitative research methods. It is possible to make generalizations about the research results by collecting data with this method (Fraenkel, Wallen, Hyun, 2012). In today's rapidly changing world, individuals are facing problems to adapt to the changes and solve emerging problems and challenges. With qualitative research methods, newly emerging problems are scrutinized in-depth and opinions of people are analyzed (Seggie and Bayyurt, 2021). The purpose of qualitative research is to support the data by elaborating the information that is based on experiments, and make new suggestions (Knobe and Nichols, 2013). For this reason, survey design from qualitative research methods has been used to determine the student opinions on science teaching based on new generation questions in online teaching environments.

Research Sample

The samples in this study were selected with maximum variation sampling method. The research sample was selected from the students at 7th grade at a state school which is located in Osmangazi district of Bursa, Türkiye during 2020-2021 school year. The classroom of the samples was randomly selected from five 7th grade classrooms. There are 30 students in this classroom. Educational activities moved to online environments in 2020 due to the coronavirus pandemic. Therefore, Türkiye has continued its educational activities via EBA online learning platform where students and teachers met online. This study is conducted with 18 students who joined the online learning environments with perfect attendance. Students took academic achievement tests at the end of learning subjects. Students were selected with maximum variation sampling method. 4 students with high academic achievement level and 4 students with low academic achievement level were selected out of 18 students and interviewed with semi-structured method.

Data Collection Tools

Semi-structured interview questions were prepared to elicit opinions from the students. The students answered these semi-structured interview questions. The interviews were audiotaped. Then, the audio recordings of the interviews were transcribed.

Semi-Structured Interview Questions About the New Generation Questions:

These are the semi-structured interview questions prepared by the researcher to elicit opinions of students on new generation questions that are solved during the lessons. The researcher prepared a pre-interview form consisting of 8 questions appropriate for the semi-structured interview. To obtain face validity, the interview questions were assessed by a university academic member. In the light of suggestions and interpretations, the researcher prepared the 7-question semi-structured interview form. Below are the questions in this interview form.

Semi-structured interview questions for students about the new generation questions

1-What do you think about the new generation questions that were solved in the Light Unit?

2-Are the science questions solved in the Light unit different from the science questions that were solved before? If yes, please describe.

3-What have you learned from the science questions solved in the Light unit?

4-Do you think the questions solved in the Light unit are easy and clear? Did you have any difficulty with the questions?

5-Are the questions asked in the Light unit similar to the problems that you may come across or you have already faced in the daily life?

6-After these questions, when you come across with a problem how will you solve it?

7-Can you apply scientific process skills such as hypothesizing, finding dependent and independent variables, interpreting a chart, creating a chart from certain data? Do you feel confident to do this?

After one of the students was interviewed, the relevant interview questions and pilot interview recording were sent to a university academic member for expert review. The interview questions were revised in the light of the expert review and then the other students were asked semi-structured interview questions.

Data Collection Process

Firstly, necessary data collecting permissions were obtained from the Bursa Provincial Directorate of Education. After the study was planned, the students had classes to study the unit "Interaction of Light with Matter". These live classes were held online on EBA platform due to the pandemic. The teachers uploaded the class timatable to the application. The students and teachers met on the online learning platform at the planned time. During the online classes, the teacher solved example questions in order to reinforce learning. The example questions that were solved were selected from the new generation questions released by the Ministry of Education. During the live online lessons, students were expected to solve the questions that they saw via screen sharing. Then, the questions were discussed and solved. 4 students with high academic achievement level and 4 with low academic achievement level were selected on the basis of their scores from the academic achievement test that they took after the subjects were finished. The 8 students who were selected attended a semi-structured interview. The research data were obtained from these interviews.

Analysis of the Data

The interviews with the students were designed to reveal the students' opinions. Voice recordings of the interviews were listened in order to transcribe the answers of the students. The data obtained from the interviews with the students were analyzed with context analysis method. In the analysis process, similar student opinions were grouped in order to create codes and categories. Having created codes and categories, it became easier to interpret the qualitative data. Content analysis aims to give organized and objective information about the text (Krippendorff, 1980).

Research Ethics Approval

This research complies with all the rules stated in the "Higher Education Institutions Scientific Research and Publication Ethics Directive". None of the actions specified under the heading "Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, were taken.

Ethics Committee Approval Details:

Ethics review board: Bursa Uludag University Social and Human Sciences Research and Publication Ethics Committee

Ethics committee approval date: 27.11.2020

Permission of ethics document's number: 2020-09

Findings

Students' answers to the semi-structured interview questions are given in the table which is created according to the content analysis.

Table 1: *Students' opinions on new generation questions presented in categories and codes*

Category	Code	Example
Student opinions on new generation questions	Difficulty	** I think it is difficult. I spend too much time to read. Reading comprehension is important. ** I think it is difficult. We should solve this type of questions during the course of preparation for LGS. It improves our achievement level. * Questions are long and time-consuming. It was difficult. * Questions are difficult.
	Complexity	** We can answer these questions only by interconnecting our already existing prior knowledge and with multiple other knowledge. They are complex questions consisting of multiple steps.
	Medium difficulty	** They care built on reading and understanding. You can easily solve the questions if you read and understand. I think it is both good and bad. The good thing is that if you can understand the keywords in the paragraph given you can easily solve them. New generation questions demand less processing. *They measure reading comprehension, in this regard they may be difficult yet I think it is rewarding. * Some were difficult, some were easy. Some of them can be easy if you understand it.

Table 1: *Students' opinions on new generation questions presented in categories and codes (continuation-1)*

Differences between the new generation questions and the ones you studied before	Long and time-consuming	** Questions are time-consuming because they are long. Another point in these questions is that the process is our own decision. ** I can solve new generation questions. The classic questions we used to solve were not descriptive. Time consuming but it becomes easier to solve the questions as you read and understand them. * To me, new generations are difficult. It is difficult to read and understand them because they are long. * There are differences. They are more difficult compared to the ones we used to solve. There are some situations that we never see before. They were long questions.
	Based on interpretation.	* Classic questions are easier and more straightforward. To me, new generation questions are more complex. They require interpretation as well as reading comprehension. We have to interconnect multiple knowledge in order to visualize it in our mind. * In the past, questions used to be about the things that we are familiar with. Difficult questions. ** They are more complex questions compared to the classic ones.
Benefits of new generation questions	Facilitates learning	** Acquired. They provided more feedback in terms of knowledge. ** They taught me new things. They improved my visual reading. Visual aids help me solve the questions more easily. * Learned new things. I learned new words.
	Problem solving skill	** In my daily life, I can solve the problems in steps. When I understand the questions, I can solve the problems in steps that I come across in the daily life. Sometimes, new generation questions may not present situations from the daily life.
	Reading comprehension skill.	** Acquired. It helped me understand what I read. * It improved my reading comprehension since it measures reading.
	Logical thinking skill	** It helped me think logically.
	Reinforcement of subject	* It rather helped me understanding the subjects
The parts that you have problems with in the new generation questions	Based on reading, and long	** It was too difficult to read since I don't have a reading habit. Therefore, it was difficult for me. * They were long. ** Some of them were long. Despite being longer, they may be easier than the short questions. To me, some of them are more complex and difficult. I felt daunted when I first read them.
	It is difficult to understand.	* They are more difficult because they are usually more complex. ** Sometimes. I can understand the questions since I have a reading habit. Some questions are unclear, they are difficult for me. * Difficult to understand. Sometimes, there are words that I don't know their meanings.
	Challenging	** There were difficult points. It demands thinking.

Table 1: *Students' opinions on new generation questions presented in categories and codes (continuation-2)*

Are the new generation questions related to the daily life?	Yes	** Yes. We should look the roots of the situtaion. * Yes. ** There are questions about mirrors and lenses. These are from the daily life. * Yes, there were questions from the daily life.
	No	** The things that I come across in the daily life are easier. The situations in the new generation questions are usually only in the exams.
	Undecided	* No. Yes, if there is an example given. ** Yes, some of them are from the daily life but there are some questions that I have or will never experience. * More or less, they are.
How do you solve problems?	Determining the problem	** It helped me solve problems. I decide which method I should follow upon understanding the question. I decided which processes I should do, then I draw shapes if I should. I cross out the incorrect options. ** First, I identify the problems. Then, I narrow down the problems. ** We should look at the roots of the situation. * I associate the questions with the problems. * I try to solve it by interconnecting multiple knowledge.
	Planning	** I use my already existing knowledge. I make plans. I use my existing knowledge.
	I am undecided	* Nothing else comes to my mind now.
Do you have scientific process skills? Do you feel confident?	Self-confidence	** Yes, I feel confident. I can transfer them to my daily life as well. * After these questions, I think I can solve them.
	Willingness to retry	** I can make the scientific processes such as hypothesizing, determining the variables, designing an experiment, creating a table. But I should look back on the things that I forgot. * I think perhaps I can make an experiment. I think I can make. ** At the moment, I don't remember all of them but I can do it if I look over my notes. I feel confident. * I can do it if I revise.
	Lack of confidence	** I don't think so. I have a difficulty in recalling. * I am not confident. I don't recall it at all.

**Answers of students with high academic achievement level
*Answers of students with low academic achievement level

During the interviews, the students remarked that new generation questions are difficult and complex. They also stated that they have problems in reading the questions. However, they stated that new generation questions push them to think. They noted that new generation questions are based on reading skills. They expressed that compared to the classical ones new generation questions are longer, time-consuming, based on reading and require interconnecting the situations. They stated that new generation questions improved their skills such as problem solving, reading comprehension, making experiments. The students expressed that the questions introduce them new things, and as students being required to read this new information forces them to learn new things, which reinforces learning. Being based on reading comprehension and demanding them to think makes the new generation questions challenging. Students answered problems based on situations similar to the ones that they experience in the daily life. This enabled them to transfer the knowledge from school to the daily life. Additionally, having found something

from their daily life in the questions that are designed very similar to the real-life situations they were further motivated. Students expressed that solving new generation questions improved their self-confidence. They stated that new generation questions increased their motivation, improved academic achievement level and scientific process skills.

Conclusion and Discussion

During the interviews, majority of the students stated that the new generation questions are difficult. They expressed that the fact that the questions are long, based on reading, require to interconnect situations and make interpretations is challenging for them. The lack of reading habit and having solved insufficient number of questions that are based on reading and interpretation are thought to be the reasons behind such answers of the students.

Students stated that in the new generation questions sometimes they encountered with new problems that they haven't come across in their daily life. This suggests that those who prepare the questions do not design appropriate questions for the students. New generation questions have just entered our education system. Therefore, it seems that it is difficult to create and find quality new generation questions (Erden, 2020).

It is stated that new generation questions help to teach students new things and concepts, think logically, make interpretations, and reinforce learning the subjects. This highlights the importance of using new generation questions in teaching and evaluating the subjects. Furthermore, new generation questions are thought to improve the self-confidence in students to use the scientific process skills. Some of the students expressed that at the end of this training they were self-confident in terms of scientific process skills.

Table 1 shows that students stated that new generation questions should be designed in connection with the students' lives. However, during the interviews they expressed that it is difficult to understand the questions and they couldn't understand what is being asked in the question. The studies in the literature which emphasize that context should be suitable for students and scenarios should be structured support students' statements (Elmas and Eryılmaz, 2015; Kabuklu et al., 2019).

In Table 1, students stated that they are not familiar with the new generation questions. It is seen that our students are not familiar with the new generation questions that have recently entered our education system. The studies in the literature suggest that the reasons for this are the new generation questions are not given enough in the textbooks, students are unfamiliar with the new generation questions and inconsistency between the curriculum and the textbooks (Erden, 2020; Tekbıyık and Akdeniz, 2010; Ünal, 2019).

In Table 1, students stated that new generation questions improved their scientific process skills and self-confidence. According to the students, new generation questions are difficult, based on reading, and auxiliary questions intended to increase the academical achievement level as they require using high-level thinking skills. Therefore, it can be said that new generation questions improve students' scientific process skills. However, studies in the literature suggest that assessment and evaluation system that support scientific process skills corroborate this. The questions asked in international exams in the assessment and evaluation dimension are intended

for measuring the scientific process skills such as problem solving, using relationships, saving and interpreting the data, and analyzing (Çepni, 2019; MEB, 2019; 2020).

Recommendations

1. Students are recommended to solve new generation questions since coming across with new generation questions during science classes which are designed with constructive approach improve students' academical and scientific process skills.

2. It is recommended that textbooks be updated and include more new generation questions.

3. It is also recommended that the questions in test books and supplementary textbooks be prepared in new generation question style.

4. It is recommended that education faculties of the universities organize trainings on preparing new generation questions.

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BIOGRAPHICAL NOTES

Contribution Rate of Researchers

Author 1: 50%

Author 2: 50%

Conflict Statement

The study was carried out in accordance with scientific ethics. There is no relationship of interest between the parties other than scientific benefit.

Genişletilmiş Türkçe Özet

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Çevrimiçi Öğrenme Ortamlarında Yeni Nesil Sorulara Dayalı Fen Öğretimine Yönelik Öğrenci Görüşlerinin Belirlenmesi

Giriş

Ülkeler, eğitim sistemlerini değerlendirmek için uluslararası sınavlara ihtiyaç duyar. Uluslararası sınav sonuçlarına göre ülkeler eğitim sistemlerinde yenilikler yapmaktadır. Ayrıca uluslararası sınavlar, diğer ülkelerle eğitim sistemlerini karşılaştırmak ve ülkelerin durumunu görebilmek açısından önemlidir (Karamustafaoğlu, 2018; Küçükyılmaz, 2016; MEB, 2019). Uluslararası sınavlar arasında PISA ve TIMMS önemli bir yer tutmaktadır.

PISA; Ekonomik İşbirliği ve Kalkınma Teşkilatı (OECD) tarafından üç yılda bir yapılan öğrencilerin fen okuryazarlığı, matematik okuryazarlığı ve okuma becerileri performanslarını ölçmeye yönelik dünyanın en kapsamlı araştırmalarındandır (MEB, 2019). Bu araştırmada öğrencilere yaşamlarında karşılaşabilecekleri sorunları çözebilme becerilerini ölçmeye yönelik sorular yöneltilmektedir (Çepni, 2019).

TIMMS; Uluslararası Eğitim Başarılarını Değerlendirme Kuruluşunun (IEA) matematik ve fen eğitimlerini taramaya yönelik dört yılda bir gerçekleştirdiği araştırmadır. Bu araştırmada öğrencilerin günlük hayatta karşılarına çıkabilecekleri durumları içeren, akademik başarılarını ölçen sorular yöneltilmektedir (MEB, 2020).

Ülkemiz PISA araştırmasına 2003 yılından itibaren katılmaktadır. 2018 PISA uygulamasına kadar ülkemiz isteninlen başarıyı yakalayamamıştır. 2018 PISA ile fen okuryazarlığı alanında 79 ülke içerisinde 39. olmuş ve önceki yıllara göre iyileşme olduğunu göstemiştir (MEB, 2019). TIMMS 2019 uygulamasında ülkemiz bir önceki uygulamaya göre ilerleme kaydetmiştir. Ülkemiz ilk defa fen bilimleri alanında ölçek orta noktasından anlamlı ölçüde yüksek başarı gösteren ülkeler arasında girmiştir (MEB, 2020). Eğitim alanında yapılan

iyileştirmelerin uluslararası sınavlarda yükseliş sağladığı belirtilmiştir. Yapılan yenilikler arasında ölçme ve değerlendirme anlayışının değişimi de gösterilmektedir.

Uluslararası sınavdan alınan sonuçlara göre ülkeler eğitim programlarını değerlendirmekte ve gelecekte ihtiyaç duyulacak becerilere sahip bireyler yetiştirmeyi gerçekleştirecek planlamalar yapmaktadır. Uluslararası sınavlardaki sorular ile ülkemizde yapılan ulusal sınav soruları farklı düzeyde sorulardı. Uluslararası sınavlardaki sorular öğrencilerin üst düzey becerilerini ölçmeye yönelik, günlük hayatla ilişkili problem durumları içeren sorulardan oluşmaktadır (Çepni, 2019; MEB, 2019). Ülkemiz uluslararası platformdaki soruları yakalamak ve başarılı olabilmek için eğitim alanında devamlı yenilikler yapmaktadır (MEB, 2020) Ülkemizde 2018 LGS ile birlikte uluslararası sınavlarda sorulan soru tiplerine benzer sorular ölçme ve değerlendirme alanında kullanılmaya başlanmıştır. Milli Eğitim Bakanlığı öğrencilerin sınavlarda karşılarına çıkabilecek sorulara benzer nitelikte soruları çevrimiçi ortamda yayınlamıştır. Böylece eğitim paydaşlarının sorulara alışmasını amaçlamıştır. Bu sorular ülkemizde beceri temelli, yeni nesil, bağlama dayalı sorular olarak adlandırılmaktadır (Ar, 2019; Elmas ve Eryılmaz, 2015; Erden, 2020; Kablan ve Bozkuş, 2021; Kabuklu ve diğerleri, 2019; Kertil ve diğerleri, 2021; Nasırlıel, 2020; Tekbıyık ve Akdeniz, 2010; Ünal, 2019). Yeni nesil sorular öğrencilerin üst düzey becerileri ve bilimsel süreç becerilerini ölçmeye yönelik sorular olmasının yanında problem çözme, çıkarımda bulunma, okuduğunu anlama, yorumlama, analiz yapma, eleştirel düşünme gibi becerileri ölçmeye yönelik sorulardır (MEB, 2021). Yeni nesil sorular bireylerin, toplumların içerisinde bulunduğu problem durumlarını ortaya koyan, ezbere yönelik olmayıp özgün olan, kavram, formül ve kanunlarla ilişkili sorular olarak nitelendirilmiştir (Elmas ve Eryılmaz, 2015).

Eğitim sistemimize giren yeni nesil sorularla ilgili araştırmalara bakıldığında, araştırmaların sınırlı olduğu görülmektedir. İlgili literatürün ağırlıklı olarak yeni nesil soruların hazırlanması (Elmas and Eryılmaz, 2015; Kabuklu et al., 2019), yeni nesil soruların geleneksel sorularla karşılaştırılması (Sak, 2018; Tekbıyık and Akdeniz, 2010; Ünal, 2019), öğrencilerin yeni nesil soruları çözme süreçleri (Nasırlıel, 2020), yeni nesil sorulara karşı öğretmen ve öğrencilerin görüşlerinin ela alındığı çalışmalardan (Ar, 2019; Erden, 2020; Kablan and Bozkuş, 2021; Kertil et al., 2021) oluştuğu görülmektedir.

PISA araştırmaları 2006 yılında bilgisayara dayalı değerlendirme yapmaya başlamıştır. Bu yıldan itibaren kâğıt-kalem yerine çevrimiçi uygulamalarda bilgisayara dayalı olarak öğrencilerin becerileri ölçülmüş ve değerlendirilmiştir (Çepni, 2019). TIMMS araştırmaları da aynı şekilde bilgisayar ortamında ölçme ve değerlendirme yapmaktadır (MEB, 2020). Uluslararası sınavlar çevrimiçi ortamlarda uygulanmaktadır. Böylelikle maliyet, zaman kaybını azaltmaktadır. Ayrıca birçok veriye ulaşma imkânı sağladığından çok yönlü değerlendirme yapma olanağı sunmaktadır. Bu nedenle çevrimiçi ugulamalara öğrencilerin alışık olmaları gerekmektedir.

2019 yılında Çin'de başlayıp bütün dünyaya yayılan Koronavirüs (covid-19) ülkelerin çöşitli önlemler almasına neden olmuştur. 11 Mart 2020 tarihinde Dünya Sağlık Örgütü (WHO) tarafından ilan edilen Covid-19 pandemisi ile ülkeler kapanmaya gitmiş, insanların toplanmalarının önüne geçmek hastalığın yayılmasını engellemek için bir araya gelinen etkinliklerde kısıtlamaya gidilmiştir. Bu amaç doğrultusunda tüm dünyada olduğu gibi ülkemizde de eğitime önce ara verilmiş daha sonra eğitim çevrimiçi ortama aktarılmıştır. Milli Eğitim

Bakanlığı dijital platformda Eğitim Bilişim Ağı (EBA) üzerinden öğretmen ve öğrencileri buluşturmaya çalışmıştır. İmkânı olmayan öğrenciler için EBA TV ile onlara ulaşmaya çalışmıştır. Bu sürece uyum sağlamada sorunlar ortaya çıksada eğitimin kayıpları önlenmeye çalışmıştır (Telli ve Altun, 2021). Hem öğretmenler hem de öğrenciler çevrimiçi öğrenme ortamlarına alışmakta zorluk yaşamışlar. Bu nedenle çevrimiçi öğrenme ortamlarını kullanma önemli bir duruma gelmiştir.

Literatürde yeni nesil sorular üzerine araştırmaların kısıtlı sayıda olmasının yanında son yıllarda yaşadığımız pandemi ile birlikte eğitim sisteminin odak noktası değişti. Eğitim sisteminin odak noktasının değişmesiyle birlikte eğitim, çevrimiçi öğrenme ortamlarında yürütülmeye başlanmıştır. Ayrıca sınavlar bilgisayar destekli çevrimiçi ortamlarda değerlendirmeye doğru bir yönelim vardır. Bu çalışma ile öğrencilerin çevrimiçi öğrenme ortamlarında yeni nesil sorulara dayalı fen eğitimine karşı görüşleri belirlenmeye çalışılmıştır.

Yöntem

Bu çalışmada nitel araştırma yöntemlerinden biri olan tarama yöntemi kullanılmıştır. Nitel araştırma yöntemi ile problem durumu hakkında derinlemesine araştırmalar yapılabilir. Hızla değişen dünyamızda insanlar değişimlere uyum sağlamakta sorunlar yaşamakta ve bu duruma alışmakta zorluk çekmektedir. Nitel araştırma yöntemiyle ortaya çıkan bu problemler derinlemesine incelenmekte ve bireylerin düşüncelerini ortaya çıkarılmaktadır (Seggie ve Bayyurt, 2021).

Araştırma 2020-2021 eğitim-öğretim yılında çevrimiçi öğrenme ortamına katılan 7. sınıf öğrencileri ile gerçekleştirilmiştir. Eğitime katılan 18 öğrenciden başarılı ve başarısız öğrenciler arasından 4 öğrenci seçilerek bu öğrencilerle yarı yapılandırılmış görüşmeler yapılmıştır. Toplam 8 öğrenci ile yapılan çalışmada görüşmeler ses kaydına alınmıştır. Araştırmacı yarı yapılandırılmış görüşme sorularına uygun nitelikte 8 sorudan oluşan bir ön görüşme formu hazırlamıştır. Sorular öğretim üyesinin görüşleri ve önerileri doğrultusunda 7 soruya düşürülmüş ve düzenlenmiştir.

Öğrencilerle online öğrenme ortamında "Işığın Madde ile Etkileşimi" ünitesi işlenmiştir. Pandemi sürecindeki bu çalışma çevrimiçi öğrenme ortamında EBA canlı ders uygulaması üzerinde yapılmıştır. Dersler öğretmen ve öğrenciyi farklı mekanlarda aynı zaman diliminde birbirleriyle buluşturmuştur. Üniteler Fen Öğretim Programının temel aldığı yapılandırmacılık anlayışına uygun şekilde video, slayt, z-kitap, soru-cevap, anlatım gibi yöntem ve tekniklerden yararlanılarak işlenmiştir. Konu işlenirken Milli Eğitim Bakanlığı tarafından yayınlanan ve kaynaklardan yararlanılarak oluşturulan yeni nesil sorular öğrencilere yansıtıldı. Sorular öğrencilerle tartışıldı ve çözüldü. Böylece öğrencilere konu ile ilgili daha iyi bir şekilde kavramlar kazandırılmaya çalışılmış, pekiştirilmiş ve öğrencilerin anlamalarını kolaylaştırmaya yardımcı olunmuştur.

Çalışma sonrasında seçilen öğrencilerle yarı yapılandırılmış görüşmeler yapılmış ve bu görüşmeler ses kaydına alınmıştır. Ses kayıtları dinlenmiş ve öğrencilerin cevapları yazıya aktarılmıştır. Öğrencilerle yapılan görüşmede elde edilen veriler içerik analizi yöntemine göre çözümlenmeye çalışılmıştır. İçerik analizi yapılırken kodlar kullanılmıştır. Öğrencilerin verdikleri

cevaplara göre kodlar oluşturulmuştur. Böylece nitel verilerin daha kolay yorumlanabilmesi durumu ortaya çıkmıştır.

Bulgular

Öğrencilerle yapılan görüşmeler sonucunda öğrencilerin verdikleri cevaplar araştırmanın bulgular bölümünü oluşturmuştur. Yapılan görüşmede çok sayıda öğrenci, yeni nesil soruların zor ve karmaşık olduğunu söylemiştir. Yeni nesil soruların geleneksel sorulara göre daha uzun, zaman alıcı, yorumlamaya dayalı ve olaylar arası ilişki kurmaya yönelik olduğu öğrenciler tarafından fark edilmiştir. Öğrenciler yeni nesil sorularla problem çözme, okuduğunu anlama ve deney yapma gibi becerilerini geliştirdiklerini belirtmişlerdir. Soruların konularla ilgili bilgiler sunması öğrencilerin öğrenmelerini pekiştirmeye yardımcı olduğunu ifade etmişlerdir. Öğrenciler yeni nesil soruların okumaya dayalı olması ve düşündürücü sorular olmasını zorlanmalarına gerekçe olarak sunmuşlardır. Bu sorularda günlük hayattan örnekler bulduklarını söylediler. Öğrenci motivasyonunu artırdığını ve yeni nesil sorularda öğrencilerin özgüvenlerinin gelişmesine katkı sağladığını belirtmişlerdir.

Sonuç ve Tartışma

Öğrenciler soruların uzun olduğunu, okumaya dayalı olduğunu, bağlantılar kurduğunu ve olaylar hakkında düşündürdüğünü ve bu durumun kendilerini yorumlamaya zorladığını belirtmişlerdir. Bu tür cevapların öğrencilerimizin okuma alışkanlığının olmaması, düşünmeye ve yorumlamaya dayalı soruları yeterince çözememelerinden kaynaklandığı düşünülmektedir.

Öğrenciler yeni nesil sorular arasında bazen kendi hayatlarında karşılaşmadıkları problemlerin olduğunu belirtmişlerdir. Bu durum soru hazırlayanların soruları öğrencilere göre hazırlamadıkları düşüncesini ortaya koymaktadır. Bu nedenle nitelikli yeni nesil soru oluşturma ve bulma konusunda zorluklar olduğu düşünülmektedir (Erden, 2020).

Öğrenciler, yeni nesil soruların mantıksal düşünmeyi, yorumlamayı, yeni bilgileri öğretmeye yardımcı olduğunu belirtmişlerdir. Bu nedenle konuların işlenmesi ve değerlendirilmesi sürecinde yeni nesil soruları çözmenin önemini ortaya koymaktadır.

Öğrenciler bazı yeni nesil sorularda kendi hayatlarından uygun örnekler bulamadıklarını belirtmişlerdir. Literatürde yeni nesil soruların oluşturulmasında dikkat edilmesi gereken hususlar arasında bağlamın öğrenciye göre olması ve senaryoların iyi kurgulanması öğrenciyi desteklemektedir (Elmas ve Eryılmaz, 2015; Kabuklu vd., 2019).

Yeni nesil sorulara alışık olmayan öğrenciler zorlandıklarını söylediler. Bunun nedeni, yeni nesil soruların ders kitaplarında yeterince yer almaması, öğrencilerin yeni nesil sorulara alışık olmaması ve müfredat ile ders kitaplarının uyuşmamasıdır (Erden, 2020; Tekbıyık ve Akdeniz, 2010; Ünal, 2019).

Öneriler

Akademik ve bilimsel süreç becerilerine katkı sağladığı için öğrencilerin yeni nesil soruları çözmeleri önerilmektedir. Öğretmenlerin öğrencilerine yeni nesil sorular yöneltmeleri önerilmektedir. Okul ders kitaplarının güncellenerek yeni nesil soru sayısının arttırılması önerilmektedir. Yardımcı kaynakların yeni nesil soru sayısını artırması önerilir.

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The Correlation Between the Media and Digital Literacy Levels of Pre-Service Social Studies Teachers

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Abstract

The current study aimed to investigate the correlation between media and digital literacy levels of pre-service social studies teachers. The study was designed with mixed methodology. The study group was determined with the convenience sampling method, a purposive sampling technique. In the analysis of the quantitative data of the study, arithmetic mean, standard deviation, Kolmogorov-Smirnov test, Spearman's rho test and correlation test were used. In the analysis of qualitative data, content analysis was performed. The study findings revealed a positive very high-level and significant correlation between media and digital literacy levels of pre-service social studies teachers. According to the research, it was concluded that the pre-service teachers had the dimensions of media literacy the most after evaluation, respectively, of communication, of access, and of analysis the least. In addition, in the qualitative dimension results of the research, the views of the pre-service teachers were reached in the categories of the most skill development, then the goal and the least tool.

Keywords: Pre-service social studies teachers, media literacy, digital literacy.

Introduction

Individuals should acquire certain skills to adapt to the and to participate in their society or other societies as active citizens. Literacy, which is among these skills, is very important for individuals. Individuals should acquire literacy skills to participate in the society as innovative, independent individuals (Thornberry, 1990; García Ochoa et al., 2016). The term literacy used to mean reading, writing and calculation. However, recently, the term's semantics changes and started to identify the skills required to understand the social and cultural environment (Varis, 2009). Literacy is generally employed to reflect competency in writing, reading and speaking a language. However, this meaning was not sufficient to reflect the requirements of the modern era; thus, literacy acquired the meanings of learning lifelong learning, and effective use of technologies and problem-solving methods (Wilson, 2002). Schools play an important role in the process of imparting literacy skills, which change in meaning over time, to individuals. In schools, it is aimed to give individuals many literacy skills. Some of these are media literacy and digital literacy skills.

Media literacy education is required to live, work and for citizenship in the current century. In other words, media literacy paves the way for mastering the skills required throughout the life of an individual (Thoman & Jolls, 2004). Media literacy, require educational programs that aim to protect the individuals from the adverse effects of the media (Potter, 2010; Jeong et al., 2012). The importance of media literacy skills in order to protect people against fake news has been understood more and more in recent years, and people from many fields, from educators to technology experts, have transferred important resources to this field (Bulger & Davison, 2018). Digital literacy skill is associated with effective use of information and communication technologies that contribute to personal development and problem-solving skills, or active participation in social life (Özerbaş & Kuralbayeva, 2018). With the recent COVID-19 pandemic, there has been a rapid transition towards digitalization in the education process around the world. Especially in this process, teachers and students experienced difficulties in online teaching and learning (Li & Yu, 2022). It is very important that individuals of all ages, from children to adults, have media literacy and digital literacy skills, the importance of which is further understood by the worldwide COVID-19 pandemic. In this direction, these types of skills need to

be acquired by individuals. One of the important courses to gain these skills is the social studies course. It is possible to see these skills within the scope of this course. Especially since the most important purpose of social studies is to raise active citizens in the society, these skills have gained even more importance within the scope of this course. Undoubtedly, the age we live in is the age of digitalization. It is very important for the teacher who teaches this course to have these skills, to respond to the understanding of digital education experienced in recent years and to raise effective citizens in the society due to the transformations in many areas of life. In order for teachers to teach these skills to individuals effectively, it is very important to find the answer to the question to what extent teachers have these skill levels in their teacher education processes and whether there is a relationship between both types of skills. Thus, the research problem was determined as follows: "Is there a correlation between media and digital literacy levels of pre-service social studies teachers?"

The literature review revealed several studies on media literacy. These studies were on the future, challenges and benefits of media literacy (Bulger & Davison, 2018), media literacy and associated perspectives (Brown, 1998; Potter & Byrne, 1998; Thoman & Jolls, 2004), teaching critical media literacy in the classroom (Alvermann et al., 2018), the affinity between imagination, social emotional learning and media literacy (Tsortanidou et al., 2022), media literacy status (Potter, 2010), promoting media literacy to older people (Rasi et al., 2021) and social media literacy (Cho et al., 2022). There are various studies in the literature on digital literacy. These studies were on the employment of digital literacy (Hartley, 2017), transformation and digital literacy (Farias-Gaytan et al., 2022), digital literacy scale development study (Reddy et al., 2022), teachers' digital literacy (Sánchez-Cruzado et al., 2021), the role of teachers and digital literacy in the COVID-19 pandemic process (Li & Yu, 2022), exploring digital literacy strategies for individuals with special educational needs (Tohara, 2021) and the reasons for the need for new approaches in the instruction of digital literacy (Breakstone et al., 2018). However, there was no study on the correlation between media and digital literacy levels of pre-service social studies teachers. Thus, the current study is expected to fill a significant gap in the literature. The current study aimed to determine whether there is a correlation between media and digital literacy levels of pre-service social studies teachers. Thus, the following research problems were determined:

- What is the media literacy level of the pre-service social studies teachers?
- What is the digital literacy level of the pre-service social studies teachers?
- Is there a correlation between media and digital literacy levels of pre-service social studies teachers?

Method

The Research Design

The study was designed with mixed methodology to determine the correlation between media and digital literacy levels of pre-service social studies teachers. Relational screening model was employed in the quantitative dimension of the study. Relational screening model investigates the correlation between two or more variables and explains the causality among these variables (Fraenkel et al., 2012). The other dimension of the study was designed with the qualitative

approach. The quantitative study data was supported with qualitative findings to collect in-depth data.

The Study Group

The study group members were assigned with the convenience sampling method, a purposive sampling approach. The participants included freshman (f=32), sophomore (f=21), junior (f=30), and senior (f=45) students attending the department of social studies teaching. 55 pre-service teachers were female and 73 were male. Since the most important aim of social studies education is to train active citizens, and media and digital literacy skills of the pre-service social studies teachers should be good to train active citizens, the students from all class levels were assigned to the study group. Therefore, pre-service social studies teachers were assigned as the participants.

Data Collection and Analysis

The study data were collected with the "Media literacy skills scale" developed by Erişti & Erdem (2017) and the "Digital literacy scale" developed by Ng (2012) and adapted to Turkish language by Üstündağ et al. (2017). The media literacy scale is a five-point likert type, and the group value ranges of the scale are as follows: 5-4.20 is completely suitable for me, 4.19-3.39 is quite suitable for me, 3.38-2.58 I have no idea, 2,57-1.77 is not suitable for me, between 1.76-0.96 is not suitable for me at all. The digital literacy scale is also in five-point likert type, and the group value ranges of the scale are as follows: 5-4.20 I strongly agree, between 4.19-3.39 I agree, between 3.38-2.58 I am undecided, 2.57-1,77 I disagree, between 1.76-0.96 I strongly disagree. The quantitative study data were collected on Google Forms from voluntary participants. To determine the data validity and reliability, Cronbach's Alpha coefficient was calculated for the media literacy and digital literacy scales and the following findings were obtained: The Cronbach's Alpha reliability coefficient was .970 for the media literacy scale. The Cronbach's Alpha reliability coefficient was .860 for the digital literacy scale. These findings demonstrated that both scales were highly reliable.

The qualitative study data were collected through focus group interviews with a group of students who represent the sample and have medium academic achievement levels. In the focus group interview, a total of 12 students, 4 from each grade level, were determined from the 1st, 2nd, 3rd and 4th grade students of social studies teaching on a voluntary basis, and a focus group interview was conducted with the students. The participants were verbally asked the following question: “Is there a correlation between media literacy and digital literacy? Opinions were received from three field experts regarding the research question and interviews were started as a result of positive response. The qualitative study data were collected with face-to-face interviews. The data obtained during the interviews were recorded with the permission of the interviewees, and then the transcript of the obtained data was made.

The quantitative study data were analyzed with the IBM SPSS 25 statistics software. The arithmetic means and standard deviations of the pre-service teacher responses were determined, and the normal distribution of the data was determined with the Kolmogorov-Smirnov test, kurtosis skewness values, histogram chart, the results of the Q-Q plot graph. It was determined that the data distribution was not normal; thus, the non-parametric Spearman's rho test was

employed to analyze the correlation between media and digital literacy levels. Content analysis was employed in the analysis of the qualitative study data. In the content analysis, initially, the data were coded, then the similar codes were grouped under categories. In order to determine whether the qualitative analysis was done correctly, first of all, some of the research data were asked to be done by an outside researcher, and when the difference between the two analyzes was examined, it was seen that the similarity was high and the researcher continued the analysis. The codes determined as a result of the analysis are listed under common categories and according to frequency intensities and given in a table. The data given in the table were also supported by sample interviews with the participants. In addition, during the analysis process, the female student was coded as F and the male student as M.

Ethical Permits of Research

In this study, all the rules specified to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were complied with. None of the actions specified under the heading "Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, have been taken.

Ethics Committee Permission Information:

Name of the committee that made the ethical evaluation = Erciyes University Social and Human Sciences Ethics Committee

Date of ethical review decision = 25/01/2022

Ethics assessment document issue number= 36

Findings

The arithmetic mean and standard deviation distributions obtained from the media literacy and digital literacy scales of pre-service social studies teachers are given in Table 1.

Table 1. *The arithmetic means and standard deviations of the scores of pre-service social studies teachers in media literacy and digital literacy scales*

Scale	Dimension	Items	Dimension $\bar{X}$	S	Level
Media literacy scale	Access	1.,2.,3.,4.,5.,6., 7., 8., 9., 10., 11., 12.	4,41	,47	Totally suitable for me
	Analysis	13.,14.,15., 16.,17., 18., 19., 20., 21., 22., 23., 24., 25., 26.	4,34	,55	Totally suitable for me
	Evaluation	27., 28., 29., 30., 31., 32., 33.	4,47	,57	Totally suitable for me
	Communication	34., 35., 36., 37., 38., 39., 40., 41., 42., 43., 44., 45.	4,42	,55	Totally suitable for me
Digital literacy scale		1., 2., 3., 4., 5., 6., 7., 8., 9., 10.	4,12	,61	I agree

As seen in Table 1, in the media literacy scale, the highest score of the pre-service social studies teachers was in the evaluation ($\bar{X}$=4.47), followed by communication ($\bar{X}$=4.42), access ($\bar{X}$=4.41) and analysis ($\bar{X}$=4.34) dimensions. It was determined that the arithmetic mean of the scores of the pre-service social studies teachers was $\bar{X}$=4,12 in the digital literacy scale.

The normality test results for the pre-service social studies teachers' media literacy and digital literacy scale scores are presented in Table 2.

Table 2. *The normality test results for the pre-service social studies teachers' media literacy and digital literacy scale scores*

	Kolmogorov-Smirnov[a]		
	Statistic	df	Sig.
Media literacy	,238	128	,000
Digital literacy	,255	128	,000

As seen in Table 2, Kolmogorov-Smirnov test result for the media literacy scale was .000, digital literacy scale Kolmogorov-Smirnov test result was .000. Since these findings were less than p <0.05, the data distribution was not normal.

The findings regarding the relationship between media literacy and digital literacy levels of pre-service social studies teachers are given in Table 3.

Table 3. *The correlation between media and digital literacy levels of pre-service social studies teachers.*

Correlation

			Media literacy	Digital literacy
Spearman's rho	Media literacy	Correlation Coefficient	1,000	,839**
		Sig. (2-tailed)	.	,000
		N	128	128
	Digital literacy	Correlation Coefficient	,839**	1,000
		Sig. (2-tailed)	,000	.
		N	128	128

**. Correlation is significant at 0.01 level (2-tailed).

As seen in Table 3, the Spearman's rho test finding was .839** on the correlation between media literacy and digital literacy of pre-service social studies teachers. Since the finding was <0.01, there was a positive and significant correlation between media literacy and digital literacy at 99% confidence level.

Based on the interviews conducted with the pre-service social studies teachers, the correlation between media literacy and digital literacy is presented in Table 4.

Table 4. *The correlation between media literacy and digital literacy according to the pre-service social studies teachers*

Skill development	f
Critical thinking skills	9
Questioning skills	7
Research skills	5
Communication skills	3
Analysis skills	3
Collaboration	2
Evaluation	2
Problem-solving skills	1
Total	32
Objective	
Media awareness	9
Technological awareness	5
Training aware individuals	2
Knowledge	2
Social media analysis	1
Adoption of social values	1
Total	20
Means	
Protection from the adverse effects of media	4
Facilitation of Daily life	2
Access to accurate information	2
Socialization	1
Job opportunities	1
Helps learn social problems	1
Total	11

As seen in Table 4, it was determined that the highest correlation was between media literacy and digital literacy in skill development (f=32), followed by objectives (f=20), and means (f=11) based on the views of the pre-service social studies teachers. In the skill development category, the participants mentioned critical thinking (f=9), questioning skills (f=7), research skills (f=5), communication skills (f=3), analysis skills (f=2), evaluation (f=2), and problem solving (f=1) skills. In the objectives category, the participants mentioned media awareness (f=9), technology awareness (f=5), individual awareness (f=2), knowledge (f=2), social media analysis (f=1), and adoption of social values (f=1) themes. In the means category, the participants mentioned protection from the adverse effects of the media (f=4), facilitation of daily life (f=2), access to accurate information (f=2), socialization (f=1), job opportunities (f=1) and helps learn about problems (f=1) themes. The views of the pre-service social studies teachers on the correlation between media literacy and digital literacy are quoted below:

> 2-M-9: "There is a very strong correlation between digital literacy and media literacy. Digital literacy aims to inform the individual on the use of novel technological tools. Media literacy allows the individuals to adopt a critical approach to knowledge, and to understand what is real and what is virtual, what is accurate and what is inaccurate, and the benefits and harms of these tools."

> 4-F-6: "Both accelerated with technological advances. Both emerged for beneficial and effective use of technology by humanity. Both aim to make harmful content work in favor of individuals. Both aim the employment secure technologies against cyberattacks. Both aim to make people's lives easier. Both protect people against the dangers of social media.

Even the ability to create a strong password comes down to media and digital literacy. Both allow individuals to advance their careers with technology."

3-F-12: "Both require common knowledge and skills. Examples of these include critical thinking, analysis and questioning skills. Both aim to train individuals with high level of awareness. Both provide knowledge on accurate use of tools and technological devices."

The results obtained in line with the findings regarding the relationship between media literacy and digital literacy levels of pre-service social studies teachers are given in the section below.

Conclusion, Discussion and Recommendations

The following findings were obtained in the study where the correlation between media literacy and digital literacy levels of pre-service social studies teachers was determined: It was concluded that the highest media literacy scores of the pre-service social studies teachers were in the evaluation, followed by the communication, access and analysis dimensions. Media literacy skills are multidimensional. The effects of media are multidimensional on the individual in cognitive, emotional, physiological and behavioral dimensions both directly and indirectly via other individuals. Thus, for the development of media literacy, the development of several media literacy dimensions is necessary (Potter, 2010). Since the scores of the pre-service social studies teachers were similar and positive in all media literacy dimensions, this would contribute to the development of media literacy skills of the pre-service teachers.

The COVID-19 pandemic has revealed that it is a necessity for teachers to have digital literacy skills to provide online education and to implement an up-to-date and innovative education model (Sánchez-Cruzado et al., 2021). Therefore, pre-service teachers should also have this skill. In the study, it was concluded that the mean digital literacy scale score of the pre-service social studies teachers was $\bar{X}$=4.12. The score increases with the increase in media literacy. The score reflected a significant development across pre-service social studies teachers. Because these skills are a requirement today. According to Li & Yu (2022), with the recent COVID-19 pandemic, a blended education model should be used in educational institutions. Teachers also need to have digital literacy in order to meet the needs of the education model to be used in the future. According to Koltay (2011), due to the recent advances in digital technologies, individuals should possess good media awareness. Thus, it is necessary for the individuals to acquire competencies associated with digital literacy such as media literacy.

In the study, it was concluded that there was a positive and significant correlation between the media literacy and digital literacy levels of pre-service social studies teachers. Media and technology are interrelated in the current global culture. This interrelation affects the acquisition of knowledge about the world and establishment of educational foundations. In the current century, it is not sufficient for individuals to simply read the printed knowledge. Individuals need the skills to critically interpret multimedia culture (Thoman & Jolls, 2004). Thus, these skills are associated with individuals and these skills are a positive development for the individual to become an active citizen in the society. Çetin & İçci (2021) also found in their research that there is a positive moderate relationship between the digital literacy self-efficacy levels of pre-service

social studies teachers and their information and communication technologies self-efficacy. This study supports the results of the research.

Based on the qualitative data collected with the interviews conducted with pre-service social studies teachers, it was determined that there was a correlation between media literacy and digital literacy, mostly in skill development, and the least in means categories. In the category of skill development, the participants mentioned the critical thinking, questioning, research, communication, analysis, collaboration, evaluation, and problem-solving skills. According to Koltay (2011), media literacy, digital literacy and information literacy were the three types of skills that are required for critical approach to media messages. This report emphasized the significance of critical thinking skills. Jeong et al. (2012) reported that media literacy increased individual awareness about critical thinking, knowledge, and the impact of the media. These findings demonstrated that media literacy and digital literacy skills included the ability of an individual to look at media elements with a critical eye. The pre-service social studies teachers stated that the correlation between media literacy and digital literacy was based on the acquisition of critical thinking, questioning, research, communication, analysis, collaboration, evaluation and problem-solving skills. These are the skills required for the development of media literacy and digital literacy. Thus, these skills are among the qualities that an individual should possess to train active individuals. In the objectives category, the pre-service teachers mentioned media awareness, technological awareness, personal awareness, social media analysis, and adoption of social values. In the means category, the views of the pre-service teachers emphasized protection from the adverse effects of the media, and mentioned facilitation of daily life, access to accurate information, socialization, job opportunities and learning about social problems. Thus, it could be suggested that media literacy and digital literacy have objectives.

The introduction of the media culture in all learning environments from pre-school to graduate education would raise the interest of the students and ensure active student participation in the learning process. Active participation of the students in the learning process is the most important factor for learning achievements (Thoman, & Jolls, 2004). Thus, individuals should acquire media literacy and digital literacy skills. According to Potter (2010), media literacy skills of the individuals should be improved. Nobody is media literate by birth, this is an acquired skill. In the development of media literacy, the efforts of the individual and the guidance of an expert educator are important. This is also valid for digital literacy skills. Teachers play a key role in this process. According to Li & Yu (2022), the readiness level of faculty members and the support of the academic environment are also required in the development of teachers' digital literacy. For this reason, teacher training process is very important in the process of teachers' acquiring both media literacy and digital literacy skills. Therefore, it is important for pre-service teachers and teachers to acquire these skills first for students to acquire these skills effectively.

The following could be recommended based on the study findings: The correlation between media and digital literacy levels of the pre-service social studies teachers was investigated in the study. Future research could analyze the correlations between different skills. The determination the correlation between the skill levels of pre-service teachers and the skills is of vital importance for an effective education system. Determination of the skill types that pre-service teachers are incompetent would contribute to solve the problems in the education system.

In order to improve the media literacy and digital literacy skills of pre-service social studies teachers, these skills can be included more in undergraduate education programs. In addition, importance can be attached to the development of physical infrastructure in universities so that pre-service teachers can acquire these skills effectively.

Also, future studies could be conducted to determine the skill levels of young age groups and whether there are correlations between these levels. In the study, it was determined that the media literacy skills of pre-service social studies teachers were similar, and they reflected their views on the correlation between these skills in various categories. In teacher training, practical activities could be emphasized to further develop various skills. This could improve the experiences of pre-service teachers in various skills, and the instruction of these skills.

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Sosyal Bilgiler Öğretmen Adaylarının Medya Okuryazarlığı ile Dijital Okuryazarlık Düzeyleri Arasındaki İlişki

Giriş

Birey yaşadığı topluma uyum sağlaması ve etkin vatandaş olarak kendi toplumunda veya diğer toplumlarda yer alabilmesi için birtakım becerileri edinmesi gerekir. Bu becerilerden olan okuryazarlık becerisi bireyler için çok önemlidir. Bireyler toplumsal yaşama katılım gösteren, yenilikçi, özgür bireyler olarak toplumda yer alabilmeleri için okuryazarlık becerilerine sahip olmaları gerekir (Thornberry, 1990; García Ochoa vd., 2016). Okuryazarlık terimi önceleri okuma, yazma, hesaplama gibi basit anlamlar içeriyordu. Fakat sonraki yıllarda anlamsal olarak değişimlere girerek, bireylerin kendi toplumsal kültürel çevresini anlaması yeteneğini kazanması için gerekli olan beceriler anlamını içermiştir (Varis, 2009). Zaman içerisinde anlamında değişme yaşayan okuryazarlık becerisinin bireylere verilmesi sürecinde okullar önemli roller üstlenirler. Okullarda bireylere birçok okuryazarlık becerisi verilmesi hedeflenir. Bunlardan bazıları ise medya okuryazarlığı ve dijital okuryazarlık becerileridir.

Medya okuryazarlığı eğitimi yaşadığımız yüzyılda yaşamak, çalışmak, vatandaş olabilmek için gerekli olan bir okuryazarlık türüdür. Bir nevi medya okuryazarlığı bireyin yaşamı boyunca gerekli olan becerilerde ustalaşmasının yolunu açmaktadır (Thoman & Jolls, 2004). Medya okuryazarlığı medyanın zararlı etkilerinden bireyleri korumayı hedef edinen eğitim programlarıdır (Potter, 2010; Jeong vd., 2012). Medya okuryazarlığı becerisi insanları sahte haberlere karşı korumak amacıyla son yıllarda önemi giderek daha da anlaşılmış ve bu alana eğitimcilerden, teknoloji uzmanlarına kadar birçok alandan kişiler önemli kaynaklar aktarmıştır (Bulger & Davison, 2018). Dijital okuryazarlık becerisi ise bireyin kişisel gelişimine, problemlerini çözmesine katkı sağlayacak özetle toplumsal yaşama etkin yararlı katılabilmesi için gerekli olan bilgi iletişim teknolojilerini etkin kullanabilmesidir (Özerbaş & Kuralbayeva, 2018). Son yaşadığımız COVID-19 pandemisi ile dünya çapında eğitim sürecinde dijitalleşmeye doğru hızlı

bir geçiş yaşandı. Özellikle de bu süreçte öğretmenler, öğrenciler çevrimiçi öğretme ve öğrenme de sıkıntılar yaşadılar (Li & Yu, 2022). Dünya çapında yaşanan COVID-19 pandemisi ile önemi daha da anlaşılan medya okuryazarlığı ve dijital okuryazarlığı becerilerinin çocuklardan yetişkinlere kadar, her yaştan bireyde bulunması çok önemlidir. Bu doğrultuda da bu beceri türlerinin bireylere kazandırılması gerekmektedir. Bu becerileri kazandırmak için önemli derslerden biri sosyal bilgiler dersidir. Bu dersin kapsamı içerisinde bu becerileri görmek mümkündür. Özellikle de sosyal bilgilerin en önemli amacının toplumda etkin vatandaşlar yetiştirmeyi hedef edinmesi nedeniyle de bu beceriler bu dersin kapsamı içerisinde daha da önem kazanmıştır. Kuşkusuz ki yaşadığımız çağ dijitalleşme çağıdır. Bu dersi veren öğretmenin bu becerilere sahip olması, son yıllarda yaşanan dijital eğitim anlayışına cevap verebilmek ve hayatın birçok alanında yaşanan dönüşümler nedeniyle toplumda etkin vatandaşlar yetiştirebilmek için çok önemlidir. Öğretmenlerin bu becerileri bireylere etkin bir şekilde öğretebilmeleri için öğretmen eğitimleri süreçlerinde bu becerilere ne derece sahip oldukları ve her iki beceri türü arasında ilişki bulunmakta mı sorusunun yanıtını bulmak önemlidir. Bu nedenle araştırmanın problem cümlesini sosyal bilgiler öğretmen adaylarının medya okuryazarlığı ve dijital okuryazarlık düzeyleri arasında nasıl bir ilişki bulunmaktadır? Sorusu oluşturmaktadır. Araştırmanın amacı ise sosyal bilgiler öğretmen adaylarının medya okuryazarlığı ile dijital okuryazarlık düzeyleri arasında ilişki olup olmadığını incelemektir. Bu amaç doğrultusunda aşağıda yer alan sorulara cevaplar aranmıştır: Sosyal bilgiler öğretmen adaylarının;

- Medya okuryazarlık düzeyleri nasıldır?
- Dijital okuryazarlık düzeyleri nasıldır?
- Medya okuryazarlığı ile dijital okuryazarlık düzeyleri arasında ilişki var mıdır?

Yöntem

Araştırmada sosyal bilgiler öğretmen adaylarının medya okuryazarlığı ile dijital okuryazarlık düzeyleri arasındaki ilişkiyi incelemek üzere karma (mix) yöntem kullanılmıştır. Araştırmanın nicel kısmı ilişkisel tarama modelindedir. Araştırmanın diğer boyutu ise nitel araştırma tasarımına göre tasarlanmıştır. Araştırmada nicel verileri desteklemek amacıyla sosyal bilgiler öğretmen adaylarından derinlemesine bilgi edinmek amacıyla nitel araştırma deseni tercih edilmiştir. Araştırmanın çalışma grubu ise amaçlı örnekleme yöntemlerinden biri olan kolay ulaşılabilir durum örneklemesi niteliğindedir. Araştırmanın katılımcı grubu sosyal bilgiler öğretmenliği bölümünde eğitim alan 1., 2., 3. ve 4. sınıf öğrencilerinden oluşmuştur. 1. sınıftan (f=32), 2. sınıf (f=21), 3. sınıf (f=30) ve 4. sınıf (f=45) öğretmen adayı yer almıştır. Öğretmen adaylarının 55'i kadın, 73'i ise erkektir. Araştırmanın verileri Erişti & Erdem (2017) tarafından geliştirilen "*Medya okuryazarlığı becerileri ölçeği*" ile Ng (2012) tarafından geliştirilmiş ve Üstündağ, Güneş & Bahçivan (2017) tarafından Türkçeye uyarlanan "*Dijital okuryazarlık ölçeği*" ile toplanmıştır. Araştırma nicel verileri toplanırken gönüllülük esasına göre Google Form aracılığıyla katılımcılardan veriler toplanmıştır. Araştırmanın nitel verileri ise örneklemi temsil edecek, orta akademik başarı düzeylerine sahip olan bir grup öğrenci ile odak grup görüşmesi aracılığıyla toplanmıştır. Araştırmadan elde edilen nicel veriler ise IBM SPSS 25 istatistik programı aracılığıyla analiz edilmiştir. Öğretmen adaylarının ölçeklere verdikleri cevapların aritmetik ortalama, standart sapma dağılımları belirlenmiş ve ölçeklerin normal dağılım gösterip göstermediğine bakılmıştır. Elde edilen bulgularda verilerin normal dağılmadığı tespit edilerek

paremetrik olmayan Spearman's rho testi ile medya okuryazarlığı ile dijital okuryazarlığı arasında ilişki olup olmadığı analiz edilmiştir. Araştırmanın nitel verilerinin analizinde ise içerik analizi yapılmıştır. İçerik analizinde önce kodlar çıkarılmış sonra birbirine yakın kodlar ortak kategoriler altında betimlenmiştir.

Sonuç, Tartışma ve Öneriler

Sosyal bilgiler öğretmen adaylarının medya okuryazarlığı ile dijital okuryazarlığı düzeyleri arasındaki ilişkinin incelendiği çalışmada şu sonuçlar elde edilmiştir: Sosyal bilgiler öğretmen adayları medya okuryazarlığı ölçeği alt boyutlarından en çok *değerlendirme* sonra sırasıyla *iletme, erişme* ve en az olarak ise *analiz* boyutlarına sahip oldukları sonuçlarına ulaşılmıştır. Medya okuryazarlığı becerisi çok boyutludur. Medya bireyi hem doğrudan hem de diğer insanlar aracılığıyla dolaylı olarak bilişsel, duygusal, fizyolojik, davranışsal yönlerden etki yapmaktadır. Bu nedenle medya okuryazarlığı becerisinin bireyde tam olarak gelişebilmesi için medya okuryazarlığını oluşturan boyutların birkaçında bireyin gelişmesi gerekir (Potter, 2010). Dolayısıyla araştırma sonuçlarında sosyal bilgiler öğretmen adaylarının medya okuryazarlığı boyutlarının tüm boyutlarına birbirine yakın ve pozitif yönlü olarak sahip olmaları, öğretmen adaylarının medya okuryazarlığı becerilerini geliştirmelerine olumlu katkı sağlayacaktır. COVID-19 pandemisi, öğretmenlerin çevrimiçi eğitim vermeleri, güncel ve yenilikçi bir eğitim modeli uygulamaları için dijital okuryazarlık becerilerine sahip olmalarını bir gereklilik olarak ortaya çıkardı (Sánchez-Cruzado vd., 2021). Dolayısıyla da öğretmen adaylarının da bu beceriye sahip olması gerekir. Araştırmada sosyal bilgiler öğretmen adayları dijital okuryazarlık ölçeğinden ise aritmetik ortalama olarak $\bar{X}$=4,12 bir değere sahip oldukları sonucuna ulaşılmıştır. Bu sonuç medya okuryazarlığı ile yakın, pozitif yönlü bir artışa sahip bir değerdir. Bu değerin pozitif yönlü olarak sosyal bilgiler öğretmen adaylarında yer alması önemli bir gelişmedir. Çünkü bu beceri türleri günümüz için çok gereklidir. Li & Yu'ya (2022) göre son yaşanılan COVID-19 pandemisiyle birlikte eğitim kurumlarında harmanlanmış eğitim modeli kullanılması gerekmektedir. Öğretmenlerinde de gelecekte kullanılacak eğitim modelinin ihtiyaçlarını karşılamak için dijital okuryazarlığa sahip olmaları gerekmektedir. Koltay'a (2011) göre de dijital teknolojilerin son yıllarda çok sayıda artmasıyla birlikte medya bilincinin bireylerde iyi düzeyde olması gerekir. Dolayısıyla medya okuryazarlığı gibi dijital okuryazarlığa ilişkin yetkinlikleri bireylerin kazanmaları gereklidir.

Araştırmada sosyal bilgiler öğretmen adaylarının medya okuryazarlığı ile dijital okuryazarlık düzeyleri arasında pozitif yönlü anlamlı bir ilişki olduğu sonucuna ulaşılmıştır. Medya ve teknoloji yaşadığımız küresel kültürde birleşmektedir. Bu birleşme bireylerin dünya hakkında bilgiler edinmesine ve eğitimin temellerine de etki etmektedir. Yaşadığımız yüzyılda bireyler tarafından sadece basılı olan bilgileri okumak, onlar için yeterli gelmemektedir. Multi medya kültürünü bireyler eleştirel bir şekilde yorumlama yeteneğine ihtiyaç duymaktadırlar (Thoman & Jolls, 2004). Bu nedenle bireyler bu becerilere sahip olmak ihtiyacı içinde olmaktadır. Bu becerilerin bireylerde yakın ilişki içerisinde olması doğal ve bireyin toplumda etkin bir vatandaş olması için olumlu gelişmedir. Çetin & İçci (2021) de yaptıkları araştırmada sosyal bilgiler öğretmen adaylarının dijital okuryazarlık özyeterlilik düzeyleri ile bilgi iletişim teknolojileri özyeterliliği arasında pozitif yönlü orta derece de bir ilişki olduğunu tespit etmişlerdir. Bu çalışmada araştırma sonucunu destekler niteliktedir.

Sosyal bilgiler öğretmen adaylarıyla yapılan görüşmelerden elde edilen nitel sonuçlara göre; medya okuryazarlığı ve dijital okuryazarlık düzeyleri arasında en çok *beceri geliştirmek* sonra *amaç* en az olarak ise *araç* yönünden ilişki olduğu yönünde öğretmen adaylarının görüşlerine ulaşılmıştır. Beceri geliştirmek kategorisinde en çok *eleştirel düşünmek* sonra *sorgulama becerisi geliştirme, araştırma yapmak, iletişim becerilerini geliştirmek, analiz etme becerisi geliştirme, işbirliği yapmak, değerlendirme yapmak* en az ise *problem çözmek* becerilerine ulaşılmıştır. Sosyal bilgiler öğretmen adayları, medya okuryazarlığı ve dijital okuryazarlığı arasında; eleştirel düşünme yanında sorgulama, araştırma, iletişim, analiz, işbirliği, değerlendirme ve problem çözme yönünden ilişki olduğu doğrultusunda görüşlerini ifade etmişlerdir. Bu becerilere de bakıldığı zaman medya okuryazarlığı ve dijital okuryazarlık becerilerinin gelişebilmesi için gerekli becerilerdir. Bu bağlamda bu beceriler toplumda etkin bir bireyin yetişmesi için bireyde bulunması gereken nitelikler arasında yer almaktadır. Amaç kategorisinde ise en çok *bilinçli medya kullanımı* sonra *bilinçli teknoloji kullanımı, bilinçli bireyler yetiştirmek, bilgi edinmek* en az olarak ise *sosyal medyayı analiz etmek* ve *toplumsal değerlere sahip çıkmak* görüşlerine ulaşılmıştır. Araç kategorisinde ise en çok *medyanın kötü etkisinden korunmayı sağlar* sonra *günlük hayatı kolaylaştırır, doğru bilgiye ulaşmayı sağlar* en az olarak ise *sosyalleşmeyi sağlar, iş olanakları sağlar* ve *toplumsal sorunları öğrenmeye yardımcı olur* yönünde sosyal bilgiler öğretmen adaylarının görüşlerine ulaşılmıştır. Bu sonuçlara bakıldığı zaman aslında medya okuryazarlığı ve dijital okuryazarlığın amaçları olduğunu görmekteyiz.

Araştırmadan ulaşılan sonuçlara göre şu öneriler geliştirilebilir: Araştırma da sosyal bilgiler öğretmen adaylarının medya okuryazarlığı ile dijital okuryazarlık düzeyleri arasındaki ilişki incelenmiştir. Yapılacak olan diğer araştırmalarda farklı beceri türleri arasında ilişki incelenebilir. Öğretmen adaylarının sahip oldukları beceri düzeyleri ve beceriler arasında ne yönde ilişki olduğunun belirlenmesi etkin bir eğitim öğretim sistemi oluşabilmesi için hayati öneme sahiptir. Öğretmen adaylarının yetersiz olduğu beceri türlerinin belirlenmesi eğitim sistemindeki eksiklikleri düzeltme açısından önemli katkı sağlayacaktır. Sosyal bilgiler öğretmen adaylarının medya okuryazarlığı ve dijital okuryazarlık becerilerini geliştirmek için lisans eğitim programlarında bu becerilere daha fazla yer verilebilir. Ayrıca bu becerilerin öğretmen adaylarının etkin edinebilmeleri için üniversitelerdeki fiziki alt yapıların geliştirilmesine önem verilebilir.

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The Role of Writing-to-Learn Method in Teaching About Natural Disasters and Environmental Issues: A Mixed Methods Study

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Abstract

This study aims to examine the impact of writing-to-learn approach on teaching about natural disasters and environmental issues contained in the Social Studies course, by adopting a mixed methods research approach. It includes a total of 51 fifth graders for whom various writing-to-learn activities (i.e. writing interviews, poetry, diaries, letters, columns, and newspaper articles) were used during a Social Studies course to provide opportunities for both cognitive and affective learning. The activities were evaluated in the process to give the students necessary feedback. Research data were collected through an academic achievement test, a self-evaluation form, a semi-structured interview form, and a structured classroom observation form. Qualitative data were analysed by content analysis and quantitative data by descriptive and predictive statistics. The results revealed a statistical significance in favour of the experimental group students who were instructed through writing-to-learn activities regarding natural disasters and environmental issues. It appeared that writing-to-learn activities included in the learning process acted as a lever for students while learning, and eased their learning load. The source of the cognitive and affective difference seems to have resulted from such factors as thinking over the subject learned during writing-to-learn activities, transferring what one thinks to the interlocutor by using specific expressions unique to social studies, making mental efforts to transform the information into a different form, being aware of one's own learning level and making up for the lack of knowledge through feedback. Social studies educat.

Keywords: Environmental issues, natural disasters, social studies course, writing-to-learn.

Introduction

With globalization, humanity has not only reached different and versatile possibilities but also faced unprecedented problems (Sözen, 2021). These problems may stem from a social context, as well as from nature and the environment (Demirkaya, 2016). The problems resulting from natural disasters and from other environmental issues are all among the most indubitable problems faced by the world in the 21st century (Yılar & Şimşek, 2021). This reality indicates that besides the increasing loss of life and property as a result of natural disasters, billions of dollars of economic loss has also occurred (Şengün & Küçükşen, 2019). While more than 10 thousand people lost their lives due to natural disasters on a global scale in 2021, a total of 101.8 million people were affected by natural disasters on the whole. The economic damage caused by such natural disasters reached approximately $252.1 million (Centre for Research on the Epidemiology of Disaster [CRED], 2021). Besides that, the world has been facing with different environmental issues (air, soil, noise, water, and global warming) that have been on the rise in the last fifty years (Çepni & Aksoy, 2016). Both the problems caused by natural disasters and the multiple effects of environmental issues have led the whole world to enter a great struggle (Akengin, 2018). Policymakers seeking solutions to natural disasters and environmental issues try to form the basis of a scope of struggle through many different institutions and organizations regarding these problems (Kaypak, 2014). In this sense, educational institutions are at the forefront of the fields that countries are focused on in an effort to build them well (Gökçe, 2009). In order to raise awareness to achieve sustainable development, many countries update their education programs or curricula in such a way as to cover natural disasters and environmental issues. Being aware of this necessity, the Turkish Ministry of National Education has included the course named Environmental Education and Climate Change into its secondary school curriculum (Ministry of National Education [MEB], 2022). As a matter of fact, the topic of natural disasters and

environmental issues, which are considered among the top common and fundamental problems of the world, has become one of the most essential subjects of the lifelong learning process, rather than being stuck in a certain period of education life (Williams, 2005). Countries with this awareness have adopted an approach towards lifelong environmental citizenship (Georgiou et al., 2021).

Today, building a capacity for people to react to a natural disaster, to be knowledgeable about it, and to develop necessary attitude and behaviour that will contribute to making analyses and coming to conclusions (Sözcü & Aydınözü, 2019), to gain basic consciousness, awareness and understanding in the face of environmental issues (Karaçayır, 2022) is deemed absolutely necessary. From this standpoint, education programs play a critical role in meeting this requirement. One of the curricula to undertake this task is the social studies course (Aktepe & Temur, 2018). In this connection, one of the most fundamental aims of the social studies course is to "*raise individuals who are aware of the limitations of the natural environment and resources, and are trying to protect natural resources with environmental awareness and understanding towards a sustainable environment*" (MEB, 2018, p.8). As concrete indicators of this aim, what is tried to be built through the social studies course is the capacity to enable individuals i) *to question the causes of natural disasters and environmental issues in the environment, ii) to explain the effects of natural disasters on social life with examples* (MEB, 2018, p.18), and *iii) to take the necessary measures in the face of natural disasters* (MEB, 2018, p.15), in a visible manner. It is of great importance to be knowledgeable about natural disasters and environmental issues, and to have sound information about their causes and consequences, both in preventing natural disasters that may be encountered and in eliminating environmental issues. For this reason, educational approaches that promote innovative processes to lead students to research, invention, and discovery should be included in the teaching of these subjects, rather than just teaching through reading and explaining (Gülersoy et al., 2020). In the same manner, educators at all levels need to adopt relevant practices that will ultimately lead students to a greater success (Kayaalp & Şimşek, 2021). Research has shown that a variety of materials and teaching techniques such as *simulation-based teaching* (Şahan & Dinç, 2021), *digital games* (Doğan & Koç, 2017), *drama* (Karataş, 2011), *infographics* (Karaçayır, 2022), *educational comics* (Topkaya & Doğan, 2019), *Six Thinking Hats* technique (Şeyihoğlu & Kartal, 2018), *cartoons* (Karakuş et al., 2012), *documentaries* (Uçar & Karakuş, 2017), *newspapers* (Gökçe, 2009), and *augmented reality supported games* (Wang et al., 2021) have been in use for many years to teach about natural disasters and environmental issues. Another pedagogical approach to be used as an alternative to these methods and techniques employed for teaching about natural disasters and environmental issues, which also includes both cognitive and affective learning processes, is the "*writing-to-learn*" model.

Writing-to-Learn Pedagogy

Writing-to-learn pedagogy (Nelson, 2001), which adopts the characteristics of constructivist theory and draws attention to the productive nature of human knowledge and communication, has been regarded as a tool for improving learning by many researchers since the 1970s (Bangert-Drowns et al., 2004). Describing writing as a unique way of learning, Emig (1977) paved the way for the writing-to-learn model to become an important pedagogical approach. Over time, this beginning has formed the basis for the understanding of the cognitive processes behind

writing (Bereiter & Scardamalia, 1987; Flower & Hayes, 1981) and the socio-cultural processes that include socialization in the writing process (Gere et al., 2019), thereby further deepening the pedagogy of writing-to-learn. Despite this depth, writing, which is associated with concepts such as grammar, syntax and rhetoric, could be perceived as a prescriptive structure by students (Otfinowski & Silva-Opps, 2015). Contrary to stereotyped perceptions, writing-to-learn, which gives students a flexible and liberating understanding, does not actually aim to learn how to write (Kayaalp & Şimşek, 2020). The underlying reason for this is that while learning to write, what are prevailing in the process are the concerns about grammar, spelling and sentence structure; however, in the writing-to-learn model, it is essential to focus on the learning content, not on the writing skills themselves (Myers, 1984). Considering this principle, researchers have made a number of definitions that draw attention to different aspects of writing-to-learn over time (Kayaalp & Şimşek, 2020). Zinsser (1988) described writing-to-learn as a pedagogical approach that involves reasoning on a topic and writing to clarify what has been learned about that topic so as to facilitate learning. Taking the writing process into consideration from a different perspective, Yuliyani et al., (2021), described writing-to-learn as a pedagogical way that allows students to make connections between the information they have learned during the lesson and their learning styles. According to Baaijen and Galbraith (2018), writing-to-learn is the conscious structuring of existing information to produce a new product rather than transferring existing information in one's memory into a text. Given the definitions shared in the literature, it is necessary to develop an understanding rather than rhetorical goals as a priority in the pedagogy of writing-to-learn. It is also essential that students discover their own understanding of the subject learned, rather than how to write appropriately in a disciplined manner (Rivard, 1994). Just like reading, writing is the basis of academic learning at different learning levels (Phillips & Norris, 2009) and supports the development processes of students (Rouse et al., 2021). Writing-to-learn, which attracts students' attention and functions as a catalyst for learning and creating meaning (Knipper & Duggan, 2011, p. 462), does not steal time from teaching, on the contrary, it improves the teaching content and encourages students to think and synthesize the information comprised in the content (Myers, 1984). Similarly, writing-to-learn activities that enable deep learning (Gunel et al., 2009) are likely to widen the thinking process as well as deepening the understanding (Knipper & Duggan, 2011). The primary purpose of writing-to-learn activities is, therefore, to engage students in a cognitive activity that activates higher-order thinking skills for learning (Boscolo & Mason, 2001).

Although the pedagogy of writing-to-learn, which is based on the belief that writing about a subject or concept will help students understand and learn, (Fry & Willagomez, 2012) is generally considered as a tool of learning (Arnold et al., 2017), it has multiple contributions to students in different aspects (Kayaalp et al., 2022). Research has shown that the process of writing-to-learn has proven efficacious in the development of students' *critical thinking skills* (Yuliyani et al., 2022), *self-regulation skills* (Nückles et al., 2020), *academic achievement* (Kim et al., 2021), *communication skills* (Sintiawati et al., 2021), *deep learning* (Gupte et al., 2021), *epistemological beliefs* (Atasoy & Küçük, 2020), and *permanent learning* (Taşkın, 2021). Just like the case in various disciplines, it is possible to see these multiple effects of the pedagogy of writing-to-learn in the social studies course (İspir & Yıldız, 2021; Rouse et al., 2021). Given the outcome obtained from the writing-to-learn methodology in relation to social studies course as mentioned in the relevant literature, Walp (2013), for instance, tried to develop historical thinking

skills in the social studies lesson through writing-to-learn activities, while Noel (1996) benefited from this pedagogy in teaching history topics. Furthermore, while Klein and Rose (2010) focused on the effect on students' learning ability in social studies course, Dummer et al., (2008) incorporated the writing-to-learn model in the teaching process of geography subjects. In an attempt to integrate writing in the social studies course, Sielaff and Washburn (2015) also pointed out that writing is an effective tool in understanding or learning the content in the social studies course.

Significance and Rationale of the Present Study

Social studies course is a field of study that provides a direct correlation between the information learned and real life (e.g., the fifth grade subject matter, covering the issue of natural disasters and environmental issues fully constitute an example to this feature). In addition to this feature, the social studies course also incorporates a variety of skills (e.g., environmental literacy, critical thinking, and problem solving, etc.) and values (MEB, 2018). This comprehensive structure of the social studies course inevitably leads both teachers and researchers to turn to alternative teaching practices. Adopting the principles of constructivist theory, the writing-to-learn model (Nelson, 2001) is based on the premise that it can be a powerful strategy for learning any content (Myers, 1984). In this sense, the social studies course provides great opportunities for teachers to incorporate writing in their teaching practices (Abel et al., 1989). Having evaluated these opportunities through a metaphor, Maxim (1998) argued that writing is to social studies curriculum as the gym is to basketball. The prime cause of this study, which focuses on the topic of natural disasters and environmental issues in the social studies lesson, is *to examine whether the nature of the social studies lesson overlaps with the writing-to-learn pedagogy,* and *to provide teachers and researchers with a versatile viewpoint in regard to teaching the issue*. This study is believed to make an important contribution to the expected goals since it includes different data collection tools (observation form, self-evaluation form, semi-structured interview form) in the implementation process. The topic of natural disasters and environmental issues, which is included in the fifth grade social studies course, necessitates the emergence of cognitive change in the course of teaching in relation to such aspects as conceptualization, explanation, visualization, exemplification, in addition to affective and behavioural changes such as empathy, willingness, valuing, and transfer to life. The second reason for this study was "*to determine the role of writing-to-learn activities on cognitive and affective changes in students*" with respect to the topic of natural disasters and environmental issues. It is expected that different writing-to-learn activities (letter-writing, concept puzzle-making, interview-writing activities are expected to lead to cognitive change; poetry, column-writing and news article-writing activities to affective change; diary and column-writing activities to behavioural change) used in the implementation process are expected to play a mediating role in this change. Research has shown that a number of studies have been conducted with a focus on the cognitive background of the students about natural disasters (Karakuş, 2019; Tokcan & Yiter, 2017), on the views of different participants (students, pre-service teachers, and teachers) on natural disasters (Avcı, 2022; Bulut, 2020; Çelik & Gündoğdu, 2022; Dikmenli & Gafa, 2017; Kayaardı & Bozyiğit, 2022; Türksever, 2021), on the mention of natural disasters in social studies textbooks, disaster awareness, and education (Değirmenci et al., 2019; Karaca, 2022), and on natural disaster literacy (Demirdelen & Çakıcı, 2021; Sözcü & Aydınözü, 2019; Türker & Sözcü, 2021), however, despite being one of the most

fundamental problems of the current era, it is noteworthy that the number of studies that deal with the teaching of natural disasters and environmental issues on the basis of a student-centred approach remain insufficient to address the issue. The third reason for the emergence of this study, which integrates writing-to-learn with the topics of natural disasters and environmental issues, was *to incorporate an alternative approach to the teaching process of natural disasters and environmental issues.* It is expected that this study will contribute to the literature on both writing-to-learn and social studies.

Considering the contribution of the writing-to-learn model to the learning process, the research questions given below guided this study, based on the general framework of the topics of natural disasters and environmental issues:

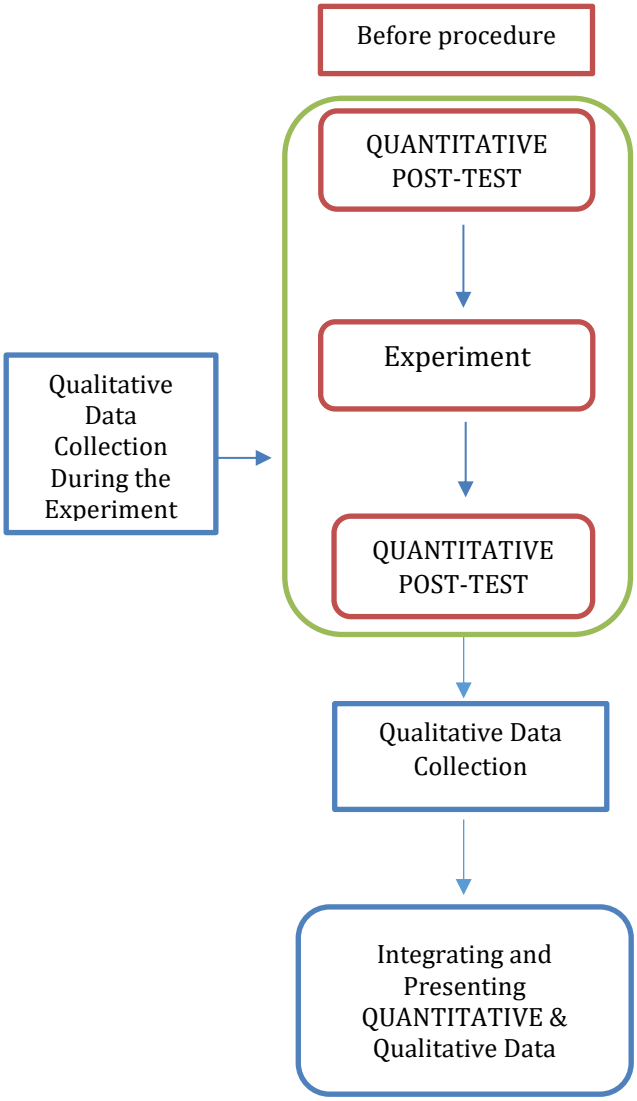
- Is there a statistical significant difference between the students in the experimental and control groups in terms of academic achievement in the course of teaching the topics of natural disasters and environmental issues?
- What are the experiences of the experimental group students about the learning process enriched by writing-to-learn activities?
- What is the teacher' experience with the learning process supported by writing-to-learn activities?

Method

Research Design

This study was conducted using an embedded experimental design, which is one of the mixed research approaches. Creswell and Plano Clark (2007) classified the embedded pattern model as the embedded pattern, embedded experimental model and embedded correlational model, among which the embedded experimental model was used in the present study. Embedded experimental model, which is the most widely used type of the embedded design, involves embedding/integrating qualitative data into a real experiment or a quasi-experimental design. In the embedded experimental design, priority is determined by the experimental methodology, and qualitative data serve this methodology. This model can be used as a one-stage or two-stage approach, depending on the stage of incorporating qualitative data. As an example, in a one-stage approach, qualitative data can be embedded during the intervention or when a researcher wants to qualitatively examine the intervention process in addition to the quantitative results, while in a two-stage model, qualitative data can be embedded before or after the intervention (Creswell et al., 2003; Creswell et al., 2005; Creswell & Plano Clark, 2007; Sandelowski, 1996). Considering its structure and characteristics, the embedded experimental design was preferred in this study, in which an experimental process was designed first and then, the effect of the implementation process was determined and quantitative data obtained. However, qualitative data were collected during the experimental process (to determine the students' experiences with the process) and afterwards (to determine the teacher's experiences), in order to serve the quantitative data. Table 1 presents the procedures regarding the research process designed according to the embedded experimental design.

Table 1. *Operations on the embedded experimental model*



	Operations	**Results**
Before procedure	Administering the academic achievement test (pre-test)	Quantitative test results
QUANTITATIVE POST-TEST	Observing the process	Qualitative results
Experiment	Administering the academic achievement test (post-test)	Comparison of quantitative test results and mean scores
QUANTITATIVE POST-TEST	Students' self-evaluation of what they have learned.	Calculation of self-assessment results
Qualitative Data Collection	Conducting interviews (Teacher-Students)	Qualitative results (codes & categories)
Integrating and Presenting QUANTITATIVE & Qualitative Data	Interpretation by integrating the QUANTITATIVE and qualitative results	Conclusion, Discussion and Recommendations

Study Sample

This study was conducted with a total of 51 fifth grade students studying in two different classrooms of a secondary school in the Ereğli district of Zonguldak, Türkiye in the 2021/22 academic year. The study sample was selected by using the convenient sampling method, which allows the conduct of a study by selecting a group as the subject on the basis of being easily accessible or suitable for the purpose (McMillan & Schumacher, 2014). In determining the study sample by using the appropriate sampling method, the fact that the teacher to be involved was knowledgeable about the writing-to-learn approach, and even had the title of science expert due to having conducted work on this approach, besides teaching two different 5th grade classes on the topic of natural disasters and environmental issues had been effective. One of the classes where the study was conducted was the experimental group in which the learning process was enhanced through writing-to-learn activities (Experimental Group [EG], n= 26), and the other was the control group with whom writing-to-learn activities were not conducted (Control Group [CG], n= 25). Table 2 presents demographic data about the study sample.

Table 2. *Demographic data about the study sample*

Groups	Gender	Frequency	Percentage (%)
EG	Male	12	46.15
	Female	14	53.85
CG	Male	10	40.00
	Female	15	60.00
Total		51	100

Data Collection Tools

Academic Achievement Test of Natural disasters and Environmental issues

"Academic Achievement Test" (AAT) was prepared by the researcher so as to determine the impact of writing-to-learn activities integrated into the teaching process of natural disasters and environmental issues on students' extent of learning the subject matter. Figure 1 presents the preparation process of the academic achievement test as a whole.

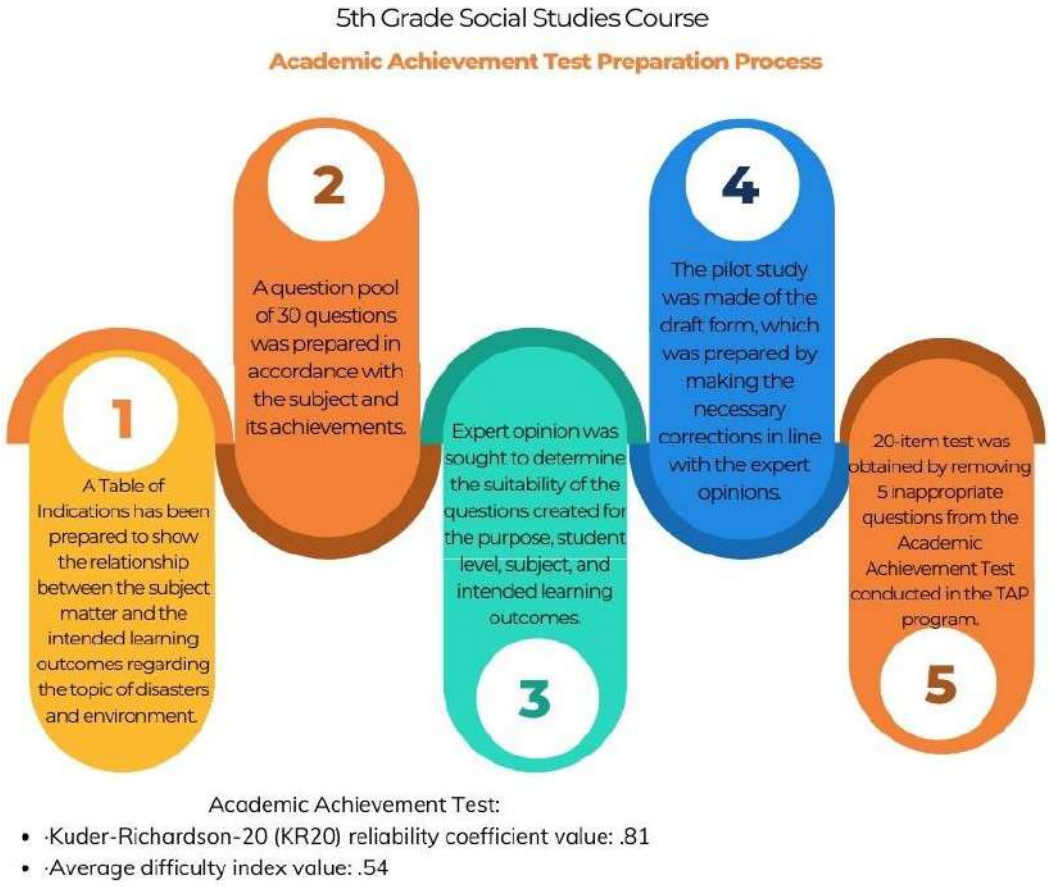


Figure 1. Academic achievement test preparation process

Student Self-Assessment Form

A self-evaluation form on natural disasters and environmental issues was prepared by the researcher in order to determine the extent to which the students who were instructed on natural disasters and environmental issues through different writing-to-learn activities learned the subject matter or to reveal their views about their own learning levels. The self-evaluation form was filled by all students participating in the research process at the end of the relevant topic.

Structured Classroom Observation Form

The researcher prepared an in-class student observation form in order to evaluate the writing-to-learn activities integrated into the learning process of natural disasters and environmental issues in relation to their contribution to the learning process. The teacher observed all the activities conducted during the process and explained his experiences regarding the writing-to-learn activities through this form.

Semi-Structured Interview Form

In order to determine how the writing-to-learn activities impact the learned subject, a semi-structured interview form was prepared in such a way as to make it suitable for both the teacher and the students involved in the activities. Then, interviews were held with the teacher and students involved at the educational institution where the study was conducted. In this process, both the teacher and the students were informed that their identity information would be kept confidential, their names would be coded, and the data obtained would only be used within the scope of a scientific study.

Teaching Material Preparation Process

In the process of preparing the writing-to-learn activities integrated into the topics of natural disasters and environmental issues, different writing-to-learn activities were contained by the researcher in order for both the teacher and the students to carry out the activities effectively. To create the writing-to-learn activities, the writing process developed by Prain and Hand (1996, p. 618), consisting of five different components, was taken into account. In this model formed in such a way as to incorporate writing into the teaching process as a learning tool, it is essential that the information learned in the course is converted and transferred to friends, parents, teachers and computers (**addressees**) in the form of letters, diaries, poems, stories, etc. (**type of writing**) by handwriting or computer (**text production method**) through the connection between ideas and key concepts, etc. (**subject**) for the purpose of research, thinking, interpretation, and explanation, etc. (**goal**). Based on these basic components, examples of writing-to-learn activities prepared by the researcher for natural disasters and environmental issues are presented in Figure 2 below:

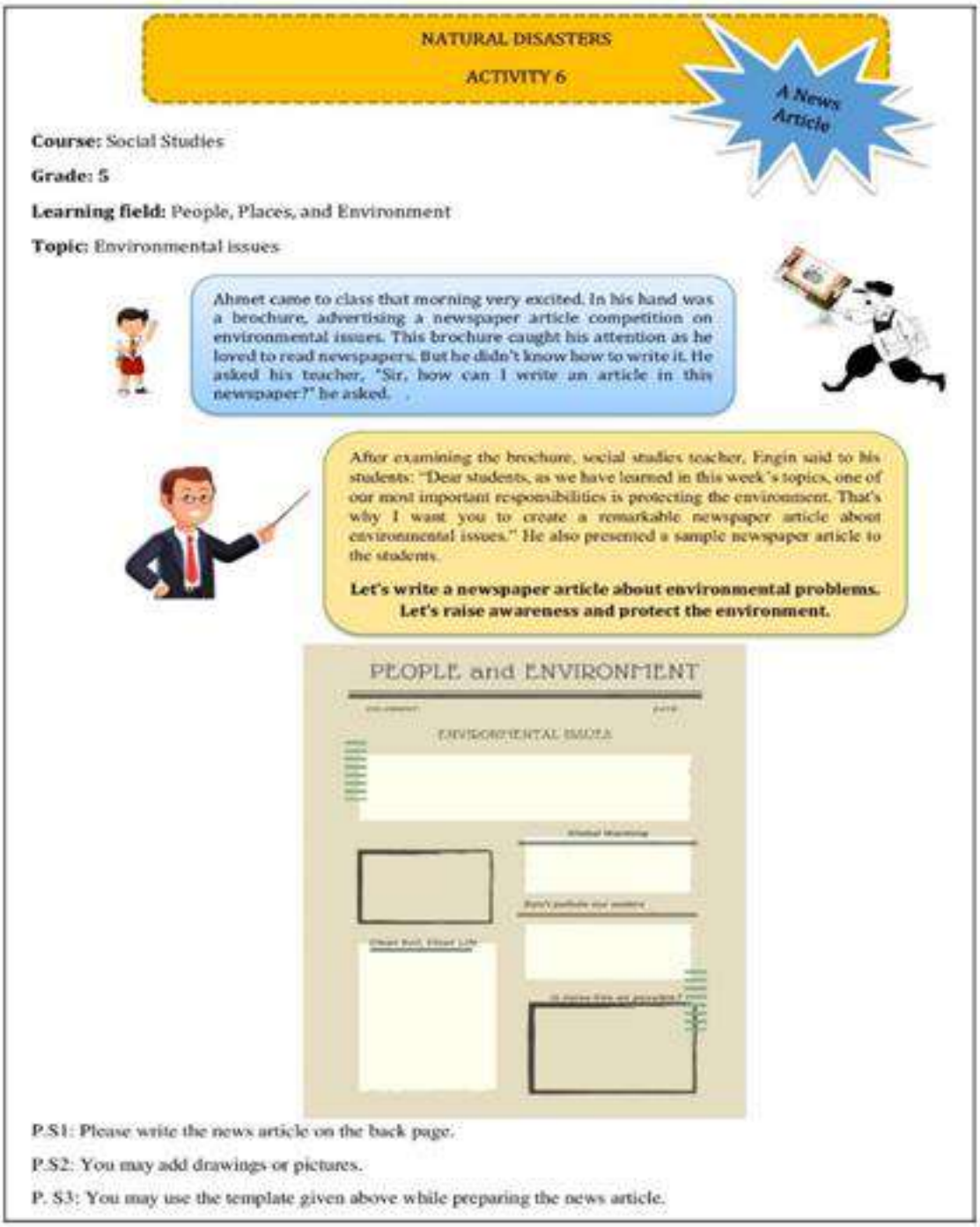


Figure 2. Examples of writing-to-learn activities

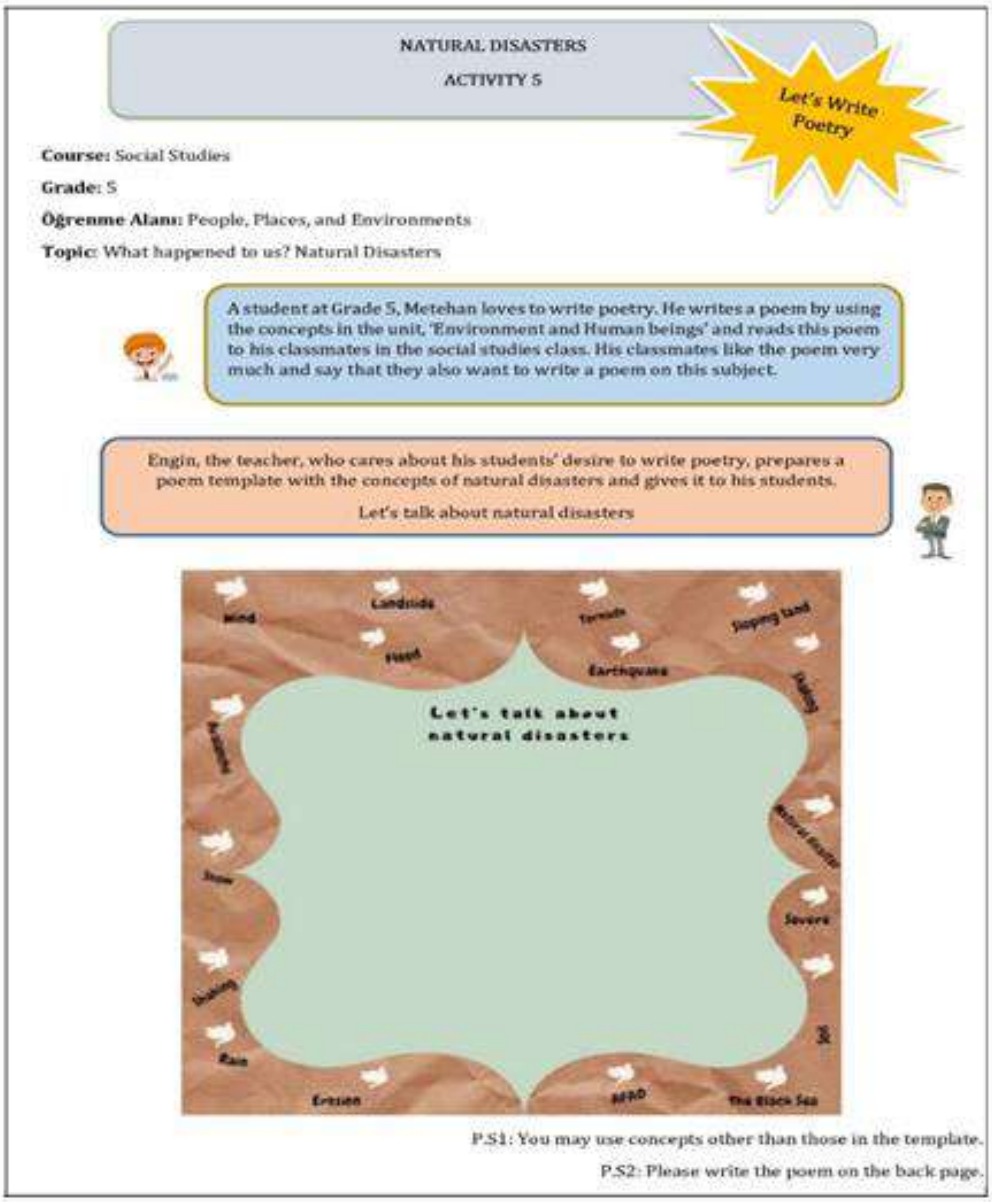


Figure 2. Examples of writing-to-learn activities *(continuation-1)*

Implementation

This study was completed in a total of 6 weeks in the form of 3 lesson hours per week in order to determine the impact of writing-to-learn activities in teaching the fifth grade unit of natural disasters and environmental issues. While the students were being instructed on the topics of natural disasters and environmental issues, the learning process was improved by preparing different writing-to-learn activities every week in accordance with the nature of the subject matter to be learned, in such a way that contributes to affective learning through pertinent activities such as interview-writing, letter-writing, news article-writing, and column-writing, since affective learning such as "*being aware and being sensitive*" was aimed as much as cognitive learning for the purpose of teaching the given topics. Some of the activities prepared by the researcher were applied directly in the classroom during the instruction phase of the subject, and some were given as homework. The activities prepared in written form by the students were evaluated by the teacher, who then provided them with feedback. The aim was to ensure that the

students were able to review what they had learned in the process and to identify the parts where they were strong or weak in the subject instructed. The writing-to-learn activities written at the desired level were shared with the students in the classroom. At the end of the instruction, a writing-to-learn activity, namely the concept puzzle, was included since it provided the opportunity to evaluate the learned topic as a whole. In this way, all the subjects instructed were reviewed as a whole. Finally, the implementation process was evaluated with the participation of the students and the process was completed. Table 3 presents the implementation process as a whole.

Table 3. *Implementation process*

The aim of the study, informing about the implementation process, and collecting pre-test data				
Weeks	**Topic**	**Activity**	**Implementation method**	**Evaluation method**
Week 2	Natural disasters	Interview-writing Letter-writing	Homework In-class	
Week 3	Natural disasters	Poetry-writing	In-class	
Week 4	Environmental issues	Diary-writing News-article writing Column-writing	Homework In-class Homework	Formative evaluation
Week 5	Environmental issues Natural disasters Environmental issues	Concept-puzzle writing	In-class	
Evaluation of the implementation procedure and collection of post-test data				

Data Analysis

Analysis of Academic Achievement Test

Following the academic achievement test specific to natural disasters and environmental issues, the data were transferred to SPSS, with the control and normality analysis performed on the data. Given the normal distribution of the data, equality of the variances of the groups and independence of each data from the other, *independent samples t-test* was conducted to determine whether or not there was a significant difference between the students' academic achievement in the experimental and control groups in terms of pre-test and post-test results.

Analysis of Self-Assessment Data

In order to reveal the extent of what they had learned on natural disasters and environmental issues, the students evaluated themselves in line with the statements in the self-evaluation form. At the evaluation stage, the students rated themselves concerning the relevant subject with the following rating items: *'Fully', 'partially',* and *'very little*". The individual evaluations of the students were turned into a table to demonstrate the level of learning of the subject from a holistic perspective (Figure 3).

Analysis of Semi-Structured Interview Data

In order to determine the impact of the process carried out with writing-to-learn activities on learning, the opinions of both the teacher and the students were taken. First of all, all interviews were transcribed into plain texts, which were then analysed with content analysis methodology. In this process, students' opinions were analysed in the MAXQda 2020 qualitative data analysis

program, and the teacher's views were used to explain or complement the students' opinions. The students had been given codes (e.g., S1, S2…S26, etc.), when their opinions were presented. As a consequence, direct quotations were given from the answers given by the students and the teacher with the aim of making the themes and codes more understandable.

Analysis of In-Class Student Observation Data

Upon integrating writing-to-learn activities into the teaching process of natural disasters and environmental issues, the teacher observed the learning process through the structured observation form prepared by the researcher in order to determine how the writing-to-learn activities affected students' extent of learning. The comments made by the teacher were evaluated using a rating such as '*very strong*', '*strong*', and '*weak*' based on the statements involved in the observation form. Observations made by the teacher regarding the role of writing-to-learn activities in the learning process are presented in a general framework (Figure 5).

Ethical Considerations

This study complied with all the rules specified to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive". None of the actions specified under the title of "General Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, were executed.

Information about the Ethics Committee Approval

Name of the ethics review board = Zonguldak Bülent Ecevit University Human Research Ethics Committee

Date of ethics review decision = 30.11.2021

Ethics assessment certificate issue number = 25.11.2021/104913

Findings

Designed by adopting a mixed research approach, the present study first included quantitative results indicating how much the students were able to learn through writing-to-learn activities about natural disasters and environmental issues, and then qualitative results that explain why/how writing-to-learn activities were efficacious on learning. In order to determine the effect of writing-to-learn activities on the academic achievement of the students, the Academic Achievement Test (AAT) was administered as a pre-test and post-test to the students in the experimental and control groups. Table 4 and Table 5 present the analysis results of independent samples t-test and descriptive statistics analysis conducted to identify whether or not writing-to-learn activities had a statistically significant impact on students' academic achievement.

Table 4. *Descriptive statistics of AAT's pre-test data and independent samples t-test results*

AAT	Groups	N	$\overline{X}$	Ss	sd	t	p
Pre-test	EG	26	69.07	19.35	49	-.077	.93
	CG	25	69.44	13.65			

As seen in Table 4, the descriptive statistics results of the data obtained from the pre-test of the AAT revealed that the mean scores *(EG;* $\overline{X}$ = 69.07*; CG;* $\overline{X}$ = 69.44*)* of the students in the

experimental and control groups were close to each other with no statistically significant difference between the groups in terms of academic achievement *($t_{(49)}$= -.077, p> 0.05)*. With such results, the academic achievements of the students in the experimental and control groups before starting the application could be considered to have been close to each other.

Table 5 presents the descriptive statistical analysis results of the data obtained from the AAT, which was administered to the experimental and control groups as a post-test, and the independent samples t-test analysis results.

Table 5. *Descriptive statistics of AAT's post-test data and independent samples t-test results*

AAT	Groups	N	$\overline{X}$	Ss	sd	t	p
Post-test	EG	26	86.46	8.62	49	4.099	.00
	CG	25	75.68	10.12			

According to the data obtained from the AAT (Table 5), which was administered as a post-test to the experimental and control groups, the mean score of the students in the experimental group *(EG; $\overline{X}$ = 86.46)* was found to be higher than that of the students in the control group *(CG; $\overline{X}$ = 75.68)*. As shown in Table 5, this difference between the mean values was found to be statistically significant *($t_{(49)}$= 4.099, p < 0.05*). In other words, the use of writing-to-learn activities for teaching about natural disasters and environmental issues revealed a significant result in favour of the experimental group students.

It appeared that the learning environment enhanced with writing-to-learn activities yielded significant results in the students' academic achievement. However, it was also necessary to identify whether or not the students who directly participated in the teaching process instructed with writing-to-learn activities were aware of how much they had learned about natural disasters and environmental issues. Figure 3 below provides the results obtained from the self-assessment form used to determine students' cognitive awareness of disasters and environmental issues.

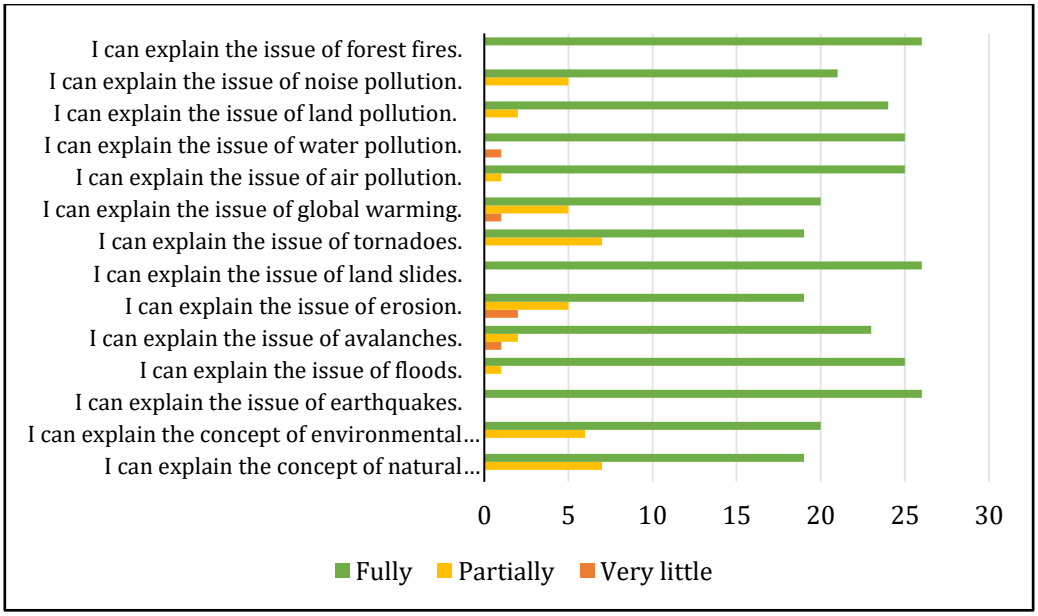


Figure 3. Students' self-assessment results

As can be seen in Figure 3, the students seemed to have learned about natural disasters such as earthquakes, floods, avalanches, and landslides, in particular, quite well, as well as the subject of tornadoes and erosion, though partially. Regarding the topic of environmental issues, while the students appeared to have learned about air pollution, water pollution, land pollution and forest fires very well, they turned out to have learned partially about noise pollution and global warming. The self-evaluation findings representing the students' their own individual learning levels on natural disasters and environmental issues as a whole (Figure 3) suggested that the writing-to-learn activities included in the learning process as a means of learning make significant contributions to the students' capacity of learning the subject matter.

In order to determine how writing-to-learn activities were effective on learning, interviews were conducted with both the students participating in the practice and the teacher who carried out the implementation of the study. The students' opinions were complemented with the explanations made by the teacher. Figure 4 illustrates the MAX Maps Code Co-occurrence Model of the findings obtained from student opinions on writing-to-learn activities.

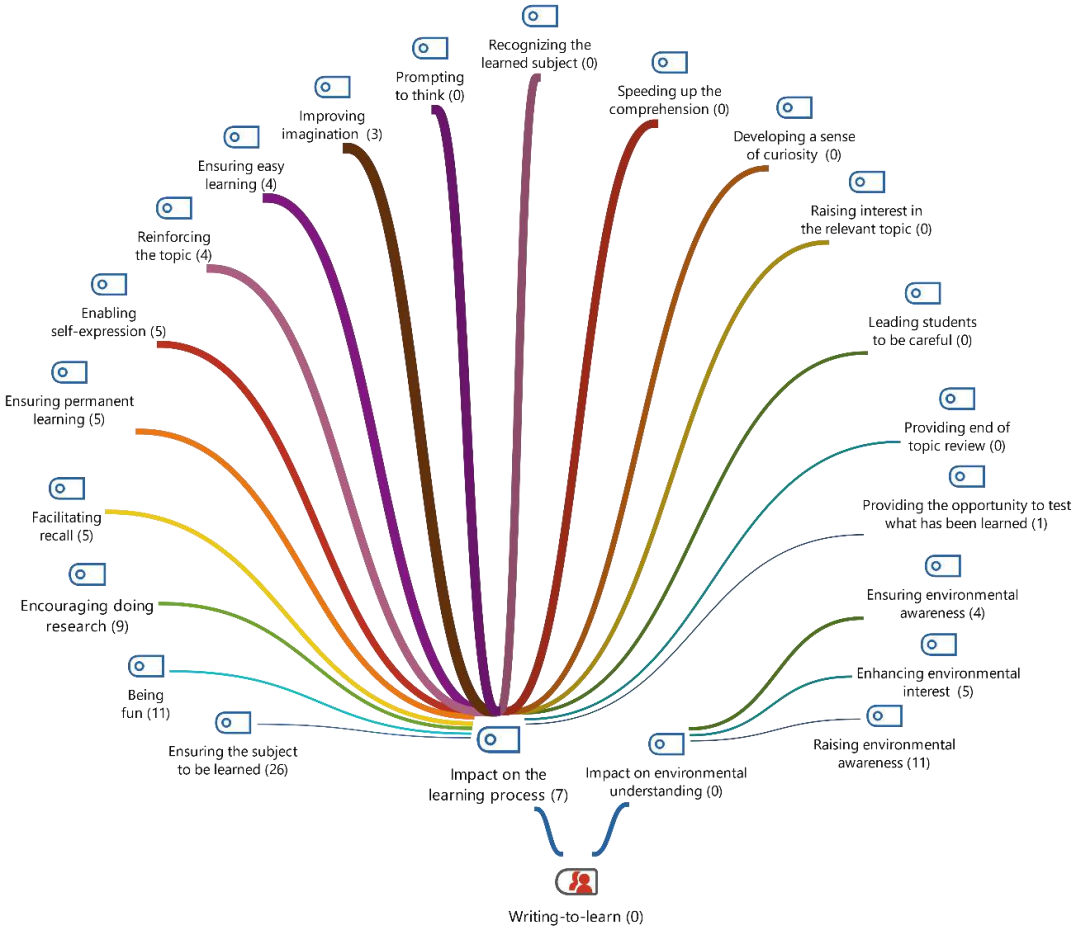


Figure 4. MAX maps code co-occurrence model for the writing-to-learn process

As can be seen in Figure 4, the students' views on the writing-to-learn activities included in the teaching process of natural disasters and environmental issues are grouped under two main themes as showing "*impact on the learning process*" and showing "*impact on environmental comprehension*". Evaluating these themes through quotations taken directly from students' opinions, it appeared that S7 addressed the effect of writing-to-learn activities on the learning

process based on the changes as a result of experience, saying: "*I think writing activities are a good way to keep things in mind. I like these activities because they are fun and make learning easier."* In the same manner, S8 said, "*These activities helped me understand the subject better. They also helped me review what I had forgotten and reinforce the topic*", highlighting a different aspect of the writing-to-learn model. Pointing out the effect of writing-to-learn activities on permanent learning, S14 said, "*Spoken words fly away, written words remain. Writing activities are, therefore, important to me*". About the writing-to-learn activities, which can be considered a mirror of how much students learn during the learning process, S12 said, "*The activities were helpful to me. I realized what I had learned wrong and what I had learned right, so that helped me reinforce the topic and learn more.*" Emphasizing that writing-to-learn activities are the expression of feelings and thoughts, S13 explained this situation by stating that "*I think the activities we have written are very important because they are both fun and effective in expressing our feelings*". Addressing to the writing-to-learn activities used as a learning tool, S16 said, *"Writing activities have many benefits. For example, sometimes I wrote things that I would never have thought of. While I was describing water pollution in a picture, I made the fish talk. It was so much fun. The activities have really been helpful for me to learn better*", and suggested a clearer role for the writing-to-learn activities in the learning process.

Considering the change in the environmental understanding of the students who learned about natural disasters and environmental issues through writing-to-learn activities, S24 said: "*Frankly, at first, I thought that environmental issues or natural disasters were exaggerated, but after the activities, I understood the subject fully. I became more sensitive to natural disasters and environmental issues*," underlining the personal change caused by writing-to-learn activities. Evaluating the awareness experienced in understanding the environment, S11 said, "*The activities we wrote were very helpful because they made me more aware of environmental issues and environmental pollution*." Experiencing a similar change, S17 said, "*After the activities we wrote, I became more sensitive to the environment. This made me happy. Writing activities allowed me to be more mindful of the environment than before*". Mentioning about the subject learned through writing-to-learn activities, S12 said, "*I have become more sensitive to the environment and I want to research more. Thanks to writing activities, I loved doing research on the environment".*

Given the effect of writing-to-learn activities on learning from the point of view of the teacher involved in the conduct of the study, it is noteworthy that the opinions expressed by the teacher about the writing-to-learn activities are very similar to those of the students. In this connection, the following views of the teacher turned out to overlap with those of the students in this study:

> "*Writing-to-learn activities allow students to organize what they have learned in their minds by adding their own feelings and thoughts to the learning process during the lesson, to develop their expression skills, to mature their perspective, to socialize by sharing their ideas with their friends, to develop their creativity as a result of exploring phenomena and facts with different tools, to ensure the learned information to be permanent due to their aroused interest in learning the subject and the process of learning itself, to make the lesson fun as a result of enriching it with different activities, to increase the interest of the students towards the lesson,*

to awaken the desire to do research about different information on the subject thanks to the writing activities, and to develop positive attitude towards the lesson."

In addition to these, the teacher, who compared learning activities with traditional classroom environments, added that, "*I believe that there will be big differences in terms of success and student behaviour between the classroom climate in which traditional teaching methods are used and the classes in which writing-to-learn activities are used*". In fact, the teacher pointed out the fact that writing-to-learn activities should be widespread in learning environments by saying that, "*Besides being a great chance for students to use these activities in the classroom environment, I think, they should be used more extensively"*.

When the similarity in the views of students and teachers about writing-to-learn activities was handled in terms of student observations made by the teacher, it appeared that the observation results on writing-to-learn activities overlapped with the interview findings. Figure 5 presents the results of the student observations by the teacher regarding the writing-to-learn activities.

Evaluation Criteria	Very strong (3)	Strong (2)	Weak (1)
Writing-to-learn activities facilitate learning.	✓		
They allow students to think multi-dimensionally.	✓		
They encourage students to expose their creativity.	✓		
They enable students to recall easily.	✓		
They help students achieve permanent learning.	✓		
They provide students with different viewpoints.	✓		
They are considered as fun activities by students.	✓		
They are considered as boring activities by students.			✓
They ensure students' eager participation in the lesson.	✓		
They increase students' curiosity.	✓		
They attract students' attention.		✓	

Figure 5. Results of the student observation

The holistic evaluation of the student observation findings of the teacher regarding the contribution of writing-to-learn activities to the learning environment (Figure 5) show that writing-to-learn activities *facilitate learning, encourage multi-dimensional thinking, expose creativity, enable recalling, help permanent learning, provide a different perspective, offer an enjoyable environment, increase participation and curiosity* at a very strong level, whereas they turned out to be at a strong level in terms of *attracting students' attention.* Furthermore, the teacher also observed that the students *did not get bored* with the writing-to-learn activities.

As a result, it has been observed that writing-to-learn activities were effective in students' extent of learning about natural disasters and environmental issues, that student and teacher views on this process supported each other, and that the application procedure had a strong impact on students' learning about the given topic.

Discussion

This study examined the effect of writing-to-learn pedagogy on the teaching of natural disasters and environmental issues in the fifth grade social studies course. It was found that the teaching process, which was built on different writing-to-learn activities, provided significant changes in the students in the experimental group in relation to their extent of learning about natural disasters and the environmental issues (cognitive learning), as well as in their understanding of showing interest in the environment and developing more sensitivity (affective learning) (Table 5; Figure 3). Designed according to the embedded mixed methods model, this study obtained quantitative findings (academic achievement test and self-assessment form) on how effective writing-to-learn activities were on learning, while qualitative findings complemented the quantitative findings (teacher and student opinions and student observations) by clarifying the reasons for the effect of writing-to-learn activities on learning. The results of this study indicating the positive effects of writing-to-learn activities on students' learning are similar to those reported by a number of relevant studies in the literature (Ay & Başıbüyük, 2018; Karaçağıl & Avaroğulları, 2017; Kayaalp et al., 2022; Şahin, 2019; Taşkın, 2021; Yasul, 2019). In fact, the results obtained at the end of the writing-to-learn activities signifying that they had led to significant changes in students' extent of learning in social studies course appeared to be in conformity with the findings of the meta-analysis study conducted by Graham et al. (2020), and they also overlapped with the research findings of Klein and Boscolo (2016), identifying general trends in research studies focusing on the writing-to-learn approach. The result of this study is in parallel with the conclusion that *writing-to-learn activities affect learning positively*, which has recently been reported by Chmarkh (2021) in the synthesis of experimental studies on the writing-to-learn model.

The efficacy of writing-to-learn activities in teaching the subject of natural disasters and environmental issues in the social studies course can be explained through many reasons identified during the implementation process of this study. The first of these reasons is that the writing-to-learn activities (interview-writing, news article-writing, column-writing, and poetry writing, etc.) included in this study allowed students to organize and control what they had learned, as well as resulting in mental planning about what was to be learned and monitoring the process. In this way, students seemed to become aware of their own thinking processes and achieve deeper learning. Evaluating this identified reason in a different way, Klein et al. (2018, p.163) stated that the students who engaged in cognitive and metacognitive strategies (i.e., mental regulation, supervision, planning and monitoring processes in the writing-to-learn process) in the writing process could achieve more learning. The second reason that writing-to-learn activities are considered efficacious in students' learning is that such activities provided students with the opportunity to take an active role in the process of knowledge reconstruction, thereby enabling the students to experience cognitive changes. To put it more clearly, interview writing, column writing and diary writing activities, which were given as homework in the teaching process of

natural disasters and environmental issues, seemed to have contributed to the students' capacity to develop their understanding of scientific research, gather information, explain the ideas in detail, use different ways of thinking and create original products; and likewise, the activities of writing letters, poems, and news articles, and preparing concept puzzles, especially in the classroom, provided opportunities for students to think, organize and combine their thoughts, reason on the subject, as well as exposing their imagination. In this process, the cognitive changes experienced by students while presenting the subjects of natural disasters (floods, earthquakes, avalanches, etc.) and environmental issues (water, air, soil pollution, etc.) that the students had learned / would learn in a different form (writing a diary, a poem, or a column) strengthen the quality of learning. With respect to the source of this power, Bereiter and Scardamalia (1987), for example, who made important contributions to the understanding of the relationship between writing and learning, pointed out that when provided with the opportunity to think, reason and organize their ideas on the content to be learned, students proved to have a more effective learning experience thanks to the writing used as a learning tool. In the same framework, Thompson et al. (2005) emphasized that writing activities lead students to deep learning, which provides a better understanding of the content, concepts and ideas related to the subject, rather than superficial learning based on memorizing the information obtained. Langer and Applebee (2007) attributed the source of this deep learning to the fact that the writing process allows students to focus on the learned content and concepts, to think more complexly and to question. Furthermore, Burke et al. (2006) suggested that activities such as doing research and gathering information about the subject, besides expressing their thoughts while learning are likely to enable students to experience learning in a more qualified setting. In a similar sense, having mentioned the importance of creating a writing-based product with a group rather than individual writing, Yılar and Şimşek (2017) pointed out that this unity among students led them to develop a mental organization. The mental change emphasized in the relevant literature was also apparent in the implementation process of the writing-to-learn activities in this study. The reasons reported in the literature and those identified in this study seem to be in compliance with each other.

Considered to be beyond the simple understanding of transferring information as it is learned (Yore et al., 2003), the writing-to-learn pedagogy establishes a third reason to be employed for the sake of improved learning due to its yielding significant results in favour of the experimental group students in the subject of natural disasters and environmental issues since the activities support the processes of learning, processing, and recalling the information. Focusing on the same reason, Tynjala (1998) stated that students who produce new information via different tools (i.e., there may be different writing-to-learn activities) by processing the available information are highly likely to have the opportunity to recall the subject learned more easily, as a result of which effective learning can take place. Similarly, Silva and Limongi (2019), who mentioned the relationship between writing and memory, drew attention to the fact that writing about the learned content facilitates learning by combining information in long-term memory. As stated by many researchers, this convenience is also evident in this study given the observations made by the teacher conducting the process and in the interviews with the students. In this connection, S7 said, "*I think writing activities are a good way to keep things in mind. I liked these activities because they are fun and facilitate learning*", which could be considered as a statement to explain the reason for the statistical significance. Drawing on writing as a learning

tool as suggested by Emig (1977), this study focused on the process-based evaluation of the activities done by the students in the social studies course and provided the students with necessary feedback after each activity, constituting the fourth reason to achieve deep learning. The same reason seems to be compatible with the findings of many studies in the literature. As an example, Finkenstaedt-Quinn et al. (2020), who conducted their study on the concept teaching process through writing-to-learn activities, revealed that feedback provided as regards the activities and peer assessments were both effective in the learning process. Having made remarkable contributions to writing-to-learn pedagogy, Hand, Hohenshell, and Prain (2007) emphasized that "supplying support and feedback to students by the teacher during the production of the text" is an important element for students' capacity to learn. In another study addressing this reason, Kayaalp et al. (2021) highlighted the strong link between writing, receiving feedback and learning in their action research study. In this context, it is evident that giving feedback for the activities carried out during the implementation process of writing-to-learn activities is of great importance to achieve high quality learning. The last reason that reveals the deep learning process in this study is the written language of the social studies or the language of the addressee, which was taken into account and designed accordingly while creating the writing-to-learn activities. In each activity in the present study, the text was created by considering a different addressee (teachers, friends, or consumers, etc.) as each addressee makes it necessary to use a different social studies language. As the social studies language used in accordance with the addressee changed, learning on the subject turned out to be deepened. Pointing to the same reason, Hand et al. (2007) stated in their study that deep learning occurred thanks to writing-to-learn activities. They attributed the reason for this situation to "creating a language capacity suitable for the addressee" as is the case in this study. Similarly, Gunel et al. (2009) stressed that the positive correlation between language and learning in the writing-to-learn process enabled learners to focus on the subject, to determine a framework, to think more about the subject, and thereby achieving a more qualified learning, all supporting the reasons specific to this study.

The curiosity and research motivation created by writing-to-learn activities in the learning process as well as the opportunities to enrich the imagination, encourage multi-dimensional thinking, enable learning by having fun, and manage the learning process in this study, in which writing-to-learn activities were employed in the establishment of the relationship between human, place and environment in the fifth grade social studies lesson, made it easier to learn about natural disasters such as floods, earthquakes, avalanches and landslides, and environmental issues such as water, soil and air pollution (Table 5). In addition to these, the activities (especially writing news articles, columns, and poetry) seemed to have affected the students emotionally and led them to be more responsible and conscious towards the environment (Figure 5). In order to reveal this cognitive and affective transformation supported by writing-to-learn activities in the implementation process as reported in the relevant literature, the study by Ay (2018) is notable in that it was conducted with fifth grade students for the purpose of instructing them about geography subjects with writing-to-learn activities (poetry and letter-writing), as a result of which the author concluded that the activities provided the students with the opportunity to understand the subject better and offered a learning setting with fun and different learning experience, which led to permanent learning similar to the results of the present study. Having examined the role of

writing-to-learn activities in the level of students' learning the subject content in the social studies lesson and their active participation in the learning process, Ellis-Robinson (2015) stated that the poetry writing activity, as a writing-to-learn activity, helped students to explain, summarize and transform the subject matter into an original product in such a way that resulted in deep learning. In another study that included writing-to-learn activities in the social studies course, Yasul (2019) conducted a study with fifth grade students with a focus on the relationship between science, technology and society with writing-to-learn activities, and stated that the activities enabled students to build knowledge and achieve deep learning, pointing to a conclusion that supports this study. In another recent study enhancing the teaching process of history topics through diary writing activities, Taşkın (2021) reported that, at the end of the process, students proved to have learned the subject more easily with the diaries they had written, that they achieved permanent learning, and that there was even a change in their attitudes towards the lesson. Both the results obtained and the reasons for the emergence of such results brought the two studies together at a common point. In a similar sense, Karaçağıl and Avaroğulları (2017), who integrated different writing-to-learn activities into the seventh grade social studies lesson, stated that thanks to the writing-to-learn activities, the students could grasp the subject matter more easily and look at it from multiple perspectives. Moreover, having conducted the teaching process of the social studies unit of 'Our Country and the World' in the sixth grade social studies course by making the students keep course diaries, Şahin (2019) reported that writing-to-learn activities offered an opportunity for deep and permanent learning in the social studies course. Yılar and Şimşek (2016) conducted a study focusing on cooperative teaching in the social studies course, pointing out that group writing activities were effective in the students' level of achievement. The holistic evaluation of the studies that have contributed to the learning-oriented literature in relation to the social studies course has shown that the writing-to-learn activities included in the teaching process in different subject areas at different grade levels by the use of writing-to-learn activities, whether being a single type of activity (only a poetry- or diary-writing activity) or multiple activities (letter-, fairy tale-, diary-writing, etc.), suggests that they benefit students in that the activities complement each other to result in deep learning.

Conclusion and Recommendations

Built on the basis of a mixed research approach concerning the question: "*Is it possible to achieve a cognitive and affective transformation through writing-to-learn activities in the social studies course*?", this study was executed by using writing-to-learn activities for teaching the topics of natural disasters and environmental issues, which can be the sources of both cognitive and affective changes. As a result of the study, it was determined with both quantitative and qualitative findings that the writing-to-learn activities included in the learning process of the topics of natural disasters and environmental issues contained in the fifth grade social studies course made a notable contribution to the students' extent of learning.

Considering this positive result, the positive classroom atmosphere observed during the teaching process and the opinions of teachers and students as a whole, it can be suggested that writing-to-learn activities help reduce the learning load of students, provide teachers with the opportunity to closely follow the learning process, and are suitable for the nature of the social

studies course. Based on the findings and results of the present study, the following suggestions can be made for future researchers and educators (teachers and academicians):

- This study was conducted in the fifth grade social studies course. Future studies can be similarly conducted at different grade levels.
- During the implementation, the nature of social studies and writing-to-learn pedagogy seemed to share similar characteristics. Further studies can be conducted to deeply explore this similarity.
- Even though this study mainly focused on cognitive learning, certain changes were identified in the affective learning of the students during the application process. Based on this situation, future studies can be conducted on the impact of writing-to-learn activities on affective learning.
- In this study, writing-to-learn activities proved efficacious on learning in a social studies course. Similar studies can be conducted in order to accomplish a more in-depth determination.
- This is a practice-based study, which provided significant results in students' learning. However, the use of writing for teaching purposes is not common in social studies. Future studies can be conducted to determine the meaning that teachers attribute to writing in the social studies course.

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Researcher's Contribution Rate

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Conflict Statement

There is no material or individual organic connection with the people or institutions involved in the research and there is no conflict of interest in the research

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Afetler ve Çevre Sorunları Konularının Öğretiminde Öğrenme Amaçlı Yazmanın Rolü: Karma Bir Araştırma

Giriş

Günümüzde insanların bir doğal afete karşı tepki vermesi, çözümleme ve sonuç çıkarmasına katkı verecek bilgi, tutum ve davranışlara sahip olması (Sözcü & Aydınözü, 2019) çevre sorunları karşısındaki temel bilinç, farkındalık ve anlayış kazanmaları (Karaçayır, 2022) gerekmektedir. Bu gerekliliğin sağlanmasında eğitim programlarına önemli işler düşmektedir. Bu görevi yüklenen öğretim programlarından birisi de sosyal bilgiler dersidir (Aktepe & Temur, 2018). Nitekim sosyal bilgiler dersinin en temel amaçlarından birisi: *"doğal çevrenin ve kaynakların sınırlılığının farkına varıp çevre duyarlılığı içerisinde doğal kaynakları korumaya çalışan ve sürdürülebilir bir çevre anlayışına sahip olan bir birey yetiştirmektedir"* (MEB, 2018, s.8). Bu amacın somut göstergeleri sosyal bilgiler dersi üzerinden inşa edilmeye çalışılan i) *yaşadığı çevredeki afetlerin ve çevre sorunlarının oluşum nedenlerini sorgulayan* ii) *doğal afetlerin toplum hayatı üzerine etkilerini örneklerle açıklayan* (MEB, 2018, s.18) iii) *doğal afetlere yönelik gerekli hazırlıkları yapan* (MEB, 2018, s.15) bireyler üzerinden görünür kılınmaktadır. Doğal afetler ve çevre sorunları konusunda bilgili sahibi olmak, nedenleri ve sonuçları hakkında rasyonel bilgi edinmiş olmak gerek karşılaşılabilecek doğal afetleri önlemede gerekse çevre sorunlarını gidermede önem arz etmektedir. Bu nedenle bu konuların öğretimde sadece okuma ve anlatma esasından öte öğrencileri araştırmaya, buluş ve keşfe yönelten yenilikçi süreçleri içeren yaklaşımlara yer verilmelidir (Gülersoy vd., 2020). Yine her seviyedeki eğitimcilerin, öğrenciler için daha fazla başarı sağlayacak uygulamaları benimsemeleri gerekmektedir (Kayaalp & Şimşek, 2021). Bu anlayıştan hareketle alan yazın incelendiğinde; doğal afetler ve çevre sorunları konusunun öğretiminde *simülasyon öğretim yöntemi* (Şahan & Dinç, 2021), *dijital oyun* (Doğan & Koç, 2017), *drama tekniği* (Karataş, 2011), *infografikler* (Karaçayır, 2022), *eğitici çizgi roman* (Topkaya & Doğan, 2019), *altı şapka tekniği* (Şeyihoğlu & Kartal, 2018) *karikatür* (Karakuş

vd., 2012), *belgesel* (Uçar & Karakuş, 2017), *gazete* (Gökçe, 2009), *artırılmış gerçeklik destekli oyunlar* (Wang vd., 2021) gibi farklı materyal ve öğretim tekniklerin kullanıldığı görülmektedir. Gerek bilişsel gerekse duyuşsal öğrenme süreçlerini barındıran afetler ve çevre sorunları konularının öğretiminde kullanılan bu yöntem ve tekniklere alternatif olarak eklenebilecek farklı bir pedagojik yaklaşım da *"öğrenme amaçlı yazma"dır.*

Öğrenme Amaçlı Yazma Pedagojisi

İnsan bilgisinin ve iletişiminin üretken doğasına dikkat çeken yapılandırmacı teorinin (constructivist theory) niteliklerini benimseyen öğrenme amaçlı yazma pedagojisi (Nelson, 2001), 1970'lerden günümüze birçok araştırmacı tarafından öğrenmeyi geliştirmenin bir aracı olarak görülmüştür (Bangert-Drowns vd., 2004). Bu süreçte yazıyı öğrenmenin eşsiz bir yolu olarak nitelendiren Emig (1977), öğrenme amaçlı yazmanın pedagojik bir yaklaşım hüvviyeti kazanmasının yolunu açmıştır. Bu başlangıç zamanla yazının arkasındaki bilişsel süreçlerin (Bereiter & Scardamalia, 1987; Flower & Hayes, 1981) yazma sürecine sosyalleşmeyi dahil eden sosyokültürel süreçlerin (Gere vd., 2019) anlaşılmasına kaynaklık etmiş böylece öğrenme amaçlı yazma pedagojisini daha da derinleştirmiştir.

Bir konu veya kavram hakkında yazmanın öğrencilerin anlamalarına ve öğrenmelerine yardımcı olacağı inancına dayanan öğrenme amaçlı yazma pedagojisi (Fry & Willagomez, 2012) genellikle öğrenmenin bir aracı olarak (Arnold vd., 2017) görünür olsa da öğrencilere çok yönlü katkıları söz konusudur (Kayaalp vd., 2022). Alan yazın incelendiğinde; öğrenme amaçlı yazma sürecinin öğrencilerin *eleştirel düşünme becerilerin* (Yuliyani vd., 2022), *öz düzenleme becerilerin* (Nückles vd., 2020), *akademik başarılarının* (Kim vd., 2021), *iletişim becerilerinin* (Sintiawati vd., 2021), *anlamlı öğrenmelerinin* (Gupte vd., 2021), *epistemolojik inançlarının* (Atasoy & Küçük, 2020), *kalıcı öğrenmelerinin* (Taşkın, 2021) gelişiminde etkili olduğu tespit edilmiştir.

Sosyal bilgiler dersi, öğrenilen bilgiler ile gerçek yaşam arasında doğrudan bir bağıntı sağlayan (beşinci sınıf afetler ve çevre sorunları konusu bu özelliği tam anlamıyla karşılamaktadır) bir çalışma alanıdır. Bu özelliğinin yanında sosyal bilgiler dersi çok sayıda beceri (çevre okuryazarlığı, eleştirel düşünme, problem çözme) ve değerleri de bünyesinde toplamıştır (MEB, 2018). Sosyal bilgiler dersinin sahip olduğu bu kapsamlı yapı ister istemez hem öğretmen hem de araştırmacıları alternatif öğretim uygulamalarına yöneltmektedir. Yapılandırmacı teorinin ilkelerini benimseyen öğrenme amaçlı yazma pedagojisi (Nelson, 2001), içeriği öğrenmek için güçlü bir strateji olabileceği esasına dayanmaktadır (Myers, 1984). Sosyal bilgiler dersi afetler ve çevre sorunları konusu üzerine yapılanan bu çalışmanın ilk gerekçesi *öğrenme amaçlı yazma pedagojisi ile sosyal bilgiler dersinin doğasının örtüşüp örtüşmediğini incelemek, öğretmen ve araştırmacılara çok yönlü bir bakış kazandırmaktır*. Odağına afetler ve çevre sorunları konusunu alan bu çalışmaya kaynaklık eden ikinci gerekçe *"öğrenme amaçlı yazma etkinliklerinin öğrencilerin bilişsel ve duyuşsal değişimlerindeki rolünü tespit etmektedir.* Öğrenme amaçlı yazma ile afetler ve çevre sorunları konusunu bütünleştiren bu çalışmanın ortaya çıkma gerekçelerinden üçüncüsü ise *afetler ve çevre sorunları konularının öğretim sürecine alternatif bir yaklaşımı dahil etmektir.* Yapılan bu çalışmanın hem öğrenme amaçlı yazma hem de sosyal bilgiler alan yazınına katkı sağlaması beklenmektedir.

Öğrenme amaçlı yazmanın öğrenme sürecine olan katkıları afetler ve çevre sorunları konusunun genel yapısından hareketle bu çalışmaya aşağıda verilen araştırma soruları rehberlik etmiştir:

- Afetler ve çevre sorunları konusunun öğretim sürecinde akademik başarıları açısından deney ve kontrol grubundaki öğrenciler arasında anlamlı bir farklılık var mıdır?
- Deney grubu öğrencilerinin öğrenme amaçlı yazma etkinlikleriyle desteklenmiş öğrenme süreciyle ilgili deneyimleri nelerdir?
- Uygulama öğretmeninin öğrenme amaçlı yazma etkinlikleriyle desteklenmiş öğrenme süreciyle ilgili deneyimleri nelerdir?

Yöntem

Bu araştırma, karma araştırma yaklaşımları içerisinde yer alan gömülü deneysel desen modeliyle yürütülmüştür. Gömülü desenin en yaygın kullanılan modeli olan gömülü deneysel modelde, gerçek bir deney ya da yarı deneysel bir tasarımın içerisine nitel verilerin gömülmesi/entegre edilmesi söz konusudur (Creswell & Plano Clark 2007). Gömülü deneysel desende, öncelik deneysel metodoloji tarafından belirlenir ve nitel veriler bu metodolojiye hizmet eder. Bu model, nitel verileri dâhil etme aşamasına bağlı olarak tek aşamalı veya iki aşamalı bir yaklaşım olarak kullanılabilmektedir. Gömülü deneysel modelin yapısı ve özelliğinden hareketle sosyal bilgiler dersinde afetler ve çevre sorunları konusunun öğretim sürecinde öğrenme amaçlı yazma pedagojisinin rolü nicel ve nitel veriler üzerinden açıklanmıştır.

Çalışma Grubu

Araştırma, 2021-2022 eğitim-öğretim yılında Zonguldak ili Ereğli ilçesinde yer alan bir ortaokulun iki farklı şubesinde öğrenim gören toplam 51 beşinci sınıf öğrencisi ile yürütülmüştür. Çalışma grubunun belirlenmesinde kolay erişilebilir veya amaca uygun olma temelinde bir grubun denek olarak seçilerek araştırmanın yürütülmesine imkân tanıyan uygun örnekleme yöntemi tercih edilmiştir (McMillan & Schumacher, 2014). Çalışmada uygun örneklem yönteminin tercih edilmesinde uygulama öğretmenin öğrenme amaçlı yazma konusunda bilgi sahibi olması (uygulama öğretmeni öğrenme amaçlı yazma üzerine yaptığı çalışma ile bilim uzmanı unvanına sahiptir) afetler ve çevre sorunları konusunun yer aldığı iki farklı 5. Sınıf şubesinin sosyal bilgiler dersini yürütmesi etkili olmuştur.

Veri Toplama Araçları

Afetler ve Çevre Sorunları Konusu Akademik Başarı Testi

Afetler ve çevre sorunları konusunun öğretim sürecine entegre edilen öğrenme amaçlı yazma etkinliklerinin öğrencilerin konuyu öğrenmeleri üzerindeki etkisini belirlemek için araştırmacı tarafından "Akademik Başarı Testi" (ABT) hazırlanmıştır.

Öğrenci Öz Değerlendirme Formu

Afetler ve çevre sorunları konusunu farklı öğrenme amaçlı yazma etkinlikleriyle öğrenen öğrencilerin ilgili konuyu ne kadar öğrendiklerini veya kendi öğrenme düzeyleri hakkındaki düşüncelerini belirmek için araştırmacı tarafından afetler ve çevre sorunları konusuna yönelik öz değerlendirme formu hazırlanmıştır.

Yapılandırılmış Sınıf Gözlem Formu

Afetler ve çevre sorunları konusunun öğrenme sürecine entegre edilen öğrenme amaçlı yazma etkinliklerinin öğrenme sürecine olan katkılarını değerlendirmek için araştırmacı tarafından yapılandırılmış sınıf içi gözlem formu hazırlanmıştır. Uygulama öğretmeni süreç içerinde yapılan tüm uygulamaları gözlemleyerek öğrenme amaçlı yazma etkinliklerine ilişkin deneyimlediklerini bu form üzerinden açıklamıştır.

Yarı Yapılandırılmış Görüşme Formu

Öğrenme amaçlı yazma etkinliklerinin öğrenilen konu üzerinde nasıl bir etki oluşturduğunu tespit etmek için hem uygulama öğretmeni hem de uygulama sürecine dahil olan öğrencilere uygun yarı yapılandırılmış görüşme formu hazırlanmıştır.

Öğretim Materyali Hazırlama Süreci

Afetler ve çevre sorunları konusuna entegre edilen öğrenme amaçlı yazma etkinlikleri hazırlanırken gerek uygulama öğretmenin gerekse öğrencilerin yapılan etkinlikleri etkili bir şekilde yürütebilmesi amacıyla araştırmacı tarafından farklı öğrenme amaçlı yazma etkinlikleri hazırlanmıştır. Öğrenme amaçlı yazma etkinlikleri oluşturulurken Prain ve Hand (1996, s. 618) tarafından geliştirilen ve beş farklı bileşenden oluşan yazma süreci dikkate alınmıştır. Yazıyı, öğrenmenin bir aracı olarak öğretim sürecine dahil eden bu modelde; ders içerisinde öğrenilen bilgiler düşünceler arası bağlantı veya anahtar kavramlar vb. (**konu**) ile araştırma, düşünme, yorumlama, açıklama vb. (**amaç**) amacıyla arkadaş, anne ve baba, öğretmen, tüketicilere (**muhatap**) el yazısı veya bilgisayar (**metin üretim metodu**) aracığıyla mektup, günlük, şiir, hikaye vb. (**yazı türü**) şekline dönüştürüp aktarma esastır. Bu temel bileşenlerden hareketle afetler ve çevre sorunlarına yönelik araştırmacı tarafından farklı öğrenme amaçlı yazma etkinlikleri hazırlanmıştır.

Uygulama Süreci

Beşinci sınıf afetler ve çevre sorunları konusunun öğretiminde öğrenme amaçlı yazma etkinliklerinin etkisini belirlemek amacıyla yürütülen bu çalışma, haftalık 3 ders saati şeklinde toplam 6 haftada tamamlanmıştır. Afetler ve çevre sorunları konusu işlenirken öğrenilen konunun özelliğine uygun olarak (doğal afetler ve çevre sorunları konusunda bilişsel öğrenme kadar *"bilinçlenmek, duyarlı olmak "* gibi duyuşsal öğrenmeler de amaçlandığından bu amaca uygun röportaj, mektup, gazete haberi, köşe yazısı gibi duyuşsal öğrenmelere katkı sağlayan öğrenme amaçlı yazma etkinliklerine yer verilmiştir.) her hafta farklı öğrenme amaçlı yazma etkinlikleri hazırlanarak öğrencilerin öğrenme süreçleri desteklenmiştir. Araştırmacı tarafından hazırlanan etkinliklerin bazıları doğrudan konunun öğrenimi aşamasında sınıf içerisinde bazıları da ev ödevi şeklinde uygulanmıştır. Öğrenciler tarafından yazılan etkinlikler uygulama öğretmeni tarafından değerlendirilerek öğrencilere geri bildirimler sağlanmıştır. Böylece öğrencilerin süreç içerisinde öğrendiklerini gözden geçirme, öğrenilen konuya ilişkin güçlü oldukları veya zayıf kaldıkları bölümleri tespit etmeleri sağlanmıştır.

Verilerin Analizi

Akademik Başarı Testinin Analizi

Afetler ve çevre sorunları konusuna özgü akademik başarı testi uygulandıktan sonra deney ve kontrol grubunda yer alan öğrencilerin ön test ve son test sonuçları açısından akademik başarıları arasında anlamlı farklılık olup olmadığını belirlemek için *bağımsız gruplar t testi* yapılmıştır.

Öz Değerlendirme Verilerinin Analizi

Afetler ve çevre sorunları konusunda öğrenciler kendi öğrenme düzeylerini açığa çıkarmak amacıyla öz değerlendirme formunda yer alan ifadeler doğrultusunda kendilerini değerlendirmişlerdir. Değerlendirme aşamasında ilgili konuya ilişkin *"Tamamen, kısmen, çok az "* şeklinde bir derecelendirmeye yer verilmiştir.

Yarı Yapılandırılmış Görüşme Verilerinin Analizi

Öğrenme amaçlı yazma etkinlikleri ile yürütülen sürecin öğrenmeler üzerindeki etkisini belirlemek için hem uygulama öğretmenin hem de öğrencilerin görüşleri alınmıştır. Öncelikle yapılan tüm görüşmeler transkrip edilerek yazılı metinler haline getirilmiştir. Daha sonra bu yazılı metinler üzerinde içerik analizi yapılmıştır. Bu süreçte öğrenci görüşleri MAxQda 2020 nitel veri analiz programında çözümlenmiştir.

Sınıf İçi Gözlem Verilerinin Analizi

Uygulama öğretmeni afetler ve çevre sorunları konusunun öğretim sürecine öğrenme amaçlı yazma etkinliklerini entegre ettikten sonra öğrenme amaçlı yazma etkinliklerinin öğrencilerin öğrenmelerini nasıl etkilediğini tespit etmek için öğrenme sürecini araştırmacının hazırlamış olduğu yapılandırılmış gözlem formu üzerinden gözlemlemiştir. Uygulama öğretmeni yaptığı tespitleri gözlem formunda belirtilen ifadeler üzerinden *"Çok güçlü, güçlü, zayıf"* şeklinde bir derecelendirme kullanılarak değerlendirilmiştir.

Araştırmanın Etik İzinleri

Yapılan bu çalışmada "Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi" kapsamında uyulması belirtilen tüm kurallara uyulmuştur. Yönergenin ikinci bölümü olan "Bilimsel Araştırma ve Yayın Etiğine Aykırı Eylemler" başlığı altında belirtilen eylemlerden hiçbiri gerçekleştirilmemiştir.

Etik Kurul İzin Bilgileri:

Etik değerlendirmeyi yapan kurul adı = Zonguldak Bülent Ecevit Üniversitesi İnsan Araştırmaları Etik Kurulu

Etik değerlendirme kararının tarihi=30.11.2021

Etik değerlendirme belgesi sayı numarası=25.11.2021/104913

Bulgular

Karma araştırma yaklaşımı benimsenerek dizayn edilen bu çalışmada, öncelikle öğrenme amaçlı yazma etkinliklerinin öğrencilerin afetler ve çevre sorunları konusunu ne kadar

öğrendiklerine gösterge olan nicel bulgulara daha sonra öğrenme amaçlı yazma etkinliklerinin öğrenmeler üzerinde niçin/nasıl etkili olduğunu açıklayan nitel bulgulara yer verilmiştir.

Öğrenme amaçlı yazma etkinliklerinin, öğrencilerin akademik başarıları üzerinde anlamlı bir etkisinin olup olmadığını tespit etmek amacıyla yapılan bağımsız gruplar t testi ön test analiz sonuçları ve betimsel istatistik analiz sonuçları Tablo 1'de sunulmuştur.

Tablo 1. *ABT'nin ön test verilerine ilişkin betimsel istatistik ve bağımsız gruplar t testi sonuçları*

ATB	Gruplar	N	$\overline{X}$	Ss	sd	t	p
Ön Test	DG	26	69,07	19,35	49	-,077	,93
	KG	25	69,44	13,65			

Tablo 1'de ABT'nin ön testinden elde edilen verilerin tanımlayıcı istatistikleri incelendiğinde, deney ve kontrol grubunda yer alan öğrencilerin puan ortalamalarının *(DG;* $\overline{X}$ *=* 69.07*; KG;* $\overline{X}$ *=* 69.44*)* birbirine yakın olduğu, akademik başarı açısından gruplar arasında istatistiksel olarak anlamlı bir farklılığın olmadığı tespit edilmiştir *(*$t_{(49)}$*= -.077, p> 0.05)*. Bu durumda, uygulamaya başlamadan önce deney ve kontrol grubunda yer alan öğrencilerin akademik başarılarının birbirine yakın olduğu söylenebilir.

Deney ve kontrol gruplarına son test olarak uygulanan ABT'den elde edilen verilerin betimsel istatistik analiz sonuçları ve bağımsız gruplar t testi analiz sonuçları ise Tablo 2'de sunulmuştur.

Tablo 2. *ABT'nin son test verilerine ilişkin betimsel istatistik ve bağımsız gruplar t testi sonuçları*

ATB	Gruplar	N	$\overline{X}$	Ss	sd	t	p
Son Test	DG	26	86,46	8,62	49	4,099	,00
	KG	25	75,68	10,12			

Uygulama sonrasında deney ve kontrol gruplarına son test olarak uygulanan ABT'den elde edilen verilere (Tablo 2) göre, deney grubunda yer alan öğrencilerin puan ortalamalarının *(DG;* $\overline{X}$ *= 86.46)* kontrol grubunda yer alan öğrencilerinin puan ortalamalarından *(KG;* $\overline{X}$ *= 75.68)* daha yüksek olduğu görülmüştür. Tablo 2 incelendiğinde, ortalamalar arasındaki bu farklılığın istatistiksel olarak anlamlı olduğu tespit edilmiştir *(*$t_{(49)}$*= 4.099, p < 0.05*). Başka bir ifadeyle afetler ve çevre sorunları konularının öğretiminde kullanılan öğrenme amaçlı yazma etkinliklerinin deney grubu öğrencilerin lehine anlamlı bir sonuç ortaya çıkardığı görülmüştür.

Öğrenme amaçlı yazma etkinliklerinin öğrenmeler üzerinde nasıl etkili olduğunu tespit etmek için hem uygulamaya katılan öğrenciler hem de araştırmanın uygulamasını yürüten öğretmen ile görüşmeler yapılmıştır. Öğrencilerin görüşleri öğretmen tarafından yapılan açıklamalar ile tamamlanmıştır. Bu doğrultuda gerek uygulama öğretmeni gerekse sürece dahil olan beşinci sınıf öğrencileri yapılan öğrenme amaçlı yazma etkinliklerinin afetler ve çevre sorunları konularının öğretiminde etkili olduğuna vurgu yapmışlardır. Öğrencilerin doğal afetler konusunda özellikle deprem, sel, çığ, heyelan gibi afetleri oldukça iyi; hortum ve erozyon konusunu ise kısmen öğrendikleri tespit edilmiştir. Çevre sorunları konusunda ise öğrencilerin hava kirliliği, su kirliliği, toprak kirliliği, orman yangınları konusunu oldukça iyi öğrenirken gürültü kirliliği ve küresel ısınma konusunda ise öğrenmelerin kısmen gerçekleştiği tespit edilmiştir. Öğrencilerin afetler ve çevre sorunları konusundaki bireysel öğrenme düzeylerini

yansıttıkları öz değerleme bulguları bir bütün olarak değerlendirildiğinde öğrenmenin bir aracı olarak afetler ve çevre sorunları konusunun öğrenme sürecine dahil edilen öğrenme amaçlı yazma etkinliklerinin öğrencilerin konuyu öğrenmelerine önemli katkılar sağladığı söylenebilir.

Öğrenme amaçlı yazma etkinliklerinin *öğrenmeyi kolaylaştırma, çok yönlü düşünme, yaratıcığı açığa çıkarma, hatırlamaya imkan sağlama, kalıcı öğrenme, farklı bakış açısı sağlama, eğlenceli ortam sunma, katılımı ve merakı artıma* açısından çok güçlü düzeyde; öğrencilerin *ilgisini çekmede* güçlü düzeyde etkili olduğunu gözlemlemiştir. Yine uygulama öğretmeni öğrencilerin öğrenme amaçlı yazma etkinliklerinden *sıkılmadıklarını* da gözlemlemiştir. Sonuç olarak nicel ve nitel veriler bütünleştirilerek ele alındığında; öğrenme amaçlı yazma etkinliklerinin öğrencilerin afetler ve çevre sorunları konusunu öğrenmede etkili olduğu, bu sürece ilişkin öğrenci ve öğretmen görüşlerinin birbirini desteklediği, uygulama sürecinin öğrencilerin afetler ve çevre sorunları konusunu öğrenmeleri üzerinde güçlü bir etkiye sahip olduğu gözlemlenmiştir.

Tartışma ve Sonuç

Bu araştırmada beşinci sınıf sosyal bilgiler dersi içerisinde yer alan afetler ve çevre sorunları konusunun öğretiminde öğrenme amaçlı yazma pedagojisinin etkisi incelenmiştir. Farklı öğrenme amaçlı yazma etkinlikleri üzerinden inşa edilen öğretim süreci deney grubu öğrencilerin gerek afetler ve çevre konusunu öğrenmede (bilişsel öğrenme) gerekse çevreye karşı ilgi gösterme, daha fazla duyarlık kazanma anlayışlarında (duyuşsal öğrenme) anlamlı değişimler sağladığı tespit edilmiştir Gömülü karma desene göre dizayn edilen bu çalışmada nicel bulgular (akademik başarı testi, öz değerlendirme formu) öğrenme amaçlı yazma etkinliklerinin öğrenmeler üzerinde ne düzeyde etkili olduğuna dair bir veri sağlarken nitel bulgular (Öğretmen ve öğrenci görüşleri, sınıf içi gözlemler) öğrenme amaçlı yazma etkinliklerinin öğrenme üzerindeki etkinin nedenlerine bir açıklık getirmiş, nicel bulguları tamamlamıştır. Öğrenme amaçlı yazma etkinliklerinin öğrencilerin öğrenmeleri üzerinde ortaya çıkardığı olumlu etki alan yazında yer farklı çalışmaların sonuçlarıyla benzerlik göstermektedir (Ay & Başıbüyük, 2018; Karaçağıl & Avaroğulları,2017; Kayaalp vd., 2022; Şahin, 2019; Taşkın, 2021; Yasul, 2019)**.** Hatta sosyal bilgiler dersinde öğrencilerin öğrenmelerinde anlamlı bir değişim sağlayan öğrenme amaçlı yazma etkinlikleri Graham vd., (2020) tarafından yapılan meta analiz çalışmasının bulguları ile paralellik gösterdiği gibi Klein ve Boscolo'nun (2016) öğrenme amaçlı yazma araştırmalarındaki genel eğilimleri belirlediği araştırma bulguları ile de örtüşmüştür. Yine bu çalışmanın sonucu ile yakın zamanda Chmarkh (2021) tarafından öğrenme amaçlı yazma üzerine yapılmış deneysel çalışmaların sentezine yansıyan "*öğrenme amaçlı yazma etkinlikleri öğrenmeleri olumlu etkilemektedir"* sonucu ile de paralellik göstermektedir. Ulaşılan bu olumlu sonuç, öğretim sürecinde gözlenen olumlu sınıf iklimi, öğretmen ve öğrenci düşünceleri bir bütün olarak değerlendirildiğinde; öğrenme amaçlı yazma etkinliklerinin öğrencilerin öğrenme yüklerini azalttığı, öğretmenlere öğrenme süreci yakından takip etme imkanı sağladığı, sosyal bilgiler dersinin doğasına uygun olduğu söylenebilir.

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Investigation Active Learning in Higher Education from the Perspectives of Faculty Members

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Abstract

The changing paradigm from teaching to learning in higher education brings out university-wide reforms like active learning. Faculty members are one of essential stakeholders in designing and conducting active learning efficiently. As a result, their perspectives based on their experiences are critical in directing faculty members individually and universities willing to implement active learning, and future research on the subject. The study aims to determine the faculty members' views about active learning based on their own experiences. In the qualitative study conducting as a holistic single case study, the data were collected through online interviews and analysed by content analysis. Some of the findings show that the faculty members had mainly positive feelings about active learning. They believed active learning supported their students' enhancement of the 21st century skills and other qualifications like self-confidence, social skills. Moreover, they explained some problems related to students, faculty members, and learning environment. In relation to these, they also presented some suggestions about active learning. Finally, some suggestions based on the study findings were presented for the faculty members, universities, and future research.

Keywords: Active learning, educational quality, faculty members' views, teaching-learning in higher education

Introduction

In a constantly changing world, universities are obliged to enhance and guarantee the quality of the learning opportunities they present for their students. As Barr and Tagg (1995, p.15) indicated, one of the main missions of universities is to "produce learning" rather than "to provide instruction, to teach". Students should have the opportunity to develop knowledge because learning is an active process, not a passive experience of receiving new information (Johnson & McCoy, 2011, p. 41). The so-called paradigm shift from teaching to learning in higher education has been widely supported in the literature because it parallels with the common assumption that learning is something a person does when studying, and it is an active, self-directed activity (Dewey, 1924, p. 390). Contrary to the technological and pedagogic changes initating such a paradigm shift throughout the 20th century (Barak et al., 2007), the dominant teaching form has remained mostly constant, and "chalk and talk" methodologies have still dominated (Asarta et al., 2021) even in the 21st century. Being aware of such difficulties in changing methodologies, some universities and other national/international organizations have started various projects to promote such a shift toward learning. Active learning has drawn considerable attention in the process because it presents a range of student-centered learning activities that enable students to take control of their learning.

As active learning is emphasized as a crucial area of attention for high educational quality, the related literature and practices in higher education have extended in the same way. An examination of the literature reveals various definitions of active learning-specified in higher education level (Aragaon et al., 2018; Auerbach & Schussler, 2017; Eddy et al., 2015). For instance, Aragaon et al. (2018) explain it as "a range of student-centered *curricular events* that engage students through, for example, peer collaboration, experimentation, and problem solving". Eddy et al. (2015) define it as "a *complex process* including teaching methods and student learning." Auerbach and Schussler (2017) summarize it as "a student-centered *pedagogical approach* that engages student thinking through classroom activities that require students to reflect upon and

frequently discuss their ideas and applications". Being aware of the variations in active learning definitions, Freeman et al. (2014) presented the following definition as a shared one by more than 300 instructors: Active learning involves students in the process of learning through activities and/or discussion in classrooms, in contrast to passively listening to an expert. It emphasizes higher-order thinking and often involves group work. The mentioned definitions show the focus is mainly on the benefits of active learning.

Active learning brings out various benefits to university students. It significantly enhances student learning, engagement, motivation, attitude, self-efficiancy and such so-called 21st century skills development as analytical thinking, problem-solving, critical thinking skills (Freeman et al., 2014; Machemer & Crawford, 2007; Niemi, 2002; Niemi & Nevgi, 2014; Patrick et al., 2016; Prince, 2004; Rotgans & Schmidt, 2011; Ruiz-Primo et al., 2011; Stump et al. , 2014; Theobald et al., 2020). Additionally, the majority of the research points to the effectiveness of active learning across various fields and populations (Ambrose et al., 2010; Bonwell & Eison, 1991; Chickering & Gamson, 1987; Freeman et al., 2014; Lima et al., 2017; Lund & Stains, 2015; Theobald et al., 2020). Due to all the benefits, active learning has already received strong support in higher education area (Prince, 2004, p. 223). Moreover, as emphasized by Aragaon et al. (2018), some agencies like the American Association for the Advancement of Science, President's Council of Advisors on Science and Technology view active learning as a vital area of attention for university courses, and many pivotal American and European universities have emphasized active learning as a critical area of focus.

Although the growing interest and the overwhelming evidence in its favour, active learning may not be a concept that receives passionate support by the faculty members. The low adoption rates of active learning in university courses continue to be a concern, and many studies conducted in various contexts indicate traditional teaching techniques like lecturing are still the main mode of instruction in these courses (Hora & Ferrare, 2013). The undermining reason for the low adaptation rate may be the faculty members who are suspicious and view active learning as just another trend in the field of education (Prince, 2004, p. 223).

In their study, Froyd et al. (2013) revealed that some faculty members applying active learning were unsure whether the time and effort needed to implement active learning is beneficial, and up to 75% of those who have tried certain types of active learning completely give up on the concept. Some other studies conclude the significant problems to faculty members' implementation of active learning are as follows; a rigorous curriculum, inadequate preparation or course hours, the size of the student groups, poor learning environments, and a high level of comfort with traditional lectures (Finelli et al., 2014; Froyd et al., 2013; Henderson & Dancy, 2007; Michael, 2007; Miller & Metz, 2014; Niemi, 2002).

In order to change their attitudes and participate them voluntarily in active learning, Bradforth et al. (2015) suggest training more faculty members to conduct active learning. Such pieces of training might be effective to dismiss the problems related to the lack of experience and knowledge of faculty members because it is known that many faculty members, accepted as one of the most important elements of the quality of education mission of universities, lack the necessary pedagogical knowledge and skills (Unal & Dagistan, 2017).

Furthermore, there should be some precautions to solve university-level problems because there are also physical, digital, or motivational barriers undermining active learning despite its clear benefits (Proud, 2022). Otherwise, Mazur (1997) stressed that many faculty members automatically turn to the ways they have recently been taught, which could result in teaching practices that are not advantageous to all students spreading over generations of students. To conclude, it is an accepted fact that faculty members have the leading responsibility and power in making an educational innovation like active learning at least in their courses.

Active learning has been at the center of many comprehensive studies in international literature, especially since the last quarter of the 20th century. These studies mainly focus on the effects of active learning on students' learning (Prince, 2004; Roediger & Pyc, 2012; Sibona & Pourreza, 2018) and their skill enhancement (Buitrago-Flórez et al., 2021; Chen, 2014; Murillo-Zamorano et al., 2019; Sgambi et al., 2019), students' views on the benefits of active learning (Crisol-Moya et al., 2020; Crossgrove & Curran, 2008; Machemer & Crawford, 2007), and students' preference for active learning (Walker et al., 2008; Welsh, 2012). In some studies, the faculty members' views about active learning were determined, too (Auerbach & Schussler, 2017; Avidov-Ungar et al., 2018; Michael, 2007; Patrick et al., 2016). For example; Auerbach and Schussler (2017) examined the the shift in the definitions of active learning made by the faculty members participated in yearly interviews to track any change in their perceptions of active learning. However, the study is limited to only active learning practice in a Biology course. Another study conducted by Avidov-Ungar et al. (2018) has a similar limitation due to focusing on only teacher education, and in addition to this, it has a further limitation that Avidov-Ungar et al. (2018) focused on the teacher educators' effective usage of the active learning classroom as a learning place. One more study on the effectiveness of active learning and the barriers to its implementation in university STEM classrooms by Patrick et al. (2016) had importance because it focused on the views of both the faculty members and students. However, it has similar limitations to Auerbach and Schussler (2017) and Avidov-Ungar et al. (2018). Lastly, Michael (2007) conducted a study on the faculty members' perceived barriers to active learning. The faculty members, however, only recently attended a faculty development session when they discussed these barriers. To put it another way, they discussed them before to actually using them in their classes, which can be perceived as the limitation of the study.

On the other hand, the studies conducted in the setting of higher education in the national literature are scarce and often concentrate on the effects of one or more active learning methods/techniques utilized in a particular course on student academic achievement and/or attitudes (Kalem & Fer, 2003; Ozer, 2020). As both of the studies emphasize, the research on active learning in Turkish higher education has been limited and additional in-depth studies are required. Furthermore, Tonbul (2003) conducted a study on the required organizational structure to apply active learning in faculties. In this study, he emphasized the changing process to active learning requires a proper organizational and management structure. Overall, the analysis of the literature indicates that further in-depth research, considering active learning in various departments, may still be required. Further studies based on actual field practices and the views of practitioners might be necessary. Determining the experience-based views of faculty members implementing active learning contribute to the literature. It also carries importance because it provides data based on the applications to all faculty members who implement/will implement

active learning in their courses. Such data could also guide the development of syllabuses of active learning courses. Finally, the data obtained based on practice could be useful for the planning and implementation processes of both active learning and other teaching-learning reforms.

The study aims to determine the faculty members' views about active learning based on their own experiences. To this end, their feelings, expectations, views on the outcomes and related problems, and suggestions about active learning in higher education were determined.

Method

Study Design

This qualitative study has a holistic single case design since it focuses on faculty members' views based on their own active learning experiences. An exploration of a "bounded system" that includes a plan, an occasion, a task, or a person is called a case study (Creswell, 1998, p. 61). The bounded system (holistic single case) in this study is "active learning practice in a university" to be explored in detail. The case is also explored in its natural setting and from the viewpoint of the contributors to the practice, the faculty members in this study (Gall et al., 1996, p. 545).

Study Context

This study was conducted at a state university in Ankara, Turkey. The university provides education to approximately 25 thousand students within nine faculties, three colleges, three vocational schools, one graduate school, and one conservatory in the field of social sciences and arts. Regarded itself as the university that sees "the student as the focal point of all processes and activities", it has determined a strategic goal to improve educational quality it presents. In this context, a university-level project on active learning has been initiated to provide meaningful learning and to enhance students with 21st century skills. Since the spring semester of 2021-2022, active learning has been carried out in at least one course in each department at the university and this number is to be increased each semester.

Within the scope of the active learning project, the departments determined active learning courses (so-called by the university) and the responsible faculty members. Then, they got a series of online and face-to-face trainings on active learning before the spring semester of 2021–2022. After that, they created the active learning based syllabuses, which were then reviewed by the project coordinator, a specialist in the field of curriculum and instruction. Upon that review process, the faculty members revised their syllabuses and put them into practice. Online pieces of training for the faculty members were provided after the semester began, and the coordinator attempted to provide the required assistance when needed. The active learning practices were assessed through various methods/tools. The Stance of the Researcher: The researcher has been working as the coordinator of the active learning project in that university. She has a PhD in curriculum and instruction and studies on the educational quality in higher education, the 21st century skills, faculty development, core curriculum, and active learning etc.

Study Group

The study group included 37 faculty members who carried out active learning courses in several academic units at a Turkish state university. One of the purposeful sampling methods, maximum variation, was applied to determine the study group. The aim of choosing this sampling

method was to reach as many different faculty members from different academic units as possible to find cases that vary from each other as much as possible (M. Patton, 2014). Therefore, it was tried to include at least one faculty member from each academic unit. For that reason, an invitation form was sent to all the faculty members taking part in the project and the volunteers included in the study. The spread of the volunteer faculty members' academic units met the criteria of maximum variation sampling method. The study group included 25 female and 12 male faculty members. Their ages ranged from 30 to 50+. The distributions of the study in terms of academic units and titles are shown in Table 1.

Table 1. *The distribution of the study group in terms of their academic units and titles*

	Academic Units (N)	Titles (N)	
Faculties	Economics and Administrative Sciences (4)	Prof. Dr. (2) Assist.. Prof. Dr. (1)	Res. Assist. Dr. (1)
	Letters (4)	Assoc. Prof. Dr. (1) Assist. Prof. Dr. (1)	Res. Assist. Dr. (2)
	Art and Design (4)	Prof. Dr. (1) Assoc. Prof. Dr. (1)	Assist. Prof. Dr. (1) Res. Assist. Dr. (1)
	Tourism (3)	Assoc. Prof. Dr. (3)	
	Arts and Sciences (3)	Prof. Dr. (1)	Assist. Prof. Dr. (2)
	Fine Arts (4)	Prof. Dr. (1) Res. Assist. Dr. (1)	Ins. (2)
	Communication (2)	Assist. Prof. Dr. (1)	Ins. Dr. (1)
	Islamic Sciences (1)	Assist. Prof. Dr. (1)	
Conservatory	Turkish Music State (2)	Ins. (2)	
Colleges	Banking and Insurance (3)	Prof. Dr. (1)	Ins. Dr. (2)
	Land Registry&Cadastre (1)	Ins. Dr. (1)	
Vocational Schools	Social Sciences (5)	Ins. (5)	
	Justice (1)	Ins. Dr. (1)	

Data Collection Method, Tool, and Process

Online interviews were conducted in this study to gather huge amounts of data quickly, cheaply, and effectively (Regmi et al., 2016). A semi-structured interview form called as the Active Learning Interview Form (ALIF) developed by the researcher was used in the data collection process. While preparing the form, the related literature was analyzed and a draft version of the question list was prepared. The irrelevant items were then removed from the list after it was checked to see if it was parallel to the aim of the study. The list was then sent to two experts who have conducted research on teaching-learning strategies and educational quality in higher education and are experienced in conducting qualitative studies. One of them works as a professor and the other as an assistant doctor in the curriculum and instruction departments of two separate universities. After they had a chance to review the form, an online meeting was held to get feedback. In this meeting, a closed-ended question was added to the form in order to track the students' development of the 21st century skills. Moreover, some grammatical and word adjustments were done to make the questions more comprehensible and clear to respond. This process also ensured the content and face validity of the interview form.

Active Learning Interview Form (ALIF) includes two sections: the demographic information section, which collects information such as age, academic unit, gender, and title. The second section includes six open-ended questions about the active learning experiences of the faculty members such as "Before you started using active learning methods in your courses, what

were your feelings and thoughts on this subject? , How did you feel after you started using them? Can you talk about the positive and negative things you experienced during the process of using active learning methods?" The form also included a close-ended question to determine the level of the 21st century skills enhancement by the students. They were asked to give 1-5 points on the listed skills such as creative thinking, problem-solving, communication…etc. The questions were prepared by considering the start and end of the investigated active learning, allowing for comparison and contrast of the data as necessary. In order to compare and contrast the data as needed, some questions were prepared to focus on the beginning and some on the end of the examined active learning.

After the interview form was ready, the online interviews were held with the volunteer faculty members. Before the interviews, they were informed about the study in detail (aim, scope, method…etc). Some of the interviews were conducted through five different focus group interviews (n=20). The interviews were made after the 2021-2022 Spring term was over and continued 15 days. Each individual interview of the participants lasted 15-20 minutes and the focus group ones lasted 30-40 minutes.

Data Analysis

In the data analysis, inductive content analysis method was applied (M. Patton, 2014). In this method, meaning units are formed based on participant statements, and subsequently codes/themes are determined (Zhang & Wildemuth, 2009). In this study, the recorded interviews were first directly transcribed. The data from each participant were stored using labels like Ins.-M-17 so that the reader can understand the title (Such abbreviations as Prof. Dr., Assoc. Prof. Dr., Assist. Prof. Dr., Ins. Dr., Ins., Res. Assist. Dr. were used in suitable with the university academic positions titles in Turkish higher education), gender (M for male; F for female participants) and the number of the participants. The labels were also used in the finding section to ensure confidentiality. After recording all the data**,** they were examined in detail, and the researcher created the codes and themes. Finally, the themes obtained are discussed in light of relevant research in the literature.

To support credibility and transformability, the following precautions were taken (Yildirim & Simsek, 2016): Data collection and analysis processes were explained and direct quotations were presented to support the findings. Moreover, to ensure member check, the recordings were sent back to three participants who were chosen randomly. To ensure confirmability, the researcher and one of the experts who involved in the interview form editing process worked together. Firstly, the researcher conducted all the analysis, and then the expert who is experienced in qualitative data analysis, checked the codes/themes created by the researcher. After that, an online meeting with a focus on supporting inter-coder reliability was conducted. In the meeting, some different points of view on the codes/themes were determined, and a consensus was reached following the analysis and discussion. Lasty, all data were stored to maintain confirmability.

Ethical Permits of Research

In this study, all the rules specified to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were complied with. None of the

actions specified under the heading "Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, have been taken.

Ethics Committee Permission Information:

Name of the committee made the ethical evaluation= Ankara Hacı Bayram Veli University Ethical Commission

Date of ethical decision = 28.07.2022

Issue number of the ethical review document= E-11054618-302.08.01-114290

Findings

The findings were presented under the following headings, namely "feelings about active learning," "expectations about active learning", "views on the outcomes of active learning", "problems about active learning", and "suggestions about active learning".

Feelings about Active Learning

The faculty members' feelings about active learning at the beginning and the end of the term were explored. At the beginning of the term, they explained mostly negative and some positive feelings about active learning, but at the end of the term, they all explained positive feelings, which shows the active learning process managed to dismiss all negative ones. At the beginning of the term, the faculty members most frequently explained three main negative feelings; anxiety, prejudice, and fear. They were mostly *anxious* because it was something unknown for them, they did not have enough time to make necessary preparation, they thought they would not get adequate assistance, the classrooms were too crowded, and lastly, there were no necessary equipment, digital devices so on. They were also *prejudiced* because they thought it would be inefficient. Lastly, they were *fearful* because they had no prior knowledge and experience, and they might not achieve to apply such methods. When it comes to the positive feelings, at the beginning of the term, the faculty members frequently explained they were *excited, happy, willing* to apply, and *curious* about it, while some indicated they were *calm* because they have already applied such methods. When the faculty members were asked how they felt when the term was over, it was determined that they all had positive feelings. They indicated they were *happy, satisfied,* and *enjoyed.* The following is a sample of comments by the faculty members with a positive shift in their feelings:

"The fact that the children were not bored during the course and that some of them put forth a lot of effort and learned more as a result was what I appreciated best about the active learning. I gave up my prejudiced attitude because I was satisfied." **Assos. Prof. Dr-F-16**

"I had concerns about the impact of active learning. I realized that students learned while having fun, I was happy." **Ins.-M-17**

The cited comments show when they observed their students' positive attitudes, increasing engagement and success, their feelings changed positively. Moreover, some others explained that their feelings turned into more positive when their students obtained new skills such as searching and sharing information etc. One of the faculty members explained that process in detail:

"*My thoughts definitely changed in a positive way. My students were able to both do research before the lesson and discuss in interaction with each other in the lesson. Their success made me very happy. My students, who took my course and never knew each other before, started to know each other by their names, they did research together, they discussed and talked about their research and the information they learned in the lesson*." **Prof. Dr.-F-10**

Expectations about Active Learning

When the faculty members' views on active learning at the beginning of the process were examined, it revealed they had many expectations. These expectations were as follows; to increase academic success, to enable permanent learning, to increase engagement, to take students' interest in the courses, and to ease their learning process. Some views indicating their expectations are as follows:

"I saw it as a teaching method that would facilitate learning and increase its effectiveness. I think that the effect on permanence is positive and advanced because students have the chance to take an active role in their own learning, rather than hearing the information consisting of stereotyped sentences as in classical methods." **Ins. Dr-F-9**

"I was using a method in which the faculty member was more active. I think that with this method in which students are active, their learning will be more permanent." **Res. Assist.-F-5**

To reveal out whether the expectations were met in the process, the faculty members were asked about the outcomes of the active learning, which is explained below.

Views on the Outcomes of Active Learning

The examined active learning project mainly aimed to enhance students' 21st century skills and other qualifications. Therefore, the faculty members included them in the learning outcomes of their courses, and at the end of the courses, they explained their views on the outcomes of active learning as follows.

Enhancement of the 21st Century Skills

The students' enhancement levels of the 21st century skills based on the faculty members' views were shown in Table 2.

Table 2. *The students' enhancement levels of the 21st century skills based on the faculty members' views*

21st century skills	The levels of enhancement (N)				
	Very High (5)	High (4)	Average (3)	Low (2)	Very Low (1)
Problem Solving	10	17	7	1	1
Creative Thinking	17	14	4	0	1
Critical Thinking	19	14	3	0	0
Collaboration	18	13	5	0	0
Communication	17	13	4	1	0
Information Literacy	11	13	7	2	0
Technology Literacy	11	12	12	1	0
Entrepreneurship	12	12	10	1	0

As Table 2 shows, nearly all of the faculty members emphasized their courses contributed to the enhancement of the 21st century skills by their students at the top levels. In fact, because of the aims of the examined active learning project, these results are in line with the expectations, but their high levels are satisfying, too. However, the number of the faculty members who explained their students got problem solving and creative thinking skills at low and very low levels takes attention. Even if the number is not high, it should not be underestimated.

Enhancement of Other Qualifications

The faculty members indicated some other important qualifications, which were enhanced by the students. They very frequently emphasized the students were more capable of *explaining themselves* and *more self-confident* and thus got the ability to speak in public and make efficient presentations. Others frequently stated qualifications were about *information processing skill*. They could seek information, share it in the classes, relate it to their prior knowledge, and apply it in real life situations. Although the application step was less frequently emphasized, the completed previous steps were important to pass into the application step. On the one hand, the faculty members very frequently emphasized and explained their satisfaction with the *social skills* their students developed in the courses. Furthermore, they frequently explained the students in the classes made friendship, felt belonging to their classes, and got happy. The following is a sample of comments on the outcomes of active learning.

"I think that it has created very important gains in presentation techniques and ability to speak in front of a crowd. I think that it also develops the ability to search for information." **Ins. Dr-M-15**

"They didn't even know their classmates. They communicated with each other. I noticed that they are happy." **Ins. Dr.-M-11**

"They began to express themselves in every field and to reveal their differences. Are they more knowledgeable? I do not know. Have their emotional intelligence increased more? Definitely yes." **Assist. Prof. Dr.-M-20**

"They had many opportunities to express themselves. Students who were shy in our activities expressed themselves better over time. Group work further strengthened the relations." **Ins.-F-25**

Problems about Active Learning

The faculty members explained the problems about active learning they experienced in terms of students, faculty members, and learning environment. The most frequently stated problems by the faculty members' were related to *the students*. They frequently explained the students did not complete pre-task assignments, they had hesitation and difficulty in explaining themselves, they did not actively engage, and they were not eager to do that during the courses. Fortunately, the faculty members frequently added that such problems were solved out during the term. For example, a faculty member conducting active learning in an online course explained that "*Using digital programs like Slido, Google Documents, I managed to engage my students into the process*" (Res. Assist. Dr.–F-37). On the other hand, the faculty members rarely explained the engagement problems were going on during the term and they added such students preferred to be silent during the term. The followings are important samples of comments on the problems and how they were solved during the term.

"Students were not willing to use different sources and blend them with their own ideas. While expressing their own ideas, they often felt uneasy. When I try to make them think in more detail by asking questions, they thought they gave wrong answers in the first applications. In the first weeks, they had a reactive attitude to talk and argue with their friends. Discussions that were much more productive took place in the last weeks. Their desire to participate increased gradually. The number of students who came prepared for the course increased gradually." **Ins. Dr.-F-4**

"*There were some difficulties as it was a new method. It was a little bit difficult for students to break their passive role in the rote-based education process from primary school to the present. However, after the transition period, students also developed a serious awareness and self-confidence*." **Res. Assist. Dr.-M-8**

On the other hand, a few faculty members emphasized some problems continued throughout the term as seen in the following comments:

"*On the negative side, after a point, I started to be unable to encourage students to read the educational material of the week's topic. They came to classroom without completing preparation."* **Assist. Prof. Dr.-M-20**

"I can say that some students' resistance at the point of participation and not embracing change are negative points." **Res. Assist. Dr.-F-24**

"*The classroom was over 80 people and not everyone showed the same interest. The students, whom we have already taught to be quiet, did not give much response our expectations about their talk and discuss now. In short, I believe that active learning will be productive under appropriate conditions, but it is difficult for our culture***." Prof. Dr. -M-6**

Another set of problems to the faculty members was about *the faculty members* themselves. They frequently explained they had difficulty in finding appropriate active learning methods with their course content and in preparing syllabuses. Nevertheless, they added they overcame such difficulties during the term. On the other hand, they very frequently explained applying active learning methods requires much more time and effort. Unfortunately, they emphasized these problems continued all the term. The following is a sample of comments on the problems.

"*As a lecturer, my workload has increased a lot. Although my lesson time was 3 hours, my lessons lasted at least 4.5 hours without a single break***." Prof. Dr. -M- 6**

"I had a little trouble planning week by week. But every week a new idea came and got more creative." **Assoc. Prof. Dr.-F-12**

The last set of problems were about the *learning environment*. The faculty members frequently explained the physical features of classrooms were not suitable for active learning. The crowded classrooms were another problem in the process. They also added that online and hybrid courses caused some problems to apply active learning efficiently. Some faculty members had also explained that the active learning courses sometimes overextended the usual course hours and they had to exclude some content, which made them unpleasant. Some comments are as follows:

"Students can understand the subject better when they research it on their own, but students who do not study in a crowded classroom may find it difficult to understand the subject." **Assist. Prof. Dr.-F-31**

"The only negative side is that the physical structure of the classroom is not fully suitable for active learning." **Ins. Dr.-M-11**

Suggestions about Active Learning

The faculty members made some suggestions for more effective active learning focusing mainly on *learning environment* and *faculty member support ways*. To the faculty members, classrooms should be rearranged for active learning. Additionally, they should be enriched in terms of digital tools and other materials. They also emphasized that ones carrying out active learning courses need much more support in the process. They suggest some solutions like giving more formal trainings on active learning, visiting international universities applying active learning efficiently, and arranging encouraging/rewarding systems for faculty members. Beside all these, they emphasized active learning should be expanded by adding new courses, but the courses should be given by volunteer faculty members. The final yet important suggestion was to organize orientation programs to inform students about active learning. Some comments are as follows:

"Active learning should be promoted. Funding should be allocated for classroom arrangements and materials that may be required. The simplest is portable boards, colored pencils, etc. can be given." **Ins. Dr.-F-4**

"I think that there should be encouraging and rewarding practices for the sustainability of active learning practice." **Res. Assist. Dr.-F-24**

Discussion and Conclusion

Faculty members who conduct active learning in higher education can be thought of as important determinants of its efficiency. Therefore, the faculty members' views on active learning in higher education were examined in this study. The qualitative analyses revealed important findings about their feelings, expectations, views on the outcomes and related problems, and lastly, their suggestions about active learning.

An important finding of the study is the positive transformation on the feelings of the faculty members. At the beginning of the active learning practices, the faculty members mostly felt anxious, prejudiced, and fearful. On the other hand, they began to feel happy, satisfied, and enjoyed in the process. Evidence from research supports the transformation. For example, Guskey (1985 as cited in Aragaon et al., 2018) emphasized that when faculty members effectively apply active learning and witness favorable outcomes, they experience positive transformations such as increased motivation to teach, emotions of self-efficacy concerning teaching, greater confidence in their teaching, and a revived enthusiasm for teaching. In parallel with Guskey's emphasize in this study, the faculty members explained that their negative feelings transformed into positive ones when they observed the huge outcomes of active learning. Such a positive transformation in the perception of active learning was also reached by Auerbach and Schussler (2017) in the three-year process of active learning practices. In parallel with their conclusion, the met expectations of

the faculty members in the current study contributed to that transformation. At the beginning of the practices, they explained some expectations like increasing academic success, contributing permanent learning, easing their learning process, and it can be reached out that most of the faculty members' expectations were met in the process.

Another important finding of this study is that active learning is thought as a supporting way of students' enhancement of 21st century skills especially problem solving, creative thinking, critical thinking, collaboration, and communication. As Buitrago-Flórez et al. (2021) conclude, active learning provides an encouraging increase in 21st century key skills, namely critical thinking, creativity, communication, and collaboration. The current study result adds especially problem-solving skill to the list, too. In other similar studies, such skills as being open-minded (Chen, 2014), working in groups (Murillo-Zamorano et al., 2019), creativity, and critical thinking (Sgambi et al., 2019) have been also emphasized. Based on all the results, it can be concluded that active learning can be an important way to enhance university students's various 21st century skills.

Besides the 21st century skills, active learning is thought effective in enhancing students' some other important qualifications like self-confidence, capability to explain themselves in public, and social skills- to interact and communicate with others- like making friendships, feeling belonging to their classes, and got happy. Similarly, Furrer and Skinner (2003) emphasized active learning brings out positive feelings, a sense of belonging, and an appraisal of learning tasks as valuable. Moreover, Linnenbrink-Garcia et al. (2011) stress active learning promotes social-behavioral development involving learning activities with classmates.

On the other hand, the current study shows some important problems, related to students, faculty members, and learning environment. Some main problems stated by the faculty members were students' not completing pre-task assignments and lack of engagement in the learning process. For some of the faculty members, these problems were solved during the term because they indicated that the students started to complete the pre-task and to engage more. This result can be supported by other studies emphasizing that when students believe that engaging in active learning helps them learn (Crisol-Moya et al., 2020; Patrick et al., 2016) and they think it increases their self-efficacy (Stump et al., 2014), they do not resist active learning. Faculty members can change students' attitudes toward active learning over the course of a semester by explaining and facilitating it (Nguyen et al., 2017; Tharayil et al., 2018). The current study findings support them by showing that most students got aware of the benefits of active learning in the process and adapted to active learning.

Another set of problems determined in the study was about the faculty members themselves. They frequently explained the difficulty in finding appropriate active learning methods/techniques with their course content, and the much more time and effort to apply them. Likewise, some other problems were found out in other similar studies like the heavy preparatory work, course content, and lack of time (Finelli et al., 2014; Froyd et al., 2013; Henderson & Dancy, 2007; Michael, 2007; Miller & Metz, 2014; Niemi, 2002). These problems can be brought out by "the lack of experience with or knowledge of this approach" as Michael (2007) concludes in his study on the possible pedagogical barriers to active learning. In addition, faculty members wishing to incorporate active learning in their pedagogy have a tendency to try one or more of the methods

(C. M. Patton, 2015). Such a tendency may cause spending much more time and effort on planning and implementation for the faculty members who are about or just start to apply active learning. Furthermore, another underlying reason for such problems stated in the current study may be due to a strong comfort level with traditional teaching methods of faculty members (Miller & Metz, 2014).

The last set of problems was about the learning environment, especially like insufficient classroom environments, crowded classes, overextending course hours, and lack of teaching-learning materials. In some other studies, similar problems were emphasized, too (Henderson & Dancy, 2007; Miller & Metz, 2014; Niemi, 2002). Due to these frequently raised problems in various studies, universities implementing active learning should be concerned about the appropriate learning environments (Talbert & Mor-Avi, 2019). The two significant active learning projects carried out at the universities of Oxford and MIT show the significance of the learning environment for active learning. Student-Centered Active Learning Environment with Upsidedown Pedagogy (SCALE-UP) and Technology Enabled Active Learning (TEAL) projects involved arranging learning environments in line with active learning (Talbert & Mor-Avi, 2019) and showed their effects on the successful implementation of active learning.

Lastly, the faculty members made some suggestions to increase the efficiency of active learning focusing mainly on the learning environments and support for faculty members. They suggested rearranging the learning environments and enriching them with digital tools and other materials. These suggestions are parallel with the problems they emphasized about learning environment. The previously mentioned projects like SCALE-UP and TEAL show their suggestions' importance because the learning environment was accepted as one of the three important parts of active learning and emphasized its importance to rise efficiency of active learning. Their other crucial suggestions concentrate on the support that should be provided for the practitioner faculty members. They expect to get more formal pieces of training on active learning, visit international universities applying active learning efficiently, and arrange encouraging/ rewarding systems for faculty members. It is widely accepted that they get many responsibilities upon applying active learning in their courses, and systematic and continuous pieces of training should be arranged for them. On the other hand, previous studies have shown that faculty members who participated in intensive, weeklong training to teach more actively in a large-classroom setting were not always putting these practices into practice in their own classes, even after receiving specific training on how to incorporate active learning into their classes (Ebert-May et al., 2011). Additionally, it is shown that one-third of faculty members who experiment with active teaching subsequently switched to passive lectures, with many of them claiming complaints from students as the cause (Henderson et al., 2012). These remarkable results should not be evaluated as “an argument against faculty development efforts” (Michael, 2007). However, they indicate the importance of systematic and continuous training supported with other regulations like decreasing course load, supplying ready-made materials, and assistance support as the current study indicates. Furthermore, as the faculty members in this study suggested, supporting systems for faculty members can be a valid way to encourage them to continue using active learning in their courses.

All in all, this study concludes that the faculty members have mainly positive feelings about active learning and believe it supported their students' enhancement of the 21st century skills and other qualifications like self-confidence and social skills. However, they indicate some problems related to the students, the faculty members, and the learning environment. Addionatinally, they present their suggestions to overcome the problems related to only the faculty members, and the learning environment because they believe the problems related to the students were largely solved out in the process. All of these results point out that the faculty members, as the practitioners of active learning may be in favor of applying it at their courses.

Recommedations

This study may present important guiding results for the faculty members and universities eager to apply active learning, and for future studies on the subject. The followings can be recommemded for the faculty members who are implementing/will implement active learning in their courses: Active learning courses should be designed taking students', faculty members' own feautures, learning environment, and course duration into consideration. Such a preparation may dismiss the exra time and effort spend in active learning practices. In addition, the students should be informed about the outcomes of active learning so that their attitudes get more positive and their engagement levels increase. Based on the findings of this study, for the universities planning/implementing studies to increase the quality of both active learning and other teaching-learning reforms, such recommendations can be presented as follows: Pieces of training for future practitioners should be comprehensive and continuous. Active learning efforts should be encouraged through other regulations like supporting systems for faculty members. Furthermore, the learning environments should be arranged suitable for active learning and enriched with digital and other tools. Lastly, in terms of further research, the followings can be suggested: Further studies can be conducted on comparative analysis of the views of students and faculty members, or among faculty members from different disciplines. Furthermore, in future studies, the effects of active learning on developing students' academic success, and the 21st century skills can be analyzed quantitatively. Lastly, future mixed method or/and longtidual studies can be conducted to determine the changes in both the views of different stakeholders and academic achievement scores, skill enhancement levels etc.

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Öğretim Elemanlarının Bakış Açılarına Göre Yükseköğretimde Aktif Öğrenme

Giriş

Sürekli değişen dünyada üniversiteler, öğrencilerine sundukları öğrenme olanaklarının nitelikli olmasını sağlamak zorundadır. Barr ve Tagg (1995, s.15) tarafından vurgulandığı gibi üniversitelerin temel görevlerinden biri "öğretim yapmak" değil "öğrenmeyi sağlamaktır". Öğretimden öğrenmeye doğru olan bu paradigma değişimi, öğrenmenin aktif ve öz yönelimli bir süreç olduğu düşüncesine dayanmaktadır (Dewey, 1924, s. 390). Ancak teknolojik ve pedagojik değişikliklere rağmen (Barak vd., 2007), halen öğretim odaklı geleneksel yöntemler özellikle üniversitelerde yaygındır. Eğitimde paradigma değişiminin zorluğunun farkında olarak bazı üniversiteler bu değişimi destekleme amaçlı projeler yürütmektedir. Öğrencilerin kendi öğrenme sorumluluğunu üstlendiği öğrenci merkezli etkinliklere dayalı olan aktif öğrenme de bunlar arasında yer almaktadır.

Aktif öğrenme; kalıcı öğrenmenin sağlanması, etkin katılımın artırılması, motivasyonun yükseltilmesi, analitik düşünme, problem çözme, eleştirel düşünme gibi becerilerin kazandırılması gibi pek çok fayda sağlamaktadır (Freeman vd., 2014; Machemer ve Crawford, 2007; Niemi, 2002; Niemi ve Nevgi, 2014; Patrick vd., 2016; Prince, 2004; Rotgans ve Schmidt, 2011; Ruiz-Primo vd., 2011; Stump vd. , 2014; Theobald vd., 2020). Ayrıca aktif öğrenmenin farklı disiplinlerde ve farklı öğrenci grupları üzerinde de etkili olduğunu gösteren araştırma sonuçları bulunmaktadır (Ambrose vd., 2010; Bonwell ve Eison, 1991; Chickering ve Gamson, 1987; Theobald vd., 2020). Ancak özellikle lisans düzeyinde aktif öğrenme uygulamalarının yaygın olmadığı da bilinmektedir (Hora ve Ferrare, 2013). Bu durumun nedenlerinden biri aktif öğrenme konusunda şüpheli olan ve bunun yalnızca geçici bir eğilim olduğunu düşünen öğretim elemanları olabilir (Prince, 2004, s. 223). Bradforth vd. (2015) tarafından vurgulandığı gibi daha fazla sayıda öğretim elemanının aktif öğrenmeye ilişkin farkındalık düzeyi artırılmalıdır. Ayrıca üniversite

düzeyinde de fiziksel, dijital ve motivasyonel engellerin ortadan kaldırılması için önlemler alınmalıdır (Proud, 2022).

Aktif öğrenme özellikle 20. yüzyılın son çeyreğinden beri uluslararası alanyazında pek çok kapsamlı araştırmanın odağı haline gelmiştir. Bu araştırmalar, genellikle aktif öğrenmenin öğrencilerin öğrenmesini sağlama durumu (Prince, 2004; Roediger ve Pyc, 2012) ve aktif öğrenmenin yararlarına ilişkin öğrenci görüşleri (Crossgrove ve Curran, 2008; Machemer ve Crawford, 2007) üzerinedir. Ayrıca bazı araştırmalarda da öğretim elemanlarının aktif öğrenmeye ilişkin görüşleri belirlenmiştir (Auerbach ve Schussler, 2017; Avidov-Ungar vd., 2018; Michael, 2007; Patrick vd., 2016). Ancak bu araştırmaların yalnızca belirli bir disiplindeki ve henüz aktif öğrenme uygulamalarını sınıflarında gerçekleştirmeyen öğretim elemanlarının görüşlerine odaklanılarak gerçekleştirilmiş olması sınırlılık olarak değerlendirilebilir.

Aktif öğrenmeye ilişkin ulusal alanyazında ise üniversite düzeyinde gerçekleştirilen araştırmaların sayısı oldukça sınırlıdır ve bunlar genellikle aktif öğrenme yöntemlerinin belirli bir derste öğrenci başarısı, tutumu üzerine etkisine ilişkindir (Kalem ve Fer, 2003; Ozer, 2020). Bu sınırlı sayıdaki araştırmada da vurgulandığı gibi Türkiye'de üniversite düzeyinde gerçekleştirilen araştırmalar çok kapsamlı değildir ve daha fazla araştırmalara gereksinim duyulmaktadır. Sonuç olarak, farklı alanlardan öğretim elemanlarının görüşlerinin incelenmesini temel alan, aktif öğrenmenin sahada uygulamalarına odaklanan ve uygulayıcıların görüşlerine dayalı olarak yapılacak araştırmalara gereksinim duyulmaktadır.

Üniversitelerde sunulan öğrenme-öğretme faaliyetlerinin niteliğini artırma genel amacına ulaşabilmek için aktif öğrenme uygulamalarını gerçekleştiren öğretim elemanlarının görüş ve önerilerinin belirlenmesi önemlidir. Böylelikle aktif öğrenme uygulamaları gerçekleştirmek isteyen öğretim elemanları için yol gösterici verilere ulaşılabilir. Ayrıca üniversite genelinde eğitimin niteliğini artırma amaçlı projeler uygulanan üniversiteler için de önemli veriler sunabilir. Son olarak uygulamaya dayalı olarak ulaşılan veriler, hem aktif öğrenme hem daha farklı öğrenme-öğretme reformlarını planlama ve gerçekleştirme süreçleri için faydalı olabilir.

Bu araştırmanın amacı, öğretim elemanlarının yükseköğretimde aktif öğrenmeye ilişkin kendi deneyimlerine dayalı olarak görüşlerinin belirlenmesidir. Bu amaca ulaşabilmek için aktif öğrenmeye ilişkin öğretim elemanlarının duyguları, beklentileri, fayda ve yaşanan sorunlara ilişkin görüşleri ve önerileri belirlenmiştir,

Yöntem

Araştırma Modeli

Bu nitel araştırma, öğretim elemanlarının aktif öğrenme deneyimlerine ilişkin kendi düşüncelerine odaklandığından bütüncül tek durum çalışması olarak desenlenmiştir. Bir planı, bir olayı, bir görevi veya bir kişiyi içeren "sınırlı bir sistemin" analizi durum çalışması olarak adlandırılır (Creswell, 1998, s. 61). Bu araştırmada aktif öğrenme uygulaması, kendi uygulama ortamında ve katılımcıların yani öğretim elemanlarının görüşlerine göre açıklanmıştır (Gall vd., 1996, s. 545).

Bu araştırma, Türkiye'de bir devlet üniversitesinde gerçekleştirilmiştir. Üniversitede, yaklaşık 25 bin öğrenci sosyal bilimler ve sanat alanlarında öğrenim görmektedir. Üniversite

tarafından eğitimin niteliği artırma amaçlı aktif öğrenme projesi uygulamaya konulmuştur. Bu projenin temel amaçları anlamlı öğrenmeyi sağlamak ve 21 yy. becerilerini öğrencilere kazandırmaktır. 2021-2022 bahar döneminden başlanılarak üniversitedeki tüm programlarda en az bir derste aktif öğrenme yöntemleri uygulanmaktadır ve bu sayı her dönem artacaktır. Proje kapsamında bölümler tarafından aktif öğrenme dersleri belirlenmekte ve ders sorumluları için eğitimler sunulmaktadır. Sonrasında öğretim elemanları eğitim programları ve öğretim alanından bir uzman olan proje koordinatörünün rehberliğinde aktif öğrenmeye dayalı izlenceler hazırlamaktadır. Süreçte koordinatör tarafından öğretim elemanlarına birebir rehberlik hizmeti de sunulmakta ve yapılan uygulamalar, çeşitli araçlarla sürekli değerlendirilmektedir.

Araştırmanın çalışma grubunu, uygulama yapılan üniversitenin çeşitli birimlerinden maksimum çeşitlilik örnekleme yöntemi ile belirlenen 37 öğretim elemanı oluşturmaktadır. Öğretim elemanlarının 25'i kadın, 12'si erkektir. Araştırmaya gönüllü olarak katılan öğretim elemanlarından altısı profesör, beşi doçent, yedisi doktor öğretim üyesi, beşi araştırma görevlisi doktor, beşi öğretim görevlisi doktor ve dokuzu öğretim görevlisidir.

Araştırma verileri, hızlı, düşük maliyetli ve verimli şekilde büyük verilere ulaşabilmek için (Regmi vd., 2016) çevrimiçi görüşmeler aracılığıyla toplanmıştır. Veri toplama aracı araştırmacı tarafından geliştirilen yarı yapılandırılmış görüşme formudur. Görüşme formunun oluşturulması sırasında öğrenme-öğretme stratejileri ve yükseköğretimde eğitimde kalite konularında çalışmalar yapan ve aynı zamanda da nitel araştırmalar yapma konusunda deneyimli uzmanlardan görüş alınmıştır. Formda, demografik bilgilerle ilgili soruların yanı sıra aktif öğrenme uygulamalarına ilişkin altı açık uçlu ve bir de kapalı uçlu soru yer almaktadır. Çevrimiçi görüşmelerden bazıları bireysel bazıları ise odak grup görüşmesi (n=20) şeklinde 2021-2022 bahar dönemi sonunda gerçekleştirilmiştir.

Araştırma verileri, tümevarımsal içerik analizine uygun şekilde analiz edilmiştir (M. Patton, 2014). Görüşmeler gerçekleştirildikten sonra görüşme kayıtlarının transkripsiyonu yapılmış ve öğretim elemanlarının ünvanlarını, cinsiyetlerini ve sırasını gösterecek şekilde kaydedilmiştir. Tüm verilerin kaydı tamamlandıktan sonra araştırmacı tarafından analiz edilmiş, kod ve temalar belirlenmiştir.

Araştırmanın inandırıcılık ve aktarılabirliğini sağlamak için şu gibi önlemler alınmıştır (Yıldırım ve Şimşek, 2016): Veri toplama ve analiz süreçleri ayrıntılı şekilde betimlenmiş ve bulgular doğrudan alıntılarla desteklenerek sunulmuştur. Bilgisayara aktarılan görüşme kayıtları katılımcıların üçü ile paylaşılmış ve katılımcı teyidi sağlanmıştır. Tutarlılığı sağlamak için ise görüşme formlarının hazırlanmasında görüşü alınan uzmanlardan biri ve araştırmacı birlikte çalışmıştır. Bunun için öncelikle araştırmacı analizleri yapmış ve nitel araştırmalarda deneyimli olan bu uzman, araştırmacı tarafından oluşturulan kod/temaları kontrol etmiştir. Daha sonra kodlayıcılar arası güvenirliği sağlama odaklı çevrimiçi bir toplantı gerçekleştirilmiştir. Bu toplantıda kod/temalara ilişkin bazı görüş ayrılıkları belirlenmiş ve yapılan incelemeler ve tartışmalar sonucunda fikir birliğine ulaşılmıştır.

Bulgular

Yükseköğretimde aktif öğrenmeye ilişkin öğretim elemanlarının duyguları, beklentileri, fayda ve yaşanan sorunlara ilişkin görüşleri ve önerileri belirlenmiş ve bulgular beş ana tema altında sunulmuştur. Öğretim elemanlarının dönem başlangıcında ve sonunda *aktif öğrenmeye yönelik duyguları* incelenmiştir. Öğretim elemanları uygulama başlangıcına ilişkin çoğunlukla olumsuz, ancak dönem sonunda tamamı olumlu duygular ifade etmişlerdir. Başlangıçtaki olumsuz duygular çoğunlukla endişe, önyargı ve korkudur. Dönem sonunda vurgulananlar ise mutluluk, memnuniyet ve keyiftir. Ayrıca öğretim elemanlarının dönem başlangıcında *aktif öğrenmeye ilişkin beklentileri* olduğu belirlenmiştir. Bu beklentiler; aktif öğrenme ile akademik başarının artması, kalıcı öğrenmenin sağlanması, etkin katılımın sağlanması, öğrencilerin ilgilerinin derse çekilmesi ve öğrenme sürecinin kolaylaşmasıdır. Bu beklentilerin gerçekleşip gerçekleşmediğini ortaya çıkarmak için öğretim elemanlarının *aktif öğrenmenin katkılarına ilişkin görüşleri* belirlenmiştir. Öğretim elemanlarına göre aktif öğrenme öğrencilerin 21. yüzyıl becerilerini kazanmalarına katkı sağlamıştır. Ayrıca aktif öğrenme öğrencilerinin kendine güvenini artırmış, kendilerini daha iyi ifade edebilmelerini ve bilgiye ulaşma ve kullanma becerilerinde gelişmesini sağlamıştır. Öğretim elemanlarına göre *aktif öğrenmede karşılaşılan sorunlar* ise öğrencilerden, öğretim elemanlarından ve öğrenme ortamından kaynaklanmaktadır. Öğrencilerin derse katılım düzeylerinin beklentinin altında olması, ders öncesi verilen görevleri yapmamaları, derste etkinliklere katılmamaları gibi sorunlar belirtilmiştir. Öğretim elemanlarının pek çoğu bu sorunların süreçte ortadan kalktığını da belirtmiştir. Ayrıca öğretim elemanları süreçte ders içeriğine en uygun aktif öğrenme yöntemini bulma ve izlence hazırlamada sorunlar yaşadıklarını belirtmişlerdir. Öğretim elemanları sınıfların fiziksel özelliklerinin aktif öğrenme uygulamalarına uygun olmamasından, sınıf mevcutlarının fazla olmasından, çevrimiçi-hibrit derslerde bazı yöntemlerin uygulanmasının zor olmasından kaynaklanan sorunlar da yaşadıklarını belirtmiştir. Son olarak, öğretim elemanları *aktif öğrenmeye ilişkin öneriler* sunmuşlardır. Onlara göre öğrenme ortamlarının düzenlenmesi ve öğretim elemanlarının desteklenmesi sağlandığında aktif öğrenme uygulamaları daha etkili olabilir.

Tartışma ve Sonuç

Araştırma sonucunda öğretim elemanlarının aktif öğrenmeye ilişkin başlangıçtaki olumsuz duygularının süreç sonunda olumluya dönüştüğü belirlenmiştir. Bu dönüşümde aktif öğrenmenin öğrenciler üzerindeki olumlu etkilerini gözlemlemeleri etkili olmuş olabilir. Guskey (1985 akt. Aragaon vd., 2018) tarafından da vurgulandığı gibi öğretim elemanları aktif öğrenmeyi uygulayıp olumlu sonuçlarını gördüğü zaman bu uygulamayı gerçekleştirmeye daha çok istekli olurlar. Bu araştırmanın bir diğer önemli sonucu aktif öğrenmenin öğrencilerin problem çözme, yaratıcı düşünme, eleştirel düşünme, işbirliği yapma, iletişim kurma gibi 21. yy becerilerinin kazandırılmasında etkili olmasıdır. Bu sonuç farklı araştırma sonuçlarını da destekler niteliktedir (Buitrago-Flórez vd., 2021; Chen, 2014; Murillo-Zamorano vd., 2019; Sibona ve Pourreza, 2018; Sgambi vd., 2019). Ayrıca aktif öğrenmenin öğrencilere kendine güven ve bazı sosyal beceriler kazandırdığı da belirlenmiştir. Furrer ve Skinner (2003) ve Linnenbrink-Garcia vd. (2011) tarafından da vurgulandığı gibi aktif öğrenme ait olma, öğrenme etkinliklerinin değerini fark etme, olumlu duygular besleme gibi sosyal gelişimlerini sağlayacak katkılar sunmaktadır. Araştırmanın bir diğer önemli sonucu ise süreçte yaşanan özellikle öğrencilerden kaynaklanan

sorunların bir kısmının çözüldüğüne ilişkindir. Bu durumun nedeni öğrencilerin aktif öğrenmenin öğrenmelerini sağladığını fark etmeleri (Patrick vd., 2016) ve bunun sonucunda da direnç göstermekten vazgeçmeleri olabilir. Öğretim elemanları ile ilgili ağır iş yükü, zaman problemleri ve öğrenme ortamı ile ilgili kalabalık sınıflar, uzayan ders saatleri, araç-gereç sıkıntısı pek çok farklı bağlamda yapılan araştırmalarda da aktif öğrenme sürecindeki sorunlara ilişkin ulaşılan ortak sonuçlar arasındadır (Henderson ve Dancy, 2007; Miller ve Metz, 2014; Niemi, 2002). Michael (2007) tarafından vurgulandığı gibi öğretim elemanlarının belirttiği bu sorunlardan bazıları aktif öğrenmeye ilişkin deneyim ve bilgi eksikliğinden kaynaklanıyor olabilir. Bu nedenle öğretim elemanlarının aktif öğrenme uygulamaları sürecinde desteklenmesi oldukça önemlidir. Ayrıca öğretim elemanlarının özellikle öğrenme ortamı ile ilgili vurguladıkları sorunların ortadan kaldırılması üniversite genelinde yapılacak düzenlemeler ile mümkündür. Bu araştırmadaki öğretim elemanları tarafından yapılan önerilerin de paralelinde Oxford ve MIT üniversiteleri tarafından gerçekleştirilen SCALE-UP ve TEAL projeleri bu problemlerin önemi ve nasıl ortadan kaldırılacağına ilişkin yol gösterici niteliktedir (Talbert ve Mor-Avi, 2019).

Sonuç olarak, bu araştırmada öğretim elemanlarının aktif öğrenme uygulamaları hakkında ağırlıklı olarak olumlu duygulara ve öğrencilere katkıları konusunda önemli beklentilere sahip oldukları belirlenmiştir. Ayrıca öğretim elemanlarına göre aktif öğrenme öğrencilerin 21. yüzyıl becerileri ve özgüven, sosyal beceriler gibi diğer nitelikleri kazandırmada etkilidir. Aktif öğrenme sürecinde sırasında öğrencilerden, öğretim elemanlarından ve öğrenme ortamlarından kaynaklanan sorunlar yaşanmaktadır. Öğrenciler ile ilgili olan sorunlar çoğunlukla süreç içerisinde çözülürken, özellikle diğer sorunların çözümü için kapsamlı hizmet içi eğitimlerin düzenlenmesi, öğrenme ortamlarının aktif öğrenmeye uygun hale getirilmesi gibi öneriler gerçekleştirilmelidir. Tüm bu sonuçlar, öğretim elemanlarının kendi deneyimlerine de dayalı olarak aktif öğrenmenin derslerde uygulanması gerektiğini düşündükleri şeklinde yorumlanabilir.

Öneriler

Araştırma sonuçlarına dayalı olarak üniversitelerde aktif öğrenme uygulamalarına ve yapılacak araştırmalara ilişkin şu öneriler sunulabilir: Aktif öğrenme uygulamalarını gerçekleştiren/gerçekleştirecek olan öğretim elemanları, derslerini öğrenci ve öğretim elemanları ile ders süresi ve öğrenme ortamlarının özelliklerini dikkate alarak tasarlamalıdır. Böylelikle aktif öğrenme uygulamaları sırasında harcanan ekstra zaman ve çaba en aza indirilebilir. Ayrıca öğrenciler, aktif öğrenmenin faydaları hakkında bilgilendirilerek onların aktif katılımı artırılmalıdır. Aktif öğrenme uygulamalarını gerçekleştiren/gerçekleştirecek üniversiteler için ise öğretim elemanlarına sunulan hizmet içi eğitimlerin kapsamlı ve sürekli olmasının sağlanması, onların çabalarının çeşitli teşvik/ödüllendirme sistemleriyle desteklenmesi önerilebilir. Son olarak, üniversitelerde aktif öğrenme uygulamalarına ilişkin yapılacak gelecek araştırmalarda öğrenci ve öğretim elemanlarının görüşleri karşılaştırmalı incelenebilir, aktif öğrenmenin akademik başarı ve özellikle 21 yy. becerilerini kazandırmada etkisi araştırılabilir.

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Evaluation of 2018 Secondary Education English Lesson Curriculum in Terms of Learner Autonomy

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Abstract

The purpose of this study is; to determine the level of learner autonomy in the 2018 Secondary Education English Lesson Curriculum. This study was conducted in the 2020-2021 academic year and is a qualitative study conducted in the case study model. Document analysis was used as data collection method. The study subject of this research is "2018 Secondary Education English Lesson (9th, 10th, 11th and 12th Grades) Curriculum". As a result of the literature review conducted in line with the purpose of the study, an evaluation criteria form was created for the evaluation of the curriculum: Determination of general objectives, education processes, measurement and assessments, teacher's role, student's role and learning outcomes are discussed. The data obtained from curriculum evaluation were analyzed by descriptive analysis method. The findings obtained from the analysis of the Secondary Education English Lesson Curriculum show that it includes practices of learner autonomy in determining goals, education and training processes, assessment, teacher's role, student's role and learning outcomes.

Keywords: Learner autonomy, curriculum and instruction, foreign language teaching

Introduction

The aim of teachers in foreign language lessons in today's world, is to improve students' communication skills in the target language. (Legenhausen and Little, 2017). Similarly, in our country, as stated in the Secondary Education English Lesson (9th, 10th, 11th and 12th Grades) Curriculum (SEELC) the purpose of English courses is to improve students' communication skills in English (Ministry of National Education [MONE], 2018). In this regard, it is important to develop learner autonomy skills, which are an important factor in having communicative skills. The concept of learner autonomy in the field of foreign language has gained importance with the replacement of traditional teaching methods and approaches by humanist approach, constructivism, communicative approach, technology and learner-based approaches. (Benson, 2001). However, the fact that students do not have enough information about how to improve their language skills is due to the fact that they have difficulties in their own learning processes. This process has revealed the importance of teaching students their own learning processes. Therefore, learner autonomy issue has drawn the attention of researchers (Balçıkanlı, 2008). Chan (2001) states that learner autonomy is widely accepted and adopted as an educational goal in the foreign language teaching profession. Benson (2013) similarly highlights the importance of learner autonomy and states that it is a desired goal in language education.

Although the definition of learner autonomy has been made by many researchers in the literature, the most widely accepted definition was made by Holec and Holec (1981) defines autonomy as the ability to take charge of one's own learning and explain it comprehensively as being able to take charge of one's own learning, it is also being able to take responsibility for their decisions concerning all aspects of this learning,. That is:

a) Determining the objectives,

b) Defining the contents and progressions,

c) Selecting methods and techniques to be used, and

d) Evaluating what has been acquired.

Dickinson (1987) states that autonomy can be developed in some ways. Some of these are as follows: by giving individuals practice to make decisions in their own learning, working on problems in cooperation with others, producing mutual solutions, and exchanging ideas with others. Ma and Ma (2012) also state that meeting with students and considering their wishes and needs while creating the curriculum will improve students' motivation, and more importantly, this will encourage them to take responsibility for their own learning, and thus learner autonomy will develop. Dam (2010) mentions the benefits of these activities and states that giving students the right to choose motivates them and that making choices in one's own learning process makes them feel more "responsible" and strengthens their "self-esteem".

Many projects carried out by the Council of Europe emphasize the importance of students' being independent as users of the target language and learning to learn (Little, 1996). According to Holec (1996), learning ability in language learning requires both knowledge and skill. Knowledge covers the concepts of language proficiency and language awareness. Knowledge in the field of language learning also includes concepts such as what the language acquisition process is and what learning behaviors are. Skill is to make knowledge functional. That is, it means that learning to learn includes acquiring these knowledge and skills.

Harmer (2001) states that if students do not try to learn a language outside of class hours, they will never be able to learn that language. This view reveals the importance of autonomous learning in effective learning. According to Harmer, the reason for this is that the complex and different structure of the language does not make it possible to learn that language in one lesson. Therefore, in order for students to really make progress in the language they are learning, they need to have adequate exposure to and opportunities to use the language. For this reason, he states that students should develop their own learning strategies in order to become autonomous learners.

It is widely accepted that the curriculum plays a key role in ensuring learner autonomy (Trebbi, 2003). Benson (2001) states that one of the six approaches that can be used in the development of autonomy is "Curriculum-Based Approaches". The benefit of making a curriculum according to the wishes and needs of the learner is the issue that such approaches emphasize. Although there is no predetermined content in such curriculums, the content is determined in the process according to the interests and needs of the learners. In this process, learners and teachers need to cooperate while making decisions.

The subject of learner autonomy is seen to be included in the SEELC. In this regard, it is stated in the curriculum that developing learner autonomy is one of the basic principles of the curriculum and one of the main aims of the curriculum is to enable students to use English in a self-directed way (MONE, 2018). No study was found on the evaluation of the curriculum in terms of autonomy. However, it is important to evaluate the curriculum. Because; in science and technology, in social and political life, as a result of the changes and developments arising from the biological and cultural changes in the individual to be educated , every curriculum should be re-evaluated, revised and arranged every time (Alacapınar and Sönmez, 2015). According to Demirel (2015) curriculum evaluation is the process of making decisions about the effectiveness of the program. In this regard to find out the effectiveness of SEELC was evaluated in terms of

learner autonomy. Based on the benefits of learner autonomy mentioned above, it has been tried to reveal what level of autonomy the curriculum has.

In this research, it is aimed to determine the level of learner autonomy of 2018 SEELC. The sub-objectives prepared in line with the purpose of the research are as follows:

1.What is the level of learner autonomy in determining the general objectives in 2018 SEELC?

2.What is the level of activities for learner autonomy in learning outcomes in 2018 SEELC?

3.What is the level of activities for learner autonomy in education process in 2018 SEELC?

4.What is the level of learner autonomy in measurement and assessment in 2018 SEELC?

5.What is the level of learner autonomy in teacher roles in 2018 SEELC?

6.What is the level of learner autonomy in student roles in 2018 SEELC?

Method

This study is a qualitative study carried out in the case study model. In qualitative research, it is at the forefront of obtaining in-depth data that questions the reasons for the purpose. In this study, a case study was preferred because it was thought that it would provide a more comprehensive view of the 2018 Secondary Education English Lesson (Grades 9, 10, 11 and 12) Curriculum (SEELC). The study group/subject is 2018 SEELC content. As a data collection technique, document analysis, one of the qualitative data collection tools, was used. Document analysis includes the analysis of written materials containing information about the facts and cases that are aimed to be investigated. Document review can be a stand-alone data collection method, or it can be used in conjunction with other data collection methods (Şimşek and Yıldırım, 2018).

As a data collection tool, an ”Evaluation Criteria Form” was created by the researcher to evaluate 2018 SEELC in terms of learner autonomy. The evaluation criteria form was created after a literature review on learner autonomy and classified as the main headings of determination of needs, determination of goals, education and training processes, assessment, teacher’s role, and student’s role. Opinions of three different experts were taken to ensure the validity and reliability of the prepared criteria. One of the experts is a lecturer in the division of curriculum and instruction on educational sciences. Another expert is a lecturer working in the field of foreign language education at a university. The other specialist is an English teacher who continues her postgraduate education in curriculum and instruction and works at a secondary education institution. Necessary corrections were made after expert opinion. Inappropriate items were removed, expression errors were corrected, and expressions were edited. Asking people who have general knowledge about the research subject and specialized in qualitative research methods to examine the research in various dimensions is another measure that can be taken in terms of credibility. The expert, the researcher at various stages of the study; It helps to increase the quality of the research by providing feedback in the process from the design of the research to the collected data, from analyzing them to writing the results (Şimşek and Yıldırım, 2018).

Descriptive analysis method was used in the analysis of the data obtained as a result of the analysis of the curriculum. In order to determine the autonomy level of the "2018 SEELC", the evaluation criteria form, which was created by the researcher and arranged according to expert opinions, was used. Within the framework of these criteria, the curriculum was examined and data was collected. The outcomes were analyzed descriptively in line with the information obtained as a result of the literature review. The frequency numbers of the findings obtained are given in the table and the data obtained from the curriculum are presented without changing under the table. The entire curriculum is considered as a whole. The data determined in the curriculum regarding autonomy are expressed numerically in the criteria table. Frequencies of recurrence were determined and their frequencies were given in the table. The curriculum examined by the researcher and the completed evaluation form were also examined by another researcher in order to ensure its reliability and the reliability formula suggested by Miles and Huberman (1994) was used to calculate the reliability of the study. Reliability = Consensus / (Agreement + Disagreement). As a result of the calculation (182/189), the reliability of the research was calculated as 96%.

Ethical Permits of Research

In this study, all the rules specified to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were complied with. None of the actions specified under the title of "Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, were not carried out.

Ethics Committee Permission Information:

Name of the committee that made the ethical evaluation = Kırşehir Ahi Evran University Social and Human Sciences Scientific Research and Publication Ethics Committee.

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Ethics assessment document issue number=2021/1/25.

Findings

The findings regarding the level of learner autonomy in determining general objectives in 2018 SEELC are given in Table1.

Table 1. *The findings regarding the level of learner autonomy in determining general objectives in 2018 SEELC*

Setting Goals	Grade 9 f	Grade 10 f	Grade 11 f	Grade 12 f
The needs, expectations and interests of the students are taken into account	6	6	6	6
Students can decide their own goals	4	4	4	4
Students are involved in the goal setting process.	-	-	-	-
Total	10	10	10	10

When Table 1 is examined, it is seen that there are 10 frequencies at all grade levels related to the theme of determination of general objectives. While six frequency numbers are seen at all grade levels related to the item “The needs, expectations and interests of the students are taken into account in determination of goals.”; there are four frequency numbers at all grade levels related to the item; “Students can decide on their own goals.”. On the other hand the item; “Students are involved in the goal setting process.” has no frequency number.

The findings about the level of activities for learner autonomy in the learning outcomes in 2018 SEELC are given in the table below.

Table 2. *The findings about the level of activities for learner autonomy in learning outcomes in the 2018*

Grade Levels	f
Grade 9	33
Grade 10	26
Grade 11	27
Grade 12	30
Total	116

Table 2 depicts that the total number of statements about learner autonomy in learning outcomes is 116. It is understood that the class with the highest number of expressions involving autonomy in learning outcomes is 9th grades. It is seen that the 12th grades are in the second place with the number of learner autonomy-30, the 11th grades are in the third place with the number of 27-autonomy expressions, and the 10th grades are in the fourth place with the emphasis on 26-learner autonomy.

Findings regarding the level of learner autonomy in education processes in 2018 SEELC are given in the Table 3 below.

Table 3. *Level of learner autonomy in education processes in 2018 SEELC*

	Grade 9 f	Grade 10 f	Grade 11 f	Grade 12 f
Education Processes				
The curriculum supports learning outside the classroom.	18	18	18	18
The interests, needs and expectations of the student are taken into account in the selection of the content.	15	15	16	16
The curriculum directs the student to out-of-class practices	14	14	14	14
Self-directed learning practices are included	13	13	13	13
Creating environments where the responsibility of learning is entirely on the student	12	12	12	12
The student has the right to choose the content and activities.	11	11	11	11
Language teaching approaches that emphasize learner autonomy are included	6	6	6	6
Students can make connections between their new learning and their previous learning.	7	6	5	5
Content tracking can be flexible.	1	1	1	1
Students make decisions during the learning process.	1	1	1	1
Students are given the right to choose their own learning strategies.	-	-	-	-
Students take part in the selection of textbooks.	-	-	-	-
Total	98	97	97	97

Table 3 illustrates that a total of 98 frequencies are seen at the 9th grade level, and a total of 97 frequencies at the 10th, 11th and 12th grade levels related to the theme of education processes. "The curriculum supports learning outside the classroom." item has 18 frequencies at all grade levels. "The student's interests, needs and expectations are taken into account in the selection of content." item has 15 frequencies at 9th and 10th grade levels and 16 frequencies at 11th and 12th grades.

The item "The curriculum directs the student to out-of-class practices" has 14 frequency numbers at all grade levels. "Self-directed learning practices are included." item has 13 frequencies at all grade levels. The item “Creating environments where the responsibility of learning is entirely on the student” has 12 frequencies at all grade levels. The item “The student has the right to choose the content and activities.” has 11 frequencies at all grade levels. "Language teaching approaches that emphasize learner autonomy are included." item has six frequency numbers at all grade levels. "Students can make connections between their new learning and with their previous learning." item has seven frequencies at 9th grade, six at 10th grade, and five at 11th and 12th grades. On the other hand, “Content tracking can be flexible.” and “Students make decisions during the learning process.” items have only one frequency number. “Students are given the right to choose their own learning strategies.” and “Students take part in the selection of textbooks.” Items have no autonomous expressions were found regarding these last two items.

The findings regarding the level of learner autonomy in measurement and assessment in 2018 SEELC are given in the Table 4 below.

Table 4*. The Level of Learner autonomy in Assessment in 2018 SEELC*

Assessment	Grade 9 f	Grade 10 f	Grade 11 f	Grade 12 f
Alternative-oriented assessment tools are included.	15	15	15	15
The student makes self-assessment.	8	9	9	4
Student makes peer assessment.	3	3	3	3
The students can decide on their own assessment.	-	-	-	-
The student's interests, needs and expectations are taken into account in the assessment	-	-	-	-
Total	26	27	27	22

Examining Table 4, there are 26 frequencies at the 9th grade level, 27 frequencies at the 10th and 11th grade levels, and 22 frequencies at the 12th grade level of learner autonomy in measurement and assessment in 2018 SEELC. The item with the highest frequency is "Alternative-oriented assessment tools are included."

The item “Student makes self-assessment” has eight frequencies at the 9th grade, nine at the 10th and 11th grades, and four at the 12th grade. "The student makes peer assessment." The frequency number of the item is three. The fourth item in Table 4 is about the student's decision to make his own assessments. There is no information about this in the curriculum. That is; "The student can decide on their own assessment." and "The student's interests, needs and expectations are taken into account in the assessment." items do not have frequency numbers.

The findings regarding the level of learner autonomy in teachers’ roles in 2018 SEELC are given in Table 5.

Table 5. *The findings regarding the level of learner autonomy in teachers’ roles in 2018 SEELC*

Teachers’ roles	Grade 9 f	Grade 10 f	Grade 11 f	Grade 12 f
The role of the teacher is defined as the resource person and the guide, the person who manages the activities and directs the student.	4	4	4	4
The teacher delegates some control to the students	1	1	1	1
Total	5	5	5	5

When Table 5 is examined, it is seen that the theme of the role of the teacher has a total of 5 frequencies at all grade levels. "The role of the teacher is defined as the resource person and the guide, the person who directs the activities and guides the student." The frequency number of the item is four. "The teacher delegates some control to the students." item has only one frequency number.

The findings in relation with the level of learner autonomy in students' roles in 2018 SEELC are given in Table 6 below

Table 6. *The findings regarding the level of learner autonomy* in students' roles *in 2018 SEELC*

Students' Role	Grade 9 f	Grade 10 f	Grade 11 f	Grade 12 f
Active	4	4	4	4
Willing to learn the language of the course.	3	3	3	3
Learn independently regardless of the process.	2	2	2	2
Eager to learn	2	2	2	2
Take every opportunity to improve her learning.	2	2	2	2
Participate in out-of-class activities.	2	2	2	2
Critical	1	1	2	1
Take advantage of their environment strategically.	1	1	1	1
Can assess their own and others' needs	1	1	1	1
Highly motivated	1	1	1	1
Goal oriented	1	1	1	1
Organized-Regular	1	1	1	1
Hard-working	1	1	1	1
Entrepreneur	1	1	1	1
Total	23	23	24	23

Table 6 depicts that the theme of the student's role has 23 frequencies at the 9th, 10th and 12th grade levels, and 24 frequencies at the 11th grade level. Students' role of being active has four frequencies; the role of being willing to learn the language has three frequencies; It is seen that the role of being able to learn independently from the process, being eager to learn, taking every opportunity to improve their learning and participating in out-of-class activities have two frequency numbers. Among the other items in Table 6, the items "being critical, strategically benefiting from the environment they are in, evaluating their own needs and the needs of others, being; highly motivated, goal-oriented, organized, hardworking, entrepreneurial" have one frequency number each.

Discussion and Conclusion

The first sub-objective of the research is about the level of learner autonomy in determining the general objectives. According to the data obtained from the research, in determining the objectives; while it has been seen that students' ability to decide on their own objectives and taking into account the needs and expectations of students in determining objectives have been taken into account in the curriculum. In the improvement of learner autonomy, Little (2004) mentions that they established a counseling service in their previous study to help students decide on their own objectives, content, methods and techniques, monitor their progress and evaluate their results. As a result of their studies, they observed that the students who completed the program made great progress in German. This reveals the benefits of students' participation in these processes. The lack of student participation in the needs determining processes and determination of the objectives in 2018 SEELC is a deficiency in terms

of learner autonomy, but it is stated in the 2023 Education Vision that a data-based management approach will be adopted with learning analytics tools. It is stated that in this way, it will be possible to evaluate all processes from measuring the effectiveness of the curriculum to the analysis of physical capacity and personnel needs, and even to make decisions regarding the individual performance of the students, and to take the necessary actions in time (2023 Education Vision). The lack of student participation in the needs determination processes and the determination of the objectives in the curriculum does not mean that the program does not support learner autonomy. Because in many parts of the curriculum, learner autonomy is emphasized and activities to improve learner autonomy are included, as will be explained in the following sections. As the person who will carry out these activities in the classroom environment is the teacher, so the roles of the teacher gain importance here. Dam (1995) states that the development of learner autonomy depends on teachers' teaching how to learn. In addition, he emphasizes the role of teachers in involving students in decision-making processes and encouraging them to create attainable learning goals (Çakıcı, 2015).

The second sub-objective of the research is about the level of activities for learner autonomy in the learning outcomes in 2018 SEELC. The data obtained reveals that autonomy activities are included in the learning outcomes at each grade level. The number of activities for learner autonomy included in the learning outcomes at each grade level is close to each other. 33 learner autonomy activities have been revealed out of 88 learning outcomes at 9th grade level. There are 79 learning outcomes in total at the 10th grade level. Out of 26 of these learning outcomes have been found to be associated with learner autonomy. Out of a total of 68 learning outcomes at the 11th grade level, 27 are related to learner autonomy. Finally, there are 87 learning outcomes at the 12th grade level. It has been determined that 30 of them are associated with learner autonomy. In learning outcomes; there are many activities where students can take an active role in their own learning process, such as dialogues, group work, out-of-class activities, asking and answering questions, speaking activities, real-life processes, role-playing, making presentations, preparing projects, online activities, writing on blogs. These activities used in the learning outcomes are similar to the activities suggested in the literature to improve learner autonomy. For example, according to Dam (2011), the activities implemented in autonomous classrooms should be at a level that will force both successful and unsuccessful students, but not frighten them. He also states that the use of the target language is essential and that activities should be organized in which students will use the target language. Some of the activities that Dam recommends are as follows: A short talk with his partner, making a radio program / TV program, preparing a PPT presentation, preparing a talk show, preparing a text in pairs or in small groups, preparing questions about the text, preparing their own learning materials (preparing word cards, games, etc.). Bhattacharya and Chauhan (2010) similarly emphasizes the importance of factors such as interaction, negotiation and cooperation, in order to improve learner autonomy. Liu, Huang, and Xu (2018) in their study investigating the effect of individual and group digital storytelling activity on various learning outcomes, have revealed that students working in collaboration performed better in achievement test and autonomous learning scores than students working individually.

The third sub-objective of the research is to determine the level of activities for learner autonomy in education and training processes in 2018 SEELC. Looking at the items discussed in

this section, it can be said that the curriculum includes activities for learner autonomy in education and training processes. The data obtained shows that the curriculum supports out-of-class learning, considers the interests, needs and expectations of students in content selection, includes self-directed practices, directs students to out-of-class practices, and creates environments where the responsibility of learning is entirely on the student. In addition, the curriculum also includes approaches that emphasize learner autonomy. Furthermore, the data obtained from the curriculum also show that students are involved in the learning process and are able to connect with their previous learning. All these items mentioned are considered important in terms of learner autonomy. The regulation of education and training processes is necessary and important in terms of learner autonomy. As Benson (2001) states, learner autonomy can be improved if the conditions are made appropriate and regulated. In order to fulfill the appropriate conditions; considering student needs (Ma and Ma, 2012), giving students the right to choose, informing what is expected from them (Dam, 2010), directing students to extracurricular activities, and giving assignments appropriate to their interests and needs (Harmer, 2001) is considered important. Apart from these, various learning approaches also improve learner autonomy. Blended learning is emphasized in the curriculum. Bitlis (2011), who investigated whether Blended learning improves learner autonomy in her study, obtained the data that students exhibit and use their autonomy skills in blended learning environments as a result of the study. One of the learning approaches mentioned in the curriculum is computer assisted language learning. Kızmaz (2019) has found in her semi-experimental study that "Computer Assisted Language Learning" helps students increase their level of self-perception of autonomy. In addition, in this study, it has been concluded that there is a meaningful increase in students' material selection skills, awareness of learning strategies, self-study skills and self-evaluation skills. Another learning approach mentioned in the curriculum is Mobile Assisted Language Learning. Alzubi and Hazaea (2018) in their study, in which they investigated the effect of Mobile Assisted Language Learning on autonomous learning in English reading content in foreign language learning, have found that students developed their autonomy tendencies. They also state that in this way, students are not only limited to the classroom environment, but also carry their learning out of the classroom. As a result of an experimental study, Birsöz-Özköse (2017) conducted, she has found that autonomy has a positive effect on developing writing skills. Süğümlü (2016) has concluded that activities aimed at gaining learner autonomy skills and writing skills practices based on learner autonomy increase students' attitudes, motivation and autonomy towards writing. It is stated that activities aimed at gaining student autonomy skills and carrying out writing activities on the basis of student autonomy are effective in the success of students in their writing studies and in increasing their attitude and motivation towards writing. These studies show that autonomy activities contribute to the development of students' autonomy skills and language skills. Although the curriculum includes activities for learner autonomy, some studies see the curriculum as an obstacle in developing autonomy. In his research, Dede (2017) has found that the instructors think that the curriculum does not give importance to learner autonomy and that they see the curriculum as an obstacle in the autonomy practices. Similarly, Alshumaimeri and Borg (2017) have found from the data they obtained from the interviews with the teachers that one of the factors hindering learner autonomy is the curriculum. Another information sought in the curriculum regarding education and training processes is whether

students are included in the selection of textbooks. No data could be obtained on this subject. Since students' taking part in decision-making processes in the development of learner autonomy is considered important (Little, 2007; Voller, 1997), the lack of information on this issue can be seen as a deficiency.

The fourth sub-objective of the research is to determine the level of learner autonomy in assessment in 2018 SEELC. Alternative-oriented assessments, self and peer assessments are included in the program. One of the assessment approaches mentioned in the curriculum is portfolios. Various studies reveal that portfolios improve learner autonomy. Rao (2006) states that portfolios both involve students in the evaluation process and improve their English learning. Rao also states that portfolios improve students' self-learning process. In a similar study, Lo (2010) has revealed that portfolios help learner autonomy and that students gain awareness of the concept of learner autonomy thanks to portfolios. Self-assessment, which is an important type of assessment in terms of learner autonomy, is also included in the curriculum. Bajrami (2015) states that self-assessment is an important element in terms of learner autonomy, because in self-assessment, students' self-evaluation of their learning processes reduces their dependence on the teacher. Gholami (2016), who investigated the relationship between assessment and autonomy, has concluded that self-assessment has a positive effect on autonomous learning. Kuluşaklı (2019) has concluded in her research that students can develop their autonomous learning capacity and that they can develop this capacity by explicitly teaching strategies. The researcher also states that students' autonomy can be increased through feedback. Kim (2014) has found in her study that the role of the teacher and giving feedback are effective on autonomous learning. In this study, the teacher both ensured the participation of the students in the activities and provided feedback by supporting the weaknesses of the students in order to improve their speaking skills. All these studies reveal that feedback is effective in improving student autonomy. Another assessment approach mentioned in the curriculum is blogs. Studies show that blogs are also effective in improving learner autonomy. According to the data Lee (2011) obtained from the survey results, blogging improved students' autonomy through self-regulation and self-management. Bhattacharya and Chauhan (2010) state that blogging can improve learner autonomy by increasing students' awareness of their own decisions and by improving their language and cognitive skills. In their study, they have revealed that blogging provides this. They also state that students have improved their ability to make independent decisions and act. Studies show that alternative assessment types improve learner autonomy. It is revealed that alternative assessment types are also included in the Secondary Education English Lesson Curriculum. As a result, it is seen that the curriculum supports learner autonomy in assessment. However, although there is no direct statement about the ability of students to decide on their own assessments and the consideration of the student's interests, needs and expectations in the assessment, their existence can be mentioned indirectly. The curriculum offers various practices in assessment and evaluation. It is seen that the "Discussion Time, Video Blog Entry, Tech Peck and E-Portfolio" mentioned in the "Assessment and Evaluation" section are included in each unit at every grade level. In the "Major Philosophy and Objectives" section of the curriculum, it is stated that authentic assessment techniques reflecting the tasks that students will encounter outside of school are used. Tools such as portfolios, projects and/or communicative activities are emphasized in the section "Characteristics of English Teaching and Learning Environments (Grades 9-12)". In the

"Assessment and Evaluation" section, it is stated that portfolios, projects and other work of students should affect the overall average of students. In the "Major Philosophy and Objectives" and "Assessment and Evaluation" sections of the curriculum, self-evaluations and peer evaluations are emphasized. Including a wide variety of assessment types shows that students' interests, needs and expectations are taken into account. The person who will present this diversity to the students to decide their own assessment and give them the right to choose is the teacher in the classroom environment. As stated in the curriculum, teachers should encourage students to be autonomous (MEB, 2018).

The fifth sub-objective of the research is to determine the level of learner autonomy in teacher roles in 2018 SEELC. The section on teacher characteristics in the curriculum reveals the role of the teacher as the resource person and guide, the person who manages the activities and directs the student. Similar roles of teachers in the development of learner autonomy are also mentioned in the literature (Scharlo and Szabo, 2000; Voller, 1997; Camilleri 1997). In addition, conducted studies show that positive results were obtained in the autonomy skills of the students of the teachers who included autonomy practices and approaches. This reveals the importance of teacher roles in autonomy skills. The study by Çetinkaya (2019) has revealed that instructors prefer approaches and strategies that support autonomy in order to ensure their students' autonomy, and that students' understanding of autonomy is based on the support and encouragement of the instructor in the classroom environment. Pekkanlı-Egel (2009) in a literature study has concluded that students need teachers' guidance in order to gain autonomy and that teachers can develop students' autonomous skills.

The sixth sub-objective of the research is to determine the level of learner autonomy in student roles in 2018 SEELC. In the curriculum, when student roles are examined, students'; being active and willing, able to learn independently from the process, eager to learn, seizing every opportunity to improve their learning and participating in projects outside the classroom, being critical, being able to strategically benefit from the environment they are in, evaluating their own needs and the needs of others, being highly motivated and goal-oriented, organized, hardworking and entrepreneurial roles are mentioned. While Legenhausen and Little (2017) define autonomous student roles as "communicator, experimental and intentional", Hughes (2003) define autonomous learners as; having self-awareness, thinking critically, having the ability to create their own questions and to plan their own learning, being able to collaborate with their peers and having the ability to conduct research. Although the curriculum emphasizes learner autonomy in student roles, it is seen that students mostly avoid taking responsibility for their own learning while learning a foreign language, as seen in the studies mentioned below. According to the results of research Okumuş-Ceylan (2015) has conducted, students have certain teacher and student roles in their minds, and although students feel like they can take responsibility in some areas of their own learning, students see the teacher as an authority and decision maker. Dede (2017) has concluded that students do not tend to learn English when they do not have homework, they are dependent on their teachers, they expect to be directed, they avoid taking responsibility in choosing resources, and they avoid autonomous learning. İşler (2019) has concluded that students are only autonomous to a certain extent and that they do not do most of the extra-class activities to improve their language skills.

Recommedations

According to the results of the research, the following recommendations can be made: Students should be involved in decision-making at every stage of the process in terms of improving learner autonomy in new curriculums to be made. Students should also be included in the decision-making processes during the selection of textbooks. In addition, studies should be carried out to inform secondary school English teachers about learner autonomy and their awareness should be increased. In assessment and evaluation, environments where students can decide on their own assessment should be created by teachers. Teachers should involve students in decision-making processes in the classroom and create awareness in students about learner autonomy. It should be ensured that teachers realize the importance of their role in this issue.

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There is no material or individual organic connection with the people or institutions involved in the research and there is no conflict of interest in the research

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2018 Ortaöğretim İngilizce Dersi Öğretim Programının Öğrenen Özerkliği Açısından Değerlendirilmesi

Giriş

Ulusal ve Uluslararası ölçekte iletişimin öneminin her geçen arttığı dünyamızda, yabancı dil derslerinin öncelikli amacı öğrencilerin hedeflenen dilde iletişim becerilerini geliştirmektir (Legenhausen ve Little, 2017). Ülkemizde de benzer şekilde, İngilizce derslerinin amacı Ortaöğretim İngilizce Dersi (9, 10,11 ve 12. Sınıflar) Öğretim Programında (OİDÖP) öğrencilerin İngilizce olarak iletişim becerilerini geliştirmek olarak ifade edilmiştir (Milli Eğitim Bakanlığı [MEB], 2018). İletişimsel beceriye sahip olmada önemli bir faktör olan öğrenen özerkliği becerilerinin geliştirilmesi bu bakımdan önem arz etmektedir. Yabancı dil alanında öğrenen özerkliği kavramı hümanist yaklaşım, yapılandırmacılık, iletişimci yaklaşım, teknoloji ve öğrenen temelli yaklaşımların geleneksel öğretme yöntem ve yaklaşımlarının yerini almasıyla birlikte önem kazanmıştır (Benson, 2001). Ancak öğrencilerin dil becerilerini nasıl geliştireceklerine dair yeterince bilgiye sahip olmadıklarından kendi kendilerine öğrenme süreçlerinde zorluklar yaşamaktadırlar. Bu durum da öğrencilere kendi kendilerine öğrenme süreçlerini yönetmenin önemini ortaya çıkarmıştır. Dolayısıyla, araştırmacıların öğrenen özerkliği (learner autonomy) konusu dikkatlerini çekmiştir (Balçıkanlı, 2008). Chan (2001), yabancı dil öğretimi mesleğinde öğrenen özerkliğinin bir eğitim hedefi olarak yaygın bir şekilde kabul gördüğünü ve benimsendiğini belirtmektedir. Benson (2013) da benzer bir şekilde, öğrenen özerkliğinin önemine dikkat çekmektedir ve dil eğitiminde istenilen bir hedef olduğunu belirtmektedir.

Öğrenen özerkliğinin sağlanmasında, programın anahtar rol oynadığı yaygın bir şekilde kabul görmektedir (Trebbi, 2003). Benson (2001) özerkliğin geliştirilmesinde kullanılabilecek altı yaklaşımdan birinin de "Program Temelli Yaklaşımlar" olduğunu belirtmektedir. Öğrenenin istek ve ihtiyaçlarına göre bir program yapmanın faydası bu tarz yaklaşımların üzerinde durduğu konudur. Bu tarz programlarda önceden belirlenen bir içerik olmamakla birlikte, içerik

öğrenenlerin ilgi ve ihtiyaçlarına göre süreç içinde belirlenir. Bu süreçte de öğrenen bireyler ve öğretmenlerin karar verirken işbirliği içinde olması gerekmektedir.

OİDÖP' de (MEB, 2018), öğrenen özerkliği konusuna yer verildiği görülmektedir. Bu konuda, programda, öğrenen özerliğini geliştirmenin, programın temel ilkelerinden biri olduğu belirtilmektedir ve programın temel amaçlarından birinin de öğrencilerin İngilizceyi öz-yönelimli şekilde kullanmalarını sağlamak olduğu belirtilmektedir. Özerklikle ilgili yapılan çalışmalarda, öğretim programının özerklik açısından değerlendirmesine yönelik bir çalışmaya rastlanılmamıştır. Ancak öğretim programlarının değerlendirilmesi program geliştirme açısından oldukça önemlidir. Çünkü; bilim ve teknikte, toplumsal, siyasal yaşamda, eğitilecek bireydeki biyolojik ve kültürel değişmelerin kendi yapısından doğan değişme ve gelişmelerin sonucu, her program her defasında yeniden değerlendirilmeli; gözden geçirilip düzenlenmelidir (Alacapınar ve Sönmez, 2015). Demirel'e (2015) göre program değerlendirme, programın etkililiği hakkında karar verme sürecidir. Bu nedenle bu araştırmada da OİDÖP öğrenen özerkliği kapsamında değerlendirilmiştir. Yukarıda belirtilen öğrenen özerkliği kavramının faydalarından hareketle, programın ne düzeyde özerkliğe sahip olduğu ortaya konulmaya çalışılmıştır.

Bu araştırmada 2018 OİDÖP' de öğrenen özerkliğinin ne düzeyde olduğunun belirlenmesi amaçlanmaktadır. Araştırmanın amacı doğrultusunda hazırlanan alt amaçlar şunlardır:

1.2018 OİDÖP' de genel amaçların belirlenmesinde öğrenen özerkliği ne düzeydedir?

2.2018 OİDÖP' de kazanımlarda öğrenen özerkliğine yönelik etkinlikler ne düzeydedir?

3.2018 OİDÖP' de eğitim öğretim durumlarında öğrenen özerkliğine yönelik etkinlikler ne düzeydedir?

4.2018 OİDÖP' de değerlendirmede öğrenen özerkliği ne düzeydedir?

5.2018 OİDÖP' de öğretmen rollerinde öğrenen özerkliği ne düzeydedir?

6.2018 OİDÖP' de öğrenci rollerinde öğrenen özerkliği ne düzeydedir?

Yöntem

Bu çalışma, durum çalışması modelinde gerçekleştirilen nitel bir çalışmadır. Nitel araştırmalarda amaç doğrultusunda, nedenleri sorgulayan, derinlemesine veri elde etme ön plandadır. Bu çalışmada, 2018 Ortaöğretim İngilizce Dersi (9, 10, 11 ve 12. Sınıflar) Öğretim Programı'na daha kapsamlı bakış sağlayacağının düşünülmesinden dolayı durum çalışması tercih etmiştir. Çalışma grubu/konusunu "2018 Ortaöğretim İngilizce Dersi (9, 10, 11 ve 12. Sınıflar) Öğretim Programı" oluşturmaktadır. Veri toplama tekniği olarak nitel veri toplama araçlarından doküman incelemesi kullanılmıştır. Doküman incelemesi, araştırılması hedeflenen olgu ve olgular hakkında bilgi içeren yazılı materyallerin analizini kapsar. Doküman incelemesi tek başına bir veri toplama yöntemi olabileceği gibi diğer veri toplama yöntemleri ile birlikte de kullanılabilir (Şimşek ve Yıldırım, 2018).

Verileri toplama aracı olarak, 2018 OİDÖP' nin öğrenen özerkliğine göre değerlendirilmesi için araştırmacı tarafından değerlendirme kriterleri formu oluşturulmuştur. Değerlendirme kriterleri formu, öğrenen özerkliği ile ilgili alan yazın taraması yapıldıktan sonra oluşturulmuştur. Amaçların belirlenmesi, eğitim öğretim durumları, değerlendirme, öğretmenin rolü, öğrencinin

rolü ana başlıkları altında değerlendirme kriterleri oluşturulmuştur. Hazırlanan kriterlerin geçerlik ve güvenirliğini sağlamak için üç farklı uzmandan görüş alınmıştır.

Programının incelenmesi sonucunda elde edilen verilerin analizinde betimsel analiz yöntemi kullanılmıştır. "2018 OİDÖP" nin özerklik düzeyini belirlemek için araştırmacı tarafından oluşturulan ve uzman görüşlerine göre düzenlenen değerlendirme formu kullanılmıştır. Bu değerlendirme formunun boyutları çerçevesinde program incelenmiş ve veriler toplanmıştır. Elde edilen veriler betimsel olarak analiz edilmiştir. Programda özerklikle ilgili saptanan veriler analiz tablosunda sayısal olarak verilmiştir. Yapılan analizlerin güvenirliğinin sağlanması amacıyla başka bir araştırmacı tarafından da incelenmiştir ve araştırmanın güvenilirlik hesaplaması için Miles ve Huberman'ın (1994) önerdiği güvenirlik formülü kullanılmıştır. Güvenirlik = Görüş Birliği / (Görüş Birliği + Görüş Ayrılığı). Hesaplama sonucunda (182/189) araştırmanın güvenirliği %96 olarak hesaplanmıştır.

Bulgular

Genel amaçların belirlenmesi teması ile ilgili tüm sınıf düzeylerinde 10 frekans sayısı olduğu görülmektedir. “Amaç belirlemede öğrencilerin ihtiyaç, beklenti ve ilgileri dikkate alınır.” maddesi ile ilgili tüm sınıf düzeylerinde altı frekans sayısı görülürken “öğrenciler kendi amaçlarına karar verebilir.” maddesi ile ilgili tüm sınıf düzeylerinde dört frekans sayısı görülmektedir. “Öğrenciler amaç belirleme sürecinde yer alır.” maddesi ise frekans sayısına sahip değildir.

Programın kazanımlar boyutunda öğrenen özerkliğine yönelik ifadelerin toplam sayısının 116 olduğu görülmektedir. Kazanımlarda özerklik içeren ifadelerin en fazla olduğu sınıfın 9. sınıflar olduğu görülmektedir. İkinci sırada 30 öğrenen özerliği sayısı ile 12. sınıfların, üçüncü sırada ise 27 özerklik ifade sayısı ile 11. sınıfların ve dördüncü sırada 26 öğrenen özerliği vurgusu ile 10. sınıfların yer aldığı görülmektedir. Sınıf kademelerine ve 4 temel beceri kategorisine göre; ortaöğretim yabancı dil programı 9. sınıf düzeyinde konuşmaya 22, yazamaya 9, okumaya ilişkin 2 özerklik ifadesi; 10.sınıf düzeyinde konuşmaya 19, yazamaya 7 ilişkin 2 özerklik ifadesi; 11.sınıf düzeyinde konuşmaya 18, yazamaya 7, okumaya ilişkin 2 özerklik ifadesi ve 12.sınıf düzeyinde ise konuşmaya 18, yazamaya 11 dinlemeye 1 özerklik ifadesi yer almaktadır

Eğitim durumları teması ile ilgili 9. sınıf düzeyinde toplam 9, 10, 11 ve 12. sınıf düzeyinde toplam 97 frekans sayısı görülmektedir. "Program sınıf dışı öğrenmeyi destekler." maddesinin tüm sınıf düzeylerinde 18 frekans sayısına sahip olduğu görülmektedir. "İçerik seçiminde öğrencinin ilgi, ihtiyaç, beklentileri dikkate alınır." maddesi 9. ve 10. sınıf düzeyinde 15, 11. ve 12. sınıf düzeyinde 16 frekans sayısına sahiptir. "Program, öğrenciyi sınıf dışı uygulamalara yönlendirir." maddesi tüm sınıf düzeylerinde 14 frekans sayısına sahiptir. "Öz yönelimli öğrenme uygulamalarına yer verilmiştir." maddesi tüm sınıf düzeylerinde 13 frekans sayısına sahiptir. “Öğrenme sorumluluğunun tamamen öğrencide olduğu ortamlar oluşturulur." maddesi tüm sınıf düzeylerinde 12 frekans sayısına sahiptir. “İçerik ve etkinlilerde öğrencinin seçme hakkı vardır” maddesi tüm sınıf düzeylerinde 11 frekans sayısına sahiptir. "Öğrenen özerkliğine vurgu yapan dil öğretim yaklaşımlarına yer verilmiştir." maddesi tüm sınıflar düzeyinde altı frekans sayısına sahiptir. "Öğrenciler yeni öğrendikleriyle önceki öğrenmeleri arasında bağ kurabilirler." maddesi 9. sınıf düzeyinde yedi, 10. sınıf düzeyinde altı, 11. ve 12. sınıf düzeylerinde beş frekans sayısına

sahiptir. "İçerik takibinde esnek davranılabilir." ve "Öğrenciler öğrenme sürecinde karar alırlar." maddeleri birer frekans sayısına sahiptir. "Öğrencilere kendi öğrenme stratejilerini seçme hakkı sunulur." ve "Ders kitaplarının seçiminde öğrenciler yer alır." maddeleri ile ilgili herhangi bir bulguya rastlanmamıştır.

Ölçme ve değerlendirme teması ile ilgili 9. sınıf düzeyinde 26, 10 ve 11. sınıf düzeyinde 27, 12. sınıf düzeyinde ise 22 frekans sayısının olduğu görülmektedir. En yüksek frekansa sahip maddenin " Alternatif odaklı değerlendirmelere yer verilmiştir." maddesi olduğu görülmektedir. "Öğrenci öz değerlendirme yapar" maddesi 9. sınıf düzeyinde sekiz, 10. ve 11. sınıf düzeylerinde dokuz, 12. sınıf düzeyinde ise dört frekans sayısına sahiptir. "Öğrenci akran değerlendirmesi yapar." maddesinin frekans sayısı üçtür. Diğer taraftan programın değerlendirme boyutunda özerklik ile ilgili bulunması beklenen "Öğrenci kendi değerlendirmelerine karar verebilir." ve "Değerlendirmede, öğrencinin ilgi, ihtiyaç, beklentileri dikkate alınır." maddeleri ile ilgili herhangi bir ifade bulunmamaktadır.

Öğretmenin rolü temasının tüm sınıf düzeylerinde toplam 5 frekans sayısına sahip olduğu görülmektedir. "Öğretmenin rolü kaynak kişi ve rehber, etkinlikleri yöneten, öğrenciyi yönlendiren kişi olarak tanımlanmıştır." maddesinin frekans sayısı dörttür. "Öğretmen öğrencilere kısmen kontrolü devreder." maddesi ise sadece bir adet frekans sayısına sahiptir.

Öğrencinin rolü temasının 9, 10 ve 12. sınıf düzeyinde 23, 11. Sınıf düzeyinde ise 24 frekans sayısına sahip olduğu görülmektedir. Öğrencilerin; aktif olma rolünün dört frekans sayısına, öğrendikleri dile istekli olma rolünün üç frekans sayısına, süreçten bağımsız olarak öğrenebilme, öğrenmeye hevesli olma, öğrenmesini geliştirmek için her fırsatı değerlendirme ve sınıf dışı projelere katılma rollerinin iki frekans sayısına sahip olduğu görülmektedir. Tablo 8'deki diğer maddelerden "eleştireldir, bulundukları ortamdan stratejik olarak faydalanabilirler, kendi ihtiyaçları ve diğerlerinin ihtiyaçlarını değerlendirebilirler, motivasyonu yüksektir, amaç odaklıdır, düzenlidir, çalışkandır, girişimcidir" maddeleri birer frekans sayısına sahiptir.

Tartışma ve Sonuç

Araştırmanın birinci alt amacı 2018 ÖİDÖP' de genel amaçların belirlenmesinde öğrenen özerkliğinin ne düzeyde olduğuna yöneliktir. Araştırmadan elde edilen verilere göre programda amaçların belirlenmesinde; öğrencilerin kendi amaçlarına karar verebilmesi ve amaç belirlemede öğrencilerin ihtiyaç beklenti ilgilerinin dikkate alınması maddelerinin programda dikkate alındığı görülürken, öğrencilerin amaç belirleme sürecinde yer alması maddesi ile ilgili herhangi bir veriye ulaşılamamıştır. Öğrenen özerkliğinin geliştirilmesinde Little (2004) yaptığı çalışmada öğrencilerin kendi amaçlarına, içeriklerine, yöntem ve tekniklerine karar vermelerine, gelişimlerini izleyebilmelerine ve sonuçlarını değerlendirmelerine yardımcı olacakları bir danışmanlık hizmetine katkı sağlayacağı savunulmaktadır.

Elde edilen verilere göre her sınıf düzeyinde kazanımlarda özerklik etkinliklerine yer verildiğini görülmektedir. 9. sınıf düzeyinde toplam 88 kazanımdan 33'ünde öğrenen özerkliği etkinliklerine rastlanmıştır. 10. sınıf düzeyinde toplam 79 kazanım yer almaktadır. Bunlardan 26 kazanınım öğrenen özerkliği ile ilişkili olduğu tespit edilmiştir. 11. sınıf düzeyinde toplam 68 kazanım arasından 27 tanesi öğrenen özerkliği ile alakalıdır. Son olarak 12. sınıf düzeyinde toplam 87 kazanım yer almaktadır. Bunlardan 30 tanesinin öğrenen özerkliği ile ilişkili olduğu tespit

edilmiştir. Kazanımlarda kullanılan etkinlikler alan yazında öğrenen özerkliğini geliştirmek için önerilen etkinliklerle benzerlik göstermektedir. Örneğin Dam' e (2011) göre, özerk sınıflarda uygulanan etkinlikler hem başarılı öğrenciyi hem de başarısız öğrenciyi öğrenmeye teşvik etmektedir. Sınıflar düzeyinde etkinlikler bağlamında ulaşılan özerklik ifadelerinin de öğrencileri öğrenmeye teşvik edecek düzeyde tasarlandığı anlaşılmaktadır.

Eğitim durumlarında öğrenen özerkliğine yönelik etkinliklerin ne düzeyde olduğunu belirlemeye yöneliktir maddelere bakıldığında programın; sınıf dışı öğrenmeyi desteklediğini, içerik seçiminde öğrencilerin ilgi, ihtiyaç ve beklentilerini dikkate aldığını, öz yönelimli uygulamalara yer verdiğini, öğrenciyi sınıf dışı uygulamalara yönlendirdiğini, öğrenme sorumluluğunun tamamen öğrencide olduğu ortamlar oluşturduğunu göstermektedir. Uygun koşulların yerine getirilmesinde; öğrenci ihtiyaçlarının göz önünde bulundurulması (Ma ve Ma, 2012), öğrencilere seçme hakkı verilmesi, kendilerinden ne beklenildiğinin bildirilmesi (Dam, 2010), öğrencilerin sınıf dışı çalışmalara yönlendirilmesi ve ilgi ve ihtiyaçlarına uygun ödevler verilmesi (Harmer, 2001) önemli görülmektedir.

Değerlendirmede öğrenen özerkliğinin ne düzeyde olduğunu belirlemeye yöneliktir. Buna yönelik bulgular incelendiğinde programda değerlendirmede öğrenen özerkliğine yönelik etkinliklere yer verildiği görülmektedir. Programda alternatif odaklı değerlendirmelere, öz ve akran değerlendirmelere yer verilmektedir. Örneğin programda bahsedilen değerlendirme yaklaşımlarından biri portfolyolardır. Çeşitli çalışmalar portfolyoların öğrenen özerkliğini geliştirdiğini ortaya koymaktadır. Rao (2006), portfolyoların öğrencileri hem değerlendirme sürecine dâhil ettiğini hem de öğrencilerin İngilizce öğrenmelerini geliştirdiğini belirtmektedir

Programda yer alan öğretmen özellikleri ile ilgili bölüm, öğretmenin kaynak kişi ve rehber, etkinlikleri yöneten, öğrenciyi yönlendiren kişi olarak rolünü ortaya koymaktadır. Alan yazında da öğrenen özerkliğinin geliştirilmesinde öğretmenlerin benzer rollerinden bahsedilmektedir (Scharlo ve Szabo, 2000; Voller, 1997; Camilleri 1997). Ayrıca yapılan çalışmalarda özerklik çalışmalarına ve yaklaşımlarına yer veren öğretmenlerin öğrencilerinde, özerklik becerilerinde olumlu sonuçlar elde edilmiştir. Bu da özerklik becerilerinde öğretmen rollerinin önemini ortaya koymaktadır.

Öğrenci rollerinde öğrenen özerkliğinin ne düzeyde olduğunu belirlemeye yöneliktir. Programda, öğrenci rolleri incelendiğinde, öğrencilerin; aktif ve istekli olma, süreçten bağımsız olarak öğrenebilme, öğrenmeye hevesli olma, öğrenmesini geliştirmek için her fırsatı değerlendirme ve sınıf dışı projelere katılma, eleştirel olma, bulundukları ortamdan stratejik olarak faydalanabilme, kendi ihtiyaçları ve diğerlerinin ihtiyaçlarını değerlendirebilme, yüksek motivasyonlu ve amaç odaklı, düzenli, çalışkan ve girişimci olma rollerinden bahsedildiği görülmektedir. Legenhausen ve Little (2017), özerk öğrenci rollerini iletişimci, araştırmacı ve amaçlı olarak tanımlarken Hughes (2003) özerk öğrencileri; öz farkındalığa sahip, eleştirel düşünen, kendi sorularını oluşturan ve kendi öğrenmelerini planlama yeteneğine sahip, akranlarıyla işbirliği yapabilen ve araştırma yapma yeteneğine sahip bireyler olarak tanımlamaktadır.

Öneriler

Araştırmanın sonuçlarına göre şu önerilerde bulunabilir: Yapılacak olan yeni programlarda öğrenen özerkliğinin geliştirilmesi açısından sürecin her aşamasında öğrenciler karar verme aşamalarında yer almalıdır. Ders kitaplarının seçilmesi aşamasında da öğrenciler karar verme süreçlerine dâhil edilmelidir. Ayrıca ortaöğretim İngilizce öğretmenlerinin öğrenen özerkliği ile ilgili bilgilenmelerine yönelik çalışmalar yapılıp farkındalıkları artırılmalıdır. Ölçme ve değerlendirmede öğrencilere kendi değerlendirmelerine karar verebileceği ortamlar öğretmenler tarafından yaratılmalıdır. Öğretmenler sınıf içerisinde öğrencileri karar verme süreçlerine dâhil etmeli ve öğrenen özerkliği konusunda öğrencilerde farkındalık oluşturmalıdır. Öğretmenlerin bu konudaki rollerinin önemine varmaları sağlanmalıdır.

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Investigation of Secondary School Students' Attitudes Towards Computational Thinking, Problem-Solving Skills and Research-Inquiry

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Abstract

In the current study, it is aimed to examine middle school students' computational thinking, problem solving skills and their attitudes towards research inquiry of the information technologies course, which is taught with the method of constructivist approach. The study was carried out in accordance with the pre-posttest experimental design. 14 girls and 8 boys in a middle school 5th grade were included to the study. The data was collected in Kırşehir in the second semester of 2018-2019. Within the scope of the study, "Problem Solving Inventory", "Computational Thinking Skill Scale" and "Attitude Scale Towards Research-Inquiry" was used at the beginning and end of the application. As a result of the study, it was observed that there was a significant difference in the post-test scores between the "avoidance" sub-dimension of the problem solving skills of middle school students and the total score obtained from the problem solving skill scale. In addition, the significant difference obtained between the total score the students got from the inquiry-oriented attitude scale and the sub-dimensions of curiosity, value. Finally, avoidance is in the direction of the posttest score.

Keywords: Computational thinking, inquiry-oriented attitude, middle school students, problem solving skills, social constructivist theory, 5E teaching method.

Introduction

The developments in science and technology have had a direct impact on the learning and teaching habits of individuals and societies. In this process, it is expected that the individual will have characteristics that produce, develop and functionally use knowledge, be entrepreneurial and determined, and contribute to society and culture (MEB, 2018). The sense of curiosity in individuals whose needs and expectations are increasing day by day and who are trying to reshape themselves led them to research and discovery (Damar et al., 2017). Individuals of this age are expected to produce new knowledge and apply it to new situations and problems, instead of taking existing knowledge immediately (Wagner, 2008). Thus, individuals start the problem solving process by making an effort to cope with the problems (Özyürek & Begde, 2016). Problem solving is a basic skill required for today's students (Kozikoğlu, 2019). An individual's knowing what s/he wants and revealing it effectively depends on his/her problem-solving skills (Zembat, Tunçeli, & Akşin Yavuz, 2017). Individual skills play a major role in solving any problem faced by the individual (Özyürek & Begde, 2016; Tümkaya & İflazoğlu, 2000; Yılmaz & Dost, 2016). Understanding and solving problem situations is defined as an individual's ability to engage in cognitive processing (Shute et al., 2016). Problem solving is a complex process that requires cognitive as well as affective and psychomotor skills (Oral et al., 2018; Tüysüz, 2013). Problem solving helps the child learn how to learn (Ülküer, 1988). Children need to acquire problem-solving skills in order to solve the problems they encounter (Ekici & Balım, 2013). Individuals who have problem-solving skills, especially at a young age, adapt more easily to the environment they live in (Senemoğlu, 2012; Zembat et al., 2017). That is why, previous experiences contribute to the solution of the problems encountered (Durgun & Önder, 2019). A research and inquiry-based approach is adopted for the solution of problems (Demir, 2016, Öner & Yılmaz, 2019). Since questioning is a way of thinking (Karademir & Saracaloğlu, 2013), individuals with problem-solving skills are constantly in search and questioning. In the inquiry approach, students are active in the learning process (Gülhan & Yurdatapan, 2014) and are expected to think at a higher level (Demir, 2016; Lim, 2001). This is an effective way that the learner uses in the learning process

(Demir, 2016). It is aimed to direct students to the subjects they are interested in and to gain scientific thinking skills and to raise questioning individuals in the way of problem solving (Açıkgöz & Sağır, 2020; Karamustafaoğlu & Pool, 2016; Kardaş & Yeşilyaprak, 2015). With the questions asked during the lesson, which takes place with the logic of inquiry, changes will be made in the students' perspectives (Bilir, 2015). In this way, every place where students can research and question will turn into an educational environment (Öz, 2015). With the increase in the use of technology in educational environments, it is possible for students to access information themselves by applying research and inquiry-based learning (Kozikoğlu & Camuşcu, 2019). Supporting the learning process with technology positively affects learning skills (Hopson et al., 2002). Technological opportunities increase the ways of accessing information (Seferoğlu & Akbıyık, 2005). Thus, technology provides new opportunities to guide students and teachers in the inquiry process (Kırılmazkaya, 2014). Gaining research and questioning skills to students ensures that attitudes towards research are positive (Ozan & Karamustafaoğlu, 2020). With the research-inquiry approach, students have the opportunity to design their research, collect and analyze data (Kırılmazkaya, 2014). Students are required to reach a problem solution by drawing conclusions from this situation and to construct the solutions obtained.

The inquiry-based learning approach is based on the constructivist approach, which is the basis of other contemporary learning approaches and is emphasized as the most effective way for students to learn (Bilir, 2015; Duban, 2008). This approach, which tries to build knowledge from the ground up, is based on knowledge and learning rather than teaching (Aykan & Tatar, 2017). In this approach, learning takes place with the help of mental and social processes (Evrekli, Didem, Balım, & Kesercioğlu, 2009). Since some skills are important in updating, applying, criticizing and analyzing information, the constructivist approach plays an important role in the field of education (Adak, 2017). Constructivism increases the success of students and completely affects the learning process with the development of their creative abilities (Çelebi, 2006). The learning process provides students with the ability to think, question and explain by making them active, interactive and positive (Jack, 2017). The learning environment also provides a positive effect on the psychological characteristics of students (Kemankaşlı & Gür, 2016). In the process, it is essential for the student to discover, discuss and research information together with the teacher (Balcı, 2007). The student provides learning by interacting with his/her active effort and environment (Fidan & Duman, 2014). The constructivist approach aims to raise individuals with advanced problem-solving skills who can use and develop new technologies, make decisions in every way, and assume responsibilities (Yıldırım & Altan, 2017). In this approach, all knowledge is based on previous knowledge (Gupta & Gupta, 2017) and students construct new knowledge with their existing knowledge (Hançer, 2016).

The age we live in envisages raising individuals equipped with high-level cognitive knowledge and skills and the competencies required by the age. Within the scope of this prediction, it is thought that the adaptation abilities of individuals are very important. Regardless of the individual's circumstances, by observing the dynamics of the relevant conditions, it is important that they have the knowledge, skills and competencies to adapt very quickly to the relevant situation. In this case, computational thinking and problem-solving skills come to mind. Computational thinking skills are expressed as a combination of creativity, algorithmic thinking, critical thinking, problem solving and collaborative working skills (ISTE, 2015). Computational

thinking systematizes the problem-solving skills of individuals and enables them to expand their thinking boundaries. For example, Yadav, Mayfield, Zhou, Hambrusch, and Korb (2014) argue that computational thinking is an effective mental process used to formulate problems and express solutions in computer science terms. When students who realize these mental processes learn the concepts and principles of information technologies and improve themselves, they can be better prepared for their daily life and careers with the support of technology (Gülbahar, Kert, & Kalelioğlu, 2019). In addition, students are expected to develop a positive attitude towards research and inquiry. That is why, attitude is an important factor that activates behavior (Davis, Bagozzi, & Warshaw, 1989). These skills that an individual has gained can help his/her cope with problems by considering the conditions s/he is in. However, the individual is also likely to need some research methods in problem solving and computational thinking. In this regard, the development of a positive attitude towards inquiry may also have an impact on one's ability to adapt to changing and transforming conditions. At this point, it is thought that the dynamic structure of the information technologies course will work by integrating it with a pedagogical infrastructure. Based on all these arguments, in this study, it is aimed to examine the effect of secondary school students' information technologies course, which is carried out with a constructivist approach, on their computer thinking and problem solving skills and their attitudes towards research and inquiry.

Research Questions

Information technologies course taught with the constructivist approach method of secondary school students;

1. Is there a statistically significant effect on problem solving skills, confidence, and self-control and avoidance behaviors?
2. Is there a statistically significant effect on computational thinking skills, creativity, algorithmic thinking skills, collaboration, critical thinking and problem solving skills?
3. Is there a statistically significant effect on attitude towards questioning, curiosity, value, and avoidance?

Method

Study Design

In the research, the effect of the information technologies course, which was held with the constructivist approach method for secondary school students, on their computational thinking and problem solving skills and their attitudes towards research and inquiry was examined. In the research, a poor experimental design based on the single group pretest posttest model, which is one of the quantitative research methods, was used. Among the experimental designs, single-group designs in which random assignment cannot be made on the sample and there is no control group are called poor experimental designs because they cannot provide these features (Büyüköztürk et al., 2013).

Participants

The study group in the research consists of 14 female and eight male students in a state secondary school in the city center of Kırşehir in the 2018-2019 academic year, the second semester. Studies that include an information technology course in the curriculum and the

necessity of acquiring computer thinking skills at an early age (Grover, 2017; Park & Kwon, 2022; Parmar, Lin, Dsouza et al., 2022; Rich, Bartholomev, Daniel et al., 2022) forms the basis in deciding the participants. In addition, in the selection of the study group whose mainstay is computer thinking skills, there are also studies that reveal the problem-solving skills associated with computational thinking skills (Lai & Wong, 2022; Luo, Israel & Gane, 2022; Voon, Wong, Wong et al., 2022) and the attitude towards research inquiry (Hava & Koyunlu Ünlü, 2021). Thus, these related studies has been effective in deciding study group. As a result, the effect of the variables that are related to each other in the literature on the secondary school students of the information technologies course, which is taught with a constructivist approach, will be revealed.

Data Collection Process

In the data collection process, firstly, after the necessary permissions were obtained from the Provincial Directorate of National Education, the administrators of the school where the application would be carried out, the information technology course teacher and the students who took the course were informed about the content of the research. The data collection process was carried out with the students for seven weeks in the second semester of the 2018-2019 academic year.

Data Collection Tools

In the data collection process of the research, the Problem Solving Inventory (Serin et al., 2010), which measures the problem-solving skills of primary school students, the Computational Thinking Skill Levels Scale (Korkmaz et al., 2015), which measures the computational thinking skills of secondary school students, and the Research-Inquiry Oriented Attitude Scale (Ebren et al., 2016), which measures attitudes towards the secondary school students' research-questioning skills.

Problem Solving Inventory

The "Problem Solving Inventory", which consists of a total of 24 items, has a structure with three dimensionsThe "Problem Solving Inventory", which consists of a total of 24 items, has a structure with three dimensions. Each dimension was expressed as confidence in problem solving skills with 12 items, self-control with 7 items, and avoidance with 5 items. As a result of exploratory factor analysis (EFA), it explains 42.26% of the total variance. The Cronbach alpha reliability value, which was developed by Serin et al. (2010) and calculated for the entire scale, is 0.80 and the test-retest reliability value is 0.85. The Cronbach alpha value was 0.86 according to Ocak et al. (2021), 0.85 according to Yurtseven et al. (2021), 0.80 according to Demir (2022), 0.83 according to Or and Bal (2021). The related studies suggested that the scale has an up-to-date and reliable structure.

Computational Thinking Skill Scale

The “Computational Thinking Skill Scale", which consists of 22 items in total, has a structure consisting of five dimensions. Each dimension includes 4 items: creativity, algorithmic thinking, collaboration and critical thinking, so it was expressed as 6-item problem solving. Cronbach's alpha value was used for reliability in the scale, and this value was 0.81 (Korkmaz et al., 2015). The Cronbach alpha value was 0.76 according to Çevik et al. (2021), 0.85 according to

Özgür (2020), 0.85 according to Kirmit, Dönmez & Çataltaş, (2018). The related studies suggested that the scale has an up-to-date and reliable structure.

Research Inquiry Attitude Scale

Consisting of a total of 13 items, the "Research-Inquiry Oriented Attitude Scale" has a three-dimensional structure. Each dimension was expressed as “curiosity” and “value” with 4 items and “avoidance” with 5 items. As a result of EFA, it explains 48.42% of the total variance. Cronbach's alpha value was used for reliability in the scale, and this value was 0.76 (Ebren et al., 2016). Özcan (2021) found the Cronbach alpha reliability value to be 0.80, while Kozikoğlu and Camuşçu (2019) found it to be 0.76.

Procedure

Weekly processes and activities carried out within the scope of the study are given in Table 1.

Table 1. *Procedures carried out within the scope of the study*

Week	Activity
1 st week	Within the scope of the research, pre-tests were applied to the students before starting the research.
2 nd week	Within the scope of the I Think Logically Unit in the lesson plan, Information - Operators and Operators were mentioned within the scope of Operation Priority. On the basis of Constructivist Theory; 1. Have you ever seen people around you called operators? And “For example, what do you think “Computer operator” means?” questions were asked and it was tried to be explained by discussing this issue with the students. 2. A game was played with the help of a smart board in order to distinguish the operators and they were asked to use the operators effectively. 3. By observing the students, they were helped with the subjects they were curious about and the subjects they were stuck with.
3 rd week	Algorithm examples were made within the scope of an Algorithm Tale included in the lesson plan. On the basis of Constructivist Theory; 1. “This story was a slightly modified version of a story you've probably heard before. Did you notice a different word in the story that you hadn't heard before?" and what did the word “Algorithm” in the story evoke for you?” questions were asked and discussed. 2. “What is an Algorithm?” It was said that the answer to the question would be learned and the Algorithm was explained. 3. A discussion environment was prepared about what the algorithm would do in daily life. 4. During the implementation process, students were observed and feedbacks were given. 5. Students were expected to make their own algorithms. Students were observed and their deficiencies were corrected and feedback was given.
4 th week	Flowcharts were made within the scope of I Change the Flow Unit in the lesson plan. On the basis of Constructivist Theory; 1. The teacher was asked what the Flowchart photo in his hand was. 2. They were told that they would create Flow Charts as a problem case. 3. “What connection do Algorithms and Flowcharts have?” the question was asked. A discussion environment was prepared for the students.

Table 1. *Procedures carried out within the scope of the study (continuation-1)*

5 th week	As a subject in the lesson plan, code blocks were introduced on the Blockly site within the scope of Block-Based Programming. On the basis of Constructivist Theory; 1. The students were asked about the applications described in the previous lessons in order to check their foreknowledge and to reflect on it. They were asked which code blocks were used. Considering the answers given, what was done and which code blocks were useful was discussed. 2. They were asked what caught their attention in the code blocks on the Blockly site. Feedback was given according to the answers received. 3. During the application, the students were observed and feedbacks were given to the students. And students' inquiry and research was supported. 4. Students were supported to present their practices in a more original way.
6 th week	Within the scope of the Programming Child Game unit in the lesson plan, the students were made to play with the SCRATCH program. On the basis of Constructivist Theory; 1. Students' knowledge is reviewed by asking what we have covered in previous lessons. In the applications made, the described code blocks are mentioned again. 2. The students were given information about the game to be played. 3. The students were asked to do the stages of the game on the smart board step by step on their computers. 4. Students were observed while they were doing their applications and feedback was given to the students. And students' inquiry and research was supported. 5. Students who could not do it were helped.
7 th week	Post-tests were applied to conclude the study and compare the data.

Data Analysis

In the analysis of the data performed with the SPSS program, the researchers aimed to discover if there is a significant difference in the pretest and posttest measurements of the group was examined with the related samples t-test, or not. To determine the characteristics of the study group, percentage (%) and frequency (f) values indicating descriptive statistics, mean score, standard deviation, maximum and minimum, and kurtosis and skewness values (<-1,5;>+1,5) were used to determine descriptive statistics (Tabachnick & Fidell, 2013). In the last stage, Pearson correlation coefficient was used to determine the effects between variables.

Constructivist Approach Followed in the Scope of the Activity: 5E Model

In the study, the process was carried out on the basis of the 5E teaching method on the basis of the constructivist approach. In this context, lesson plans were created about how the lesson was taught every week in the study, and the steps of introduction, discovery, explanation, deepening and evaluation were used in the implementation of the lesson plans (Appendix 1).

Ethical Permissions of the Study

In this study, all the rules specified to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were complied with. None of the actions specified under the heading "Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, have been taken. In line with these rules, Kırşehir Ahi Evran University, Social and Humanities Scientific Research and Publications Ethics Committee approved this study to be carried out.

Findings

Within the scope of the research, the mean, standard deviation, maximum and minimum, kurtosis and skewness values for the variables of "Problem Solving Skills", "Computational Thinking Skills" and "Attitude towards Research and Inquiry" and their sub-dimensions are shown in Table 2.

Table 2. *Descriptive statistics of the variables of the study*

	N	Minimum	Maximum	Mean	Standard deviation	Kurtosis	Error	Skewness	Error
Confidence in problem solving skills posttest	22	34,00	50,00	42,86	3,92	-,378	,491	,820	,953
Self-control posttest	22	10,00	30,00	19,41	4,64	-,101	,491	,646	,953
Avoidance posttest	22	6,00	18,00	11,64	3,17	,219	,491	-,386	,953
Avoidance pretest	22	6,00	25,00	16,23	5,58	,120	,491	-,958	,953
Self-control pretest	22	11,00	31,00	22,05	6,11	-,149	,491	-1,245	,953
Confidence in problem solving skills pretest	22	31,00	60,00	45,50	6,49	,286	,491	,795	,953
Problem solving skill scale total score posttest	22	62,00	86,00	73,91	6,55	-,058	,491	-,343	,953
Problem solving skill scale total score pretest	22	59,00	111,00	83,77	15,12	,130	,491	-,902	,953
Creativity posttest	22	13,00	19,00	16,87	1,75	-,704	,491	-,303	,953
Computational thinking skills scale total score posttest	22	62,00	90,00	75,36	7,99	,070	,491	-,733	,953
Algorithmic thinking posttest	22	8,00	19,00	14,09	3,49	-,453	,491	-1,075	,953
Collaboration posttest	22	8,00	19,00	14,95	2,80	-,977	,491	,925	,953
Critical thinking Posttest	22	8,00	19,00	13,82	2,86	-,028	,491	-,602	,953
Problem solving posttest	22	11,00	23,00	16,50	3,47	,045	,491	-1,091	,953

Table 2. *Descriptive statistics of the variables of the study (continuation-1)*

Computational thinking skills scale total score pretest	22	66,00	102,00	80,55	9,89	,635	,491	-,394	,953
Creativity pretest	22	13,00	20,00	17,22	2,07	-,370	,491	-,615	,953
Algorithmic thinking pretest	22	9,00	19,00	14,09	2,76	,046	,491	-,511	,953
Cooperation pretest	22	9,00	20,00	15,82	2,56	-,737	,491	1,077	,953
Critical thinking pretest	22	7,00	20,00	14,59	3,54	-,654	,491	,059	,953
Problem solving pretest	22	11,00	26,00	18,68	4,09	-,036	,491	-,732	,953
Attitude towards research inquiry total score pretest	22	25,00	50,00	37,64	6,32	-,077	,491	-,408	,953
Curiosity pretest	22	9,00	19,00	14,36	3,33	-,010	,491	-1,276	,953
Value pretest	22	8,00	14,00	10,86	1,67	-,236	,491	-,508	,953
Avoidance (attitude) pretest	22	7,00	19,00	12,27	3,56	,366	,491	-1,042	,953
Attitude towards research inquiry total score posttest	22	38,00	65,00	51,14	8,16	-,069	,491	-,860	,953
Curiosity posttest	22	13,00	20,00	16,91	2,16	-,372	,491	-,830	,953
Value posttest	22	11,00	20,00	15,86	2,95	-,282	,491	-,882	,953
Avoidance (attitude) posttest	22	9,00	25,00	17,82	5,22	-,140	,491	-1,235	,953

Findings of the Experimental Process

The results for the question are given in Table 3 about one of the sub-problems of the research is "Does the information technologies course based on the constructivist approach method have a statistically significant effect on the problem solving skill confidence sub-dimension of secondary school students?"

Table 3. *T-test results regarding the sub-dimension of confidence in problem solving skills*

	$\bar{X}$	N	S	SD	t	p
Pretest	42.86	22	3.92	8.27	-1.496	0.15
Posttest	45.50	22	6.49			

*<0.05; **<0.01

According to Table 3, there is no significant difference in the pretest and posttest scores of middle school students' confidence in problem solving sub-dimension (t(8.27)=-1.496, p>0.05). While the average scores of the students in the pretest were $\bar{X}$=42.86, it was observed that the posttest average scores were $\bar{X}$=45.50. When these results are examined, it can be said that although it is seen that the information technologies course based on the constructivist approach method leads to an increase in the sub-dimension of confidence in problem solving skills, this increase is not significant.

Table 4 provides the results for one of the sub-problems of the research is "Does the information technologies course based on the constructivist approach method have a statictically significant effect on the self-control sub-dimension of secondary school students?"

Table 4. *Related samples t-test results for the Self-Control sub-dimension*

	$\bar{X}$	N	S	SD	t	p
Pretest	19.41	22	4.63	7.42	-1.666	0.111
Posttest	22.04	22	6.11			

*<0.05; **<0.01

In Table 4, it was seen that the pretest and posttest scores of secondary school students for the sub-dimension of self-control did not differ significantly (t (7.42) =-1.666, p>0.05). While the pretest scores of the students were $\bar{X}$=19.41 before the application, it was seen that the posttest scores were $\bar{X}$=22.04 after the application. Accordingly, it can be said that the information technologies course based on the constructivist approach method did not significantly affect the self-control skills of the students.

One of the sub-problems of the research is "Is there a positive and significant effect in the avoidance sub-dimension of secondary school students of the information technologies course based on the constructivist approach method?", and the results for the question are shown in Table 5.

Table 5. *Related samples t-test results for the avoidance sub-dimension*

	$\bar{X}$	N	S	SD	t	p
Pretest	11.64	22	3.17	6.92	-3.112	0.005**
Posttest	16.23	22	5.58			

*<0.05; **<0.01

In Table 5, it is observed that the pretest and posttest scores of secondary school students for the avoidance subscale differ significantly (t (6.92) =-3.112, p<0.01). While the pretest scores of the students were $\bar{X}$=11.64 before the application, the posttest scores were found to be $\bar{X}$=16.23 after the application. When these results are examined, it is revealed that there is a significant decrease (reverse item) in the avoidance behaviors of the information technologies course based on the constructivist approach method.

One of the sub-problems of the research is "Is there a positive and significant effect on the total score of problem solving skills of secondary school students in the information technologies

course based on the constructivist approach method?", and the results for the question are shown in Table 6.

Table 6. *Related samples t-test results regarding the total score obtained from the problem solving skill scale*

	X̄	N	S	SD	t	p
Pretest	73.91	22	6.54	17.25	-2.681	0.014*
Posttest	83.77	22	15.12			

*<0.05; **<0.01

In Table 6, it is seen that the pretest and posttest scores of the students' total scores after the problem solving skill scale differ significantly (t (17.25) =-2.681, p<0.05). While the pretest scores of the students were X̄=73.91 before the application, it was seen that the posttest scores were X̄=83.77 after the application. Accordingly, it can be said that the information technologies course based on the constructivist approach method forms a significant increase in the total score of problem solving skills in students.

Table 7 displays the results on one of the sub-problems of the research is "Does the information technologies course based on the constructivist approach method have a statistically significant effect on the creativity sub-dimension of secondary school students?"

Table 7. *Related samples t-test results related to creativity sub-dimension*

	X̄	N	S	SD	t	p
Pretest	16.86	22	1.75	2.44	-0.699	0.492
Posttest	17.23	22	2.07			

*<0.05; **<0.01

In Table 7, it is seen that the pretest and posttest scores of the students for the creativity sub-dimension do not differ significantly (t (2.44) =-0.699, p>0.05). While the pretest scores of the secondary school students were X̄=16.86 before the application, the posttest scores were found to be X̄=17.23 after the application. According to this result, it can be said that the information technologies course based on the constructivist approach method did not have a significant effect on the creativity sub-dimension of the students.

One of the sub-problems of the research is "Does the information technologies course based on the constructivist approach method have a statistically significant effect on the algorithmic thinking sub-dimension of secondary school students?", and the results for the question are shown in Table 8.

Table 8. *Related samples t-test results related to algorithmic thinking sub-dimension*

	X̄	N	S	SD	t	p
Pretest	14.09	22	3.49	4.32	0.000	1.000
Posttest	14.09	22	2.76			

*<0.05; **<0.01

In Table 8, it is seen that the pretest and posttest scores of the students for the algorithmic thinking sub-dimension did not differ significantly (t (4.32) =0.000, p>0.05). While the pretest scores of the students were $\bar{X}$=14.09 before the application, the posttest scores were found to be $\bar{X}$=14.09 after the application. According to this result, it can be said that the information technologies course based on the constructivist approach method did not have a significant effect on the algorithmic thinking sub-dimension of the students.

One of the sub-problems of the research is "Is there a positive and significant effect in the cooperation sub-dimension of secondary school students of the information technologies course based on the constructivist approach method?", and the results for the question are shown in Table 9.

Table 9. *Related samples t-test results related to cooperation sub-dimension*

	$\bar{X}$	N	S	SD	t	p
Pretest	14.95	22	2.80	3.23	-1.256	0.223
Posttest	15.82	22	2.56			

*<0.05; **<0.01

When Table 9 is examined, it is seen that the pretest and posttest scores of the students for the cooperation sub-dimension do not differ significantly (t (3.23) =-1.256, p>0.05). While the pretest scores of the students were $\bar{X}$=14.95 before the application, the posttest scores were $\bar{X}$=15.82 after the application. This result shows that the information technologies course based on the constructivist approach method did not have a significant effect on the cooperation sub-dimension of the students.

One of the sub-problems of the research is “Is there a significant effect in the sub-dimension of critical thinking of secondary school students of the information technologies course based on the constructivist approach method?”, and the results for the question are shown in Table 10.

Table 10. *Related samples t-test results for the critical thinking sub-dimension*

	$\bar{X}$	N	S	SD	t	p
Pretest	13.82	22	2.85	4.51	-0.803	0.431
Posttest	14.59	22	3.54			

*<0.05; **<0.01

When Table 10 is examined, it is seen that the pretest and posttest scores of the students for the critical thinking sub-dimension do not differ significantly (t (4.51) =-0.803, p>0.05). While the pretest scores of the secondary school students were $\bar{X}$=13.82 before the application, it was seen that the posttest scores were $\bar{X}$=14.59 after the application. Accordingly, it can be said that the information technologies course based on the constructivist approach method did not have a significant effect on the students' critical thinking sub-dimension.

One of the sub-problems of the research is “Does the information technologies course based on the constructivist approach method have a statistically significant effect on the problem

solving sub-dimension of secondary school students?", and the results for the question are shown in Table 11.

Table 11. *Related samples t-test results related to problem solving sub-dimension*

	X̄	N	S	SD	t	p
Pretest	13.82	22	2.85	4.51	-0.803	0.431
Posttest	14.59	22	3.54			

*<0.05; **<0.01

When Table 11 is examined, it is seen that there is no significant difference between the pretest and posttest scores of the students for the problem solving subscale (t (5.21) =-1.962, p>0.05). It was observed that the pretest scores of the secondary school students were X̄=16.50 before the application, while the posttest scores were X̄=18.68 after the application. According to this result, it can be said that the information technologies course based on the constructivist approach method did not have a significant effect on the problem solving sub-dimension of the students.

One of the sub-problems of the research is "Does the information technologies course based on the constructivist approach method have a statistically significant effect on the computational thinking total score of secondary school students?", and the results for the question are shown in Table 12.

Table 12. *Related samples t-test results regarding the total score obtained from the computational thinking skill scale*

	X̄	N	S	SD	t	p
Pretest	75.36	22	7.99	11.71	-2.076	0.050
Posttest	80.54	22	9.88			

*<0.05; **<0.01

When Table 12 is examined, it was seen that the pretest and posttest scores of the students for the total score obtained from the computational thinking skill scale did not differ significantly (t (11.71) =-2.076, p>0.05). While the pretest scores of the students were X̄= 75.36 before the application, the posttest scores were X̄= 80.54 after the application. Accordingly, it can be said that the information technologies course based on the constructivist approach method did not have a significant effect on the total score of the students' computational thinking skills.

One of the sub-problems of the research is ""Does the information technologies course based on the constructivist approach method have a statşstşcally significant effect on the curiosity sub-dimension of secondary school students?", and the results for the question are shown in Table 13.

Table 13. *Related samples t-test results for the sense of curiosity sub-dimension*

	X̄	N	S	SD	t	p
Pretest	14.36	22	3.33	4.31	-2.772	0.011*
Posttest	16.91	22	2.16			

*<0.05; **<0.01

When Table 13 is examined, it was seen that the pretest-posttest scores of the students for the sub-dimension of curiosity did not differ significantly (t (4.31) =-2.772, p<0.05). While the pretest scores of the students were $\bar{X}$=14.36 before the application, it was seen that the posttest scores were $\bar{X}$=16.91 after the application. Accordingly, it can be said that the information technologies course based on the constructivist approach method has a positive and significant effect on the students' sense of curiosity sub-dimension.

One of the sub-problems of the research is "Does the information technologies course based on the constructivist approach method have a statistically significant effect on the value sub-dimension of secondary school students?" and the results for the question are shown in Table 14.

Table 14. *Related samples t-test results for the value sub-dimension*

	$\bar{X}$	N	S	SD	t	p
Pretest	10.86	22	1.67	3.28	-7.149	0.000**
Posttest	15.86	22	2.95			

*<0.05; **<0.01

When Table 14 is examined, it is seen that the pretest and posttest scores of the students belonging to the sense of worth sub-dimension differ significantly in the positive direction (t (3.28) =-7.149, p<0.05). While the pretest scores of the students were $\bar{X}$=10.86 before the application, the posttest scores were $\bar{X}$=15.86 after the application. Accordingly, it can be said that the information technologies course based on the constructivist approach method has a positive and significant effect on the students' sense of value sub-dimension.

One of the sub-problems of the research is "Does the information technologies course based on the constructivist approach method have a statistically significant effect on the avoidance attitude sub-dimension of secondary school students?", and the results for the question are shown in Table 15.

Table 15. *Related samples t-test results related to the avoidance attitude sub-dimension*

	$\bar{X}$	N	S	SD	t	p
Pretest	12.27	22	3.56	5.10	-5.094	0.000**
Posttest	17.82	22	5.22			

*<0.05; **<0.01

When Table 15 is examined, it is seen that the pretest and posttest scores of the students regarding the avoidance attitude sub-dimension differ significantly (t (5.10) =-5.094, p<0.05). While the pretest scores of the students were $\bar{X}$=12.27 before the application, the posttest scores were found to be $\bar{X}$=17.82 after the application. According to this situation, it can be said that the information technologies course based on the constructivist approach method has a positive and significant effect on the avoidance attitude sub-dimension of the students.

Table 16 shows the results on one of the sub-problems of the research is "Does the information technologies course based on the constructivist approach method have a statistically

significant effect on the total score of middle school students' attitudes towards research and inquiry?"

Table 16. *Related samples t-test results regarding the total score obtained from the research questioning attitude scale*

	$\bar{X}$	N	S	SD	t	p
Pretest	37.64	22	6.32	8.49	-7.459	0.000**
Posttest	51.14	22	8.16			

*<0.05; **<0.01

When Table 16 is examined, it is seen that the pretest and posttest scores of the students regarding the total score obtained with the attitude scale towards research inquiry differed significantly (t (8.49) =-7.459, p<0.05). While the pretest scores of the students were $\bar{X}$=37.64 before the application, it was seen that the posttest scores were $\bar{X}$=51.14 after the application. Accordingly, it can be said that the information technologies course based on the constructivist approach method creates a significant effect on the total score of the students' attitude scale towards research and inquiry.

Conclusion and Discussion

According to the results, it was determined that secondary school students' avoidance sub-dimension in the problem solving inventory and the total score obtained from the problem solving inventory differed significantly from their posttest scores. It is seen that there are similar and different results with the related literature. Problem solving skill is defined as the ability to find a solution based on a process (Santrock, 2011). Instead of solving the problem as a result of a problem, concepts such as marginalizing the problem, keeping it away from the real problem or being irrelevant are called "avoidance" (Serin et al., 2010). According to studies supporting the results of the research, Yöyen et al. (2017) also found that there is a positive effect between "approach-avoidance", which is the sub-dimension of problem solving skills. In another study conducted with the students of the faculty of education, it was observed that although there was no significant difference in the problem solving confidence scale values in the classes in different branches, there was a significant difference in the avoidance values (Otacıoğlu, 2007). In the study conducted with secondary school 7th grade students, it was stated that there is a positive and weak effect between problem solving and problem-solving skills sub-factor avoidance (Durgun & Önder, 2019). Saracaloğlu et al. (2001) stated that there was a significant differentiation according to the departments in the avoidance approach sub-dimension in terms of problem solving skill inventory. In the study conducted by Özdemir (2019), it was determined that there were significant effects between adolescents' aggression levels, problem-solving skills and approach-avoidance sub-dimensions.

In the current study, it was seen that the significant difference between the total score obtained by the secondary school students from the research-inquiry-oriented attitude scale and the sub-dimensions of curiosity, value and avoidance was also related to the posttest score. When the studies supporting this study are examined, Saraçoğlu and Kahyaoğlu (2018) stated that there is a positive significant effect between the perceptions of scientific inquiry skills of secondary

school students and their curiosity, motivation and attitudes towards the Science course. In another study, it was determined that there was a moderate, positive and significant effect between middle school students' attitudes towards research and inquiry and their flipped learning levels (Kozikoğlu & Camuşcu, 2019). Ozan and Karamustafaoğlu, (2020) in their study on teaching middle school students research and questioning skills, stated that the average of valuing and avoidance skills of the experimental group increased for both skills and there was a positive difference in favor of the experimental group.

In the study, it was seen that there was no significant difference in the sub-dimensions of computational thinking skills of secondary school students, creativity, algorithmic thinking, collaboration, critical thinking and problem solving. In this case, it can be said that the sub-dimensions will affect each other positively in the process. When the studies showing that creative skills can develop in the process are examined, Karakuş (2001) states that how creativity can be developed rather than its importance in the education process is discussed, and that creative thinking and problem solving are learnable skills. At the same time, teachers' creativity is important for the development of students' creativity (Trnova, 2014). Kobsiripat (2015) concluded in his study that coding activities would improve students' creativity. Basarmak (2019) stated that as a result of the study in which he examined the effect of digital teaching material development process on creative thinking skills, pre-service teachers had positive opinions about the lesson, had fun and had a productive time with group work. In a study conducted by Kirmit et al. (2018) on the computational thinking skills of gifted secondary school students, it was found that gender had a positive effect in favor of male students in terms of algorithmic, critical and creative thinking skills. Yünkül et al. (2017) examined the effect of students on computational thinking skills and stated that Block-based Scratch applications can have a positive effect on algorithm and creative thinking skills and problem solving. Finally, Sulistiyo and Wijaya also state that high school students have the potential to develop their skills in understanding concepts and modeling problems, which are part of their computational thinking skills. When all these results are examined, it is thought that the technological environment provided to the students, the materials and the many applications to be carried out may have a significant effect on the increase in the computational thinking skills of the students. Computational thinking improves students' problem-solving skills and increases their productivity in the process (ISTE, 2015). It aims to reveal skills such as creativity and critical thinking, etc. in increasing problem solving skills with the use of computational thinking and technology (Oluk et al, 2018). Coding practices carried out in the process can provide logical-analytical and algorithmic thinking, approaches to problem solving (Pala & Mıhcı-Türker, 2019). Carrying out coding trainings in student life at young ages will create effective gains for the development of students (Akdoğan, 2020).

Recommendations and Limitations

This study is limited to the method and participants on which it is based. In future studies, it may be possible to in-depth interpretation of the results obtained by referring to the opinions of the students. In addition, a study can be conducted to reveal the direct and indirect effects of the variables of problem solving skills, computational thinking and attitude towards inquiry and inquiry within the framework of an integrated model. Besides, by measuring the effect of the underlying method with a permanence test or supporting it with a qualitative study, strengths

and weaknesses can be revealed regarding the significant differences obtained. Thus, in the experimental process carried out within the scope of the study, the result obtained in the variable of computational thinking and its sub-dimensions can be explained in a more comprehensive way scientifically. Finally, in future studies, the experimental process can be planned longer, the current study, which is based on the 5E constructivist approach, can be expanded with individual and group work practices enriched with psycho-motor and affective domain gains.

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BIOGRAPHICAL NOTES

Contribution Rate of Researchers

Author 1: %25

Author 2: %25

Author 3: %25

Author 4: %25

All authors took an equal part in all processes of the article. All authors have read and approved the final version of the study.

Conflict Statement

The authors declare that there is no conflict of interest with any institution or person within the scope of the study.

APPENDIX 1

EXAMPLE: ACTIVITY 1

LESSON PLAN

I. PREPARATION

Course Name: Information Technologies and Software Course

Class: 5th grade

Unit Name: I Think Logically

Subject Title: Information - Operators and Process Priority

Duration: 40'

Teaching Methods and Techniques: Lecture, Research-Inquiry, Thinking, Evaluation

Source Tools and Equipment: PC, Smart Board

Acquisition:

1. Gives examples of operators that can be used in problem solving.

2. Gives examples of expressions and equations in problem solving.

3. Gives an example of operation priority in problem solving.

II. APPLICATION OF THE ACTIVITY

Engagement

At this step, the students were asked, "***Have you ever seen people around you called operators?***" and what do you think "***for example, computer operator" means***?" By asking questions, their attention is drawn and they are asked to think and discuss about this issue. By evaluating the results obtained, students' previous knowledge is evaluated and students are helped to enter a new concept by using short activities that will arouse their curiosity and provide previous knowledge. Afterwards, students are motivated by expressing that "***some of the operations performed by a computer operator can be done by themselves***", and by making the activity link between past and present learning experiences, previous concepts are revealed and students' ideas about the current activity and learning outcomes are organized.

Exploration

In this step, the students asked the question "***Have you ever heard of the concept of operator in mathematical operations***?" By asking the question, it is ensured that the existing concepts (i.e., misconceptions), processes and skills that they have with their exploratory experience are defined. In this activity, students are provided with a common activity base on which conceptual change is facilitated. A laboratory activity is performed to help students use prior knowledge to generate new ideas, explore questions and possibilities, and design and conduct preliminary research.

Explanation

In this step, after listening to the students' predictions, the concept of **operator** is explained and the **types of operators** are explained, enabling students to focus their attention on their

participation and discovery experiences, and revealing their conceptual understanding, process skills and behaviors. Ask students to demonstrate their understanding of the concept.

Elaboration

In this step, students are asked to give examples using **operators** and their conceptual understanding and skills are challenged and expanded. In addition, students are expected to apply their understanding of the concept by making additional concepts.

Evaluation

At this step, students are asked questions about which of the **Operators** are useful, and the students' ideas about where and how to use the **operators** are evaluated, and explanations are made about the points that are not understood, and the students are encouraged to evaluate their understanding and abilities.

Genişletilmiş Türkçe Özet

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Ortaokul Öğrencilerinin Yapılandırmacı Yaklaşım Yöntemi ile Bilgisayarca Düşünme, Problem Çözme Becerileri ve Araştırma-Sorgulamaya Yönelik Tutumlarının İncelenmesi

Giriş

Bilim ve teknolojide gün geçtikçe ortaya çıkan gelişmeler, birey ve toplumların öğrenme ve öğretmeye ilişkin alışkanlıklarına doğrudan etki etmiştir. Bu süreçte, bireyin bilgiyi üreten, geliştiren ve işlevsel anlamda kullanan, girişimci ve kararlı olan, topluma ve kültüre katkılar sağlayan özelliklere sahip olması beklenmektedir (MEB, 2018). İhtiyaçları ve beklentileri her geçen gün artan ve kendini yeniden şekillendirmeye çalışan bireylerdeki merak duygusu onları araştırma ve keşfetmeye yönlendirmiştir (Damar, Durmaz ve Önder, 2017). Bu çağın bireylerinin mevcut bilgiyi hemen almak yerine yeni bilgileri üretmesi ve yeni durumlara ve sorunlara uygulaması beklenmektedir (Wagner, 2008). Böylece bireyler sorunlar ile baş etmek için çaba içerisine girerek problem çözme sürecini başlatmış olurlar (Özyürek ve Begde, 2016). Problem çözme günümüz öğrencileri için gerekli olan temel bir beceridir (Kozikoğlu, 2019). Bir bireyin ne istediğini bilmesi ve bunu etkili bir şekilde ortaya çıkarması problem çözme becerisine bağlıdır (Zembat, Tunçeli ve Akşin Yavuz, 2017). Bireyin karşılaştığı herhangi bir problemin çözümünde bireysel beceriler büyük rol oynar (Özyürek ve Begde, 2016; Tümkaya ve İflazoğlu, 2000; Yılmaz ve Dost, 2016). Problem durumlarını anlamak ve çözmek bireyin bilişsel işleme girme becerisi olarak tanımlanır (Shute, Wang, Greiff, Zhao ve Moore, 2016). Problem çözme, bilişsel olduğu gibi aynı zamanda duyuşsal ve psikomotor becerileri de gerektiren karmaşık bir süreçtir (Oral, Paksoy ve Liman, 2018; Tüysüz, 2013). Problem çözme, çocuğun nasıl öğrenmesi gerektiği konusunda yardımcı olur (Ülküer, 1988). Çocukların karşılaştıkları problemleri çözmeleri için problem çözme becerilerini kazanmaları gerekir (Ekici ve Balım, 2013). Özellikle küçük yaşlarda problem çözme becerisine sahip olan bireyler yaşadıkları çevreye daha kolay uyum sağlar (Senemoğlu,

2012; Zembat ve diğerleri, 2017). Çünkü karşılaşılan problemlerin çözümünde önceki deneyimlerin katkısı bulunmaktadır (Durgun ve Önder, 2019).

İçinde bulunduğumuz çağ üst düzey bilişsel bilgi ve beceriler ile çağın gerektirdiği yetkinlikler ile donatılmış bireylerin yetiştirilmesini öngörmektedir. Bu öngörü kapsamında bireylerin adaptasyon yeteneklerinin oldukça önemli olduğu düşünülmektedir. Bireyin koşullar ne olursa olsun, ilgili koşulların dinamiklerini gözlemleyerek; ilgili duruma çok hızlı bir şekilde adapte olacak bilgi, beceri ve yeterliklere sahip olması önemlidir. Bu durumda, bilgisayarca düşünme ve problem çözme becerileri akla gelmektedir. Bilgisayarca düşünme becerisi, yaratıcılık, algoritmik düşünme, eleştirel düşünme, problem çözme ve işbirlikçi çalışma becerilerinin bir bütünü olarak ifade edilmektedir (ISTE, 2015). Bilgisayarca düşünme, bireylerin problem çözme becerilerini sistematik hale getirir ve düşünme sınırlarını genişletmelerini sağlar. Örneğin Yadav, Mayfield, Zhou, Hambrusch, and Korb (2014), bilgisayarca düşünmenin, problemleri formüle etmek ve çözümleri bilgisayar bilimleri terimleriyle ifade etmek için kullanılan ve etkili bir şekilde gerçekleştirilebilen zihinsel bir süreç olduğunu savunmaktadır. Bu zihinsel süreçleri gerçekleştiren öğrenciler, bilişim teknolojileri kavramlarını ve ilkelerini öğrenip kendilerini geliştirdiklerinde, teknoloji desteği ile günlük hayata ve kariyerlerine daha iyi hazırlanabilirler (Gülbahar, Kert, & Kalelioğlu, 2019). Bunun yanısıra araştırma sorgulamaya yönelik olarak da öğrencilerin olumlu bir tutum gleiştirmesi beklenmektedir. Çünkü tutum, davranışı harekete geçiren önemli bir faktördür (Davis, Bagozzi ve Warshaw, 1989). Bireyin kazanmış olduğu bu beceriler, içinde bulunduğu koşulları gözeterek, problemler ile baş etmesine yardımcı olabilir. Bununla birlikte, bireyin problem çözme ve bilgisayarca düşünmede bazı araştırma yöntemlerine ihtiyaç duyması da muhtemeldir. Bu hususta, araştırma-sorgulamaya yönelik olumlu tutumun geliştirilmesi de kişinin değişen ve dönüşen şartlara uyum becerisi üzerinde etkili olabilir. Bu noktada bilişim teknolojileri dersinin sahip olduğu dinamik yapısının pedagojik bir alt yapı ile bütünleştirilerek işe koşacağı düşünülmektedir. Tüm bu argümanlardan hareketle, bu çalışmada ortaokul öğrencilerinin yapılandırmacı yaklaşım ile gerçekleştirilen bilişim teknolojileri dersinin, bilgisayarca düşünme ve problem çözme becerileri ile araştırma sorgulamaya ilişkin tutumları üzerindeki etkisinin incelenmesi amaçlanmaktadır.

Yöntem

Araştırma içerisinde, ortaokul öğrencilerine yönelik yapılandırmacı yaklaşım yöntemiyle gerçekleştirilen bilişim teknolojileri dersinin bilgisayarca düşünme ve problem çözme becerileri ile araştırma sorgulamaya ilişkin tutumları üzerindeki etkisi incelenmiştir. Araştırmada, nicel araştırma yöntemlerinden olan tek grup öntest sontest modeline dayanan zayıf deneysel desen kullanılmıştır. Deneysel desenlerin içerisinde örneklem üzerinde seçkisiz atamanın yapılamadığı ve kontrol grubunun olmadığı tek gruplu desenler, bu özellikleri sağlayamamaları nedeniyle zayıf deneysel desen olarak adlandırılmaktadır (Büyüköztürk ve diğerleri, 2013).

Araştırmada çalışma grubunu, 2018-2019 eğitim-öğretim yılı, ikinci yarıyılında Kırşehir il merkezinde bir devlet ortaokulunda bulunan 14 kız 8 erkek öğrenciden oluşmaktadır. Çalışma grubunun seçilmesinde öğretim programlarında bilişim teknolojileri dersi olan ve bilgisayar düşünme becerisinin küçük yaşlarda kazandırılması gerekliliğini ortaya koyan çalışmalar (Grover, 2017; Park ve Kwon, 2022; Parmar, Lin, Dsouza ve diğerleri, 2022; Rich, Bartholomev, Daniel ve diğerleri, 2022) dayanak oluşturmaktadır.

Veri toplama sürecinde öncelikle il Milli Eğitim Müdürlüğünden gerekli izinler alındıktan sonra araştırmanın içeriğine ilişkin uygulamanın gerçekleştirileceği okulun idarecilerine, bilişim teknolojileri ders öğretmenine ve dersi alan öğrencilere bilgilendirmeler yapılmıştır. Veri toplama süreci, öğrenciler ile 2018-2019 eğitim-öğretim yılı ikinci döneminde 7 hafta boyunca gerçekleştirilen etkinlikler ile gerçekleştirilmiştir. Çalışma kapsamında gerçekleştirilen haftalık süreçler ve etkinlikler Tablo 1'de belirtilmiştir.

Tablo 1. *Çalışma kapsamında yapılan işlemler*

Hafta	Etkinlik
1. hafta	Araştırma kapsamında öğrencilere araştırmaya başlamadan öntestler uygulandı.
2. hafta	Ders planında bulunan Mantıklı Düşünüyorum Ünitesi kapsamında Bilgi - Operatörler Ve İşlem Önceliği kapsamında Operatörlerden bahsedildi. Yapılandırmacı Kuram esasında öğrencilere; 1. Daha önce "Çevrenizde kendisine operatör denen kişiler hiç gördünüz mü?" ve "Örneğin "Bilgisayar operatörü" sizce ne demektir?" soruları soruldu ve öğrencilerle bu konu hakkında tartışarak açıklanmaya çalışıldı. 2. Öğrencilere operatörleri ayırt etmeleri için akıllı tahta yardımıyla oyun oynatıldı ve operatörleri etkin bir şekilde kullanmaları istendi. 3. Öğrenciler gözlemlenerek öğrencilere merak ettikleri konularda ve takıldıkları konularda yardım edildi.
3. hafta	Ders planında bulunan Bir Algoritma Masalı kapsamında Algoritma örnekleri yapıldı. Yapılandırmacı Kuram esasında öğrencilere; 1. "Bu hikâye muhtemelen daha önce duyduğunuz bir hikâyenin biraz değiştirilmiş bir versiyonuydu. Hikâyede daha önce duymadığınız farklı bir kelime dikkatinizi çekti mi?" ve Hikâyede geçen "Algoritma" kelimesi sizde neyi çağrıştırdı?" soruları soruldu ve üzerinde tartışıldı. 2. "Algoritma Nedir?" sorusunun cevabının öğrenileceği söylendi ve Algoritma açıklandı. 3. Algoritmanın günlük yaşamda ne işe yarayacağı hakkında tartışma ortamı hazırlandı. 4. Uygulama sürecinde öğrenciler gözlemlenerek geri dönütler verildi. 5. Öğrencilerin kendi algoritmalarını yapması beklendi. Öğrenciler gözlemlenerek eksiklikleri giderildi ve geri dönütler verildi.
4. hafta	Ders planında bulunan Akışı Değiştiriyorum Ünitesi kapsamında Akış Şemaları yapıldı. Yapılandırmacı Kuram esasında öğrencilere; 1. Öğretmen elinde bulunan Akış Şeması fotoğrafının ne olduğunu soruldu. 2. Problem durumu olarak Akış Şemaları oluşturacakları söylendi. 3. "Algoritma ve Akış Şemalarının ne gibi bir bağlantısı olur?" sorusu soruldu. Öğrencilere tartışma ortamı hazırlandı.
5. hafta	Ders planında bulunan Konu olarak Blok Tabanlı Programlama kapsamında Blockly sitesinde kod blokları tanıtıldı. Yapılandırmacı Kuram esasında öğrencilere; 1. Önbilgilerini yoklamak ve üzerinde düşünmeleri için öğrencilere önceki derslerde anlatılan uygulamalar soruldu hangi kod bloklarının kullanıldığı soruldu verilen cevaplar dikkate alınarak neler yapıldığı hangi kod bloklarının ne işe yaradığı üzerinde tartışıldı. 2. Blockly sitesinde kod bloklarında dikkatlerini çeken nelerin olduğu soruldu. Alınan cevaplara göre geri dönütler verildi. 3. Uygulama esnasında öğrenciler gözlemlenerek öğrencilere geri dönütler verildi. Ve öğrencilerin sorgulama ve araştırmaları desteklendi. 4. Öğrencilerin uygulamalarını daha özgün bir şekilde ortaya koymaları desteklendi.

Tablo 1. *Çalışma kapsamında yapılan işlemler (devamı-1)*

6. hafta	Ders planında bulunan Programlama Çocuk Oyunu ünitesi kapsamında SCRATCH programı ile öğrencilere oyun yaptırıldı. Yapılandırmacı Kuram esasında öğrencilere; 1. Önceki derslerde neler işlediğimiz sorularak öğrencilerin bilgileri gözden geçirilir. Yapılan uygulamalarsa anlatılan kod bloklarına tekrardan değinilir. 2. Öğrencilere yapılacak oyun hakkında bilgiler verildi. 3. Öğrencilerin akıllı tahtada yapılan oyunun aşamalarını bilgisayarlarında aşama aşama yapmaları istendi. 4. Öğrenciler uygulamalarını yaparken gözlemlenerek öğrencilere geri dönütler verildi. Ve öğrencilerin sorgulama ve araştırmaları desteklendi. 5. Yapamayan öğrencilere yardım edildi.
7. hafta	Araştırmayı sonlandırmak ve verileri karşılaştırmak için son testler uygulandı.

Araştırmanın veri toplama sürecinde ilköğretim düzeyindeki öğrencilerin problem çözme becerilerinin ölçüldüğü Problem Çözme Envanteri (Serin, Serin ve Saygılı, 2010), ortaokul öğrencilerinin bilgisayarca düşünme becerilerinin ölçüldüğü Bilgisayarca Düşünme Beceri Düzeyleri Ölçeği (Korkmaz, Çakır ve Özden (2015) ve ortaokul öğrencilerinin araştırma-sorgulamaya yönelik tutumlarının ölçüldüğü Araştırma-Sorgulamaya Dönük Tutum Ölçeği (Ebren Ozan, Korkmaz ve Karamustafaoğlu, 2016) kullanılmıştır.

Veri toplama sürecinde kullanılan "Problem Çözme Envanteri" üç boyutla bir yapıdadır. Her bir boyut 12 maddelik problem çözme becerisine güven, 7 maddelik öz denetim ve 5 maddelik kaçınma olarak ifade edilmiştir. Açımlayıcı faktör analizi (AFA) sonucunda toplam varyansın %42.26'sını açıklamaktadır. Serin, Serin ve Saygılı (2010) tarafından geliştirilen ve ölçeğin tamamı için hesaplanan Cronbach alfa güvenirlik değeri 0.80 ve test-tekrar test güvenirlik değeri 0.85'dir. Ocak, Doğruel ve Tepe (2021)' göre Cronbach alfa değeri 0.86; Yurtseven, Akkas Baysal ve Ocak (2021)'e göre 0.85; Demir (2022)' e göre 0.80; Or ve Bal (2021)'e göre 0.83 bulunmuştur. İlgili çalışmalara göre ölçek, güncel ve güvenilir bir yapıya sahiptir. Bununla birlikte, toplam 22 maddeden oluşan "Bilgisayarca Düşünme Becerisi Ölçeği" beş boyuttan oluşan bir yapıdadır. Her bir boyut 4'er maddelik yaratıcılık, algoritmik düşünme, işbirlilik ve eleştirel düşünme; 6 maddelik problem çözme olarak ifade edilmiştir. Ölçekte güvenirlik için Cronbach alfa değeri kullanılmış olup, bu değer 0.81'dir. (Korkmaz, Çakır ve Özden 2015). Çevik ve diğerleri (2021)'e göre Cronbach alfa değeri 0.76; Özgür (2020)' e göre 0.85; Kirmit, Dönmez ve Çataltaş (2018)' e göre 0.85 bulunmuştur. İlgili çalışmalara göre ölçek, güncel ve güvenilir bir yapıya sahiptir. Son olarak, toplam 13 maddeden oluşan "Araştırma-Sorgulamaya Dönük Tutum Ölçeği" de üç boyutlu bir yapıya sahiptir. Her bir boyut 4'er maddelik "merak" ve "değer" ile 5 maddelik "kaçınma" olarak ifade edilmiştir. AFA sonucunda toplam varyansın %48.42'sini açıklamaktadır. Ölçekte güvenirlik için Cronbach alfa değeri kullanılmış olup, bu değer 0.76'dır. (Ebren Ozan, Korkmaz ve Karamustafaoğlu, 2016). Özcan (2021) Cronbach alfa güvenirlik değerini 0.80, Kozikoğlu ve Camuşçu (2019) ise 0.76 olarak bulmuştur.

Bulgular

Yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin ortaokul öğrencilerinin kaçınma alt boyutu üzerinde anlamlı bir etkisi olup olmadığı incelendiğinde, ortaokul öğrencilerinin kaçınma alt boyutuna yönelik öntest ve sontest puanlarının anlamlı olarak

farklılık gösterdiği gözlenmiştir. Elde edilen bulgulara göre, yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin kaçınma davranışlarında anlamlı olacak şekilde bir azalma (ters madde) olduğunu ortaya koymaktadır.

Yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin ortaokul öğrencilerinin problem çözme becerisi toplam puanı üzerinde anlamlı bir etkisi olup olmadığı incelendiğinde, öğrencilerin problem çözme becerisi ölçeği sonrası toplam puanlarına ait öntest ve sontest puanlarının anlamlı olarak farklılık gösterdiği görülmüştür. Buna göre yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin öğrencilerde problem çözme becerisi toplam puanına yönelik anlamlı artış oluşturduğu söylenebilir.

Yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin ortaokulöğrencilerinin merak duygusu alt boyutu üzerinde anlamlı bir etkisi olup olmadığı incelendiğinde, öğrencilerin merak duygusu alt boyutuna yönelik öntest-sontest puanlarının anlamlı olarak farklılık gösterdiği görülmüştür. Buna göre yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin öğrencilerin merak duygusu alt boyutu üzerinde pozitif yönde anlamlı bir etki oluşturduğu söylenebilir.

Yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin ortaokul öğrencilerinin değer alt boyutu üzerinde anlamlı bir etkisi olup olmadığı incelendiğinde, öğrencilerin değer duygusu alt boyutuna ait öntest ve sontest puanlarının pozitif yönde anlamlı olarak farklılaştığı bulunmuştur. Buna göre yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin öğrencilerin değer duygusu alt boyutu üzerinde pozitif yönde anlamlı bir etki oluşturduğu söylenebilir.

Yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin ortaokul öğrencilerinin kaçınma tutumu alt boyutu üzerinde anlamlı bir etkisinin olup olmadığı incelendiğinde, öğrencilerin kaçınma tutumu alt boyutuna ait öntest ve sontest puanlarının pozitif yönde anlamlı olarak farklılaştığı görülmektedir. Bu duruma göre yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin öğrencilerin kaçınma tutumu alt boyutu üzerinde pozitif yönde anlamlı bir etki oluşturduğu şeklinde ifade edilebilir.

Yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin ortaokul öğrencilerinin araştırma sorgulamaya yönelik tutum toplam puanı üzerinde anlamlı bir etkisinin olup olmadığı incelendiğinde, öğrencilerin araştırma sorgulamaya yönelik tutum ölçeği ile elde ettikleri toplam puana ilişkin öntest ve sontest puanlarının pozitif yönde anlamlı olarak farklılaştığı görülmektedir. Buna duruma göre yapılandırmacı yaklaşım yöntemine dayalı bilişim teknolojileri dersinin öğrencilerin araştırma sorgulamaya yönelik tutum ölçeği toplam puanı üzerinde anlamlı bir etki oluşturduğu söylenebilir.

Tartışma ve Sonuç

Sonuçlara göre ortaokul öğrencilerinin, problem çözme envanterinde yer alan kaçınma alt boyutu ve problem çözme envanterinden elde edilen toplam puanının, sontest puanlarına yönelik anlamlı farklılık gösterdiği belirlenmiştir. Alanyazın incelemeleri ile benzer ve farklı sonuçların olduğu görülmektedir. Problem çözme becerisi bir sürece dayalı çözüm bulma becerisi olarak tanımlanır (Santrock, 2011). Bir probleme ilişkin sonucu sorunun çözülmesi yerine o sorunu ötekileştirme, gerçek sorundan uzak tutma veya ilgisiz olma gibi kavramlara "kaçınma" adı

verilmiştir (Serin, Serin ve Saygılı, 2010). Araştırma sonuçlarının destekleyen çalışmalara göre; Yöyen, Azaklı, Üney, Demirci ve Merdan (2017) yaptıkları çalışma da problem çözme becerisi alt boyutu olan "yaklaşma- kaçınma" arasında pozitif yönde etkili ilişki olduğunu saptamıştır. Eğitim fakültesi öğrencileri ile yapılan başka bir çalışmada farklı branşlardaki sınıflarda problem çözme güveni ölçek değerlerinde anlamlı bir farklılık görülmemesine rağmen kaçınma değerlerinde anlamlı bir farklılık olduğu görülmüştür (Otacıoğlu, 2007). Ortaokul 7. sınıf öğrencileri ile yapılan çalışmada problem çözme ve problem çözme becerisi alt faktörü kaçınma arasında ise pozitif yönde ve zayıf düzeyde bir ilişkinin bulunduğu ifade edilmiştir (Durgun ve Önder, 2019). Saracaloğlu, Serin ve Bozkurt (2001) problem çözme becerisi envanteri açısından kaçıngan (kaçınma) yaklaşım alt boyutunda bölümlere göre anlamlı bir biçimde farklılaşma olduğunu belirtmişlerdir. Özdemir (2019) tarafından yapılan çalışmada, ergenlerin saldırganlık düzeyleri, problem çözme becerisi ve yaklaşma-kaçınma alt boyutu arasında anlamlı ilişkilerin bulunduğu belirlenmiştir.

Bu çalışmada ortaokul öğrencilerinin araştırma sorgulamaya dönük tutum ölçeğinden elde ettikleri toplam puan ile merak, değer ve kaçınma tutumu alt boyutları arasında bulunan anlamlı farklılığın da sontest puanına yönelik olduğu görülmüştür. Bu çalışmayı destekleyen çalışmalar incelendiğinde, Saraçoğlu ve Kahyaoğlu (2018) ortaokul öğrencilerine ait bilimsel sorgulama becerisi algıları ile Fen Bilimleri dersine ilişkin merak, motivasyon ve tutumlar arasındaki ilişkide pozitif düzeyde anlamlı ilişkinin bulunduğunu ifade etmişlerdir. Başka bir çalışmada ortaokul öğrencilerinin araştırma ve sorgulamaya ilişkin tutumları ile ters yüz öğrenme düzeyleri arasında orta düzeyde, pozitif yönde anlamlı ilişkinin ortaya çıktığı belirlenmiştir (Kozikoğlu ve Camuşcu, 2019). Ozan ve Karamustafaoğlu, (2020) ortaokul öğrencilerine araştırma ve sorgulama becerileri kazandırılmasına ilişkin gerçekleştirdikleri çalışmada, değer verme ve kaçınma becerilerinin deney grubunun her iki beceri için ortalamanın yükseldiğini ve deney grubu lehine pozitif yönde farklılık olduğunu ifade etmişlerdir.

Sonuçlar incelendiğinde, öğrencilerin bilgisayarca düşünme becerilerinin artmasında öğrencilere sağlanan teknolojik ortamın, materyallerin ve çok sayıda gerçekleştirilecek uygulamaların önemli derecede etkilerinin olabileceği düşünülmektedir. Bilgisayarca düşünme, öğrencilerin problem çözme becerilerini geliştirerek süreç içerisinde verimliliklerini artırır (ISTE, 2015). Bilgisayarca düşünme, teknolojinin kullanımı ile problem çözme becerilerinin artırılmasında yaratıcılık ile eleştirel düşünme vb. becerileri ortaya çıkarmayı hedefler (Oluk, Korkmaz ve Oluk, 2018). Süreç içerisinde gerçekleştirilen kodlama uygulamaları, mantıksal-analitik ve algoritmik düşünme, problem çözümüne ilişkin yaklaşımlar kazandırabilir (Pala ve Mıhcı-Türker, 2019). Kodlama eğitimlerinin küçük yaşlardaki öğrencilik hayatında gerçekleştirilmesi, öğrencilerin gelişimlerine yönelik etkili kazanımlar meydana getirecektir (Akdoğan, 2020).

Öneriler

Bu çalışma temele aldığı yöntem ve katılımcılar ile sınırlıdır. Gelecek çalışmalarda öğrencilerin görüşlerine başvurularak elde edilen sonuçların derinlemesine yorumlanması söz konusu olabilir. Ayrıca, problem çözme becerisi, bilgisayarca düşünme ve araştırma-sorgulamaya yönelik tutum değişkenlerinin entegre bir model çerçevesindeki doğrudan ve dolaylı etkilerini ortaya koyan bir çalışma yapılabilir. Bununla birlikte, temel alınan yöntemin etkisi kalıcılık testi

ile ölçülerek veya nitel bir çalışma ile de desteklenerek; elde edilen anlamlı farklılıklara ilişkin güçlü ve zayıf hususlar ortaya konulabilir. Böylelikle, çalışma kapsamında yapılan deneysel işlemde bilgisayarca düşünme değişkeni ve alt boyutlarında elde edilen sonucun bilimsel olarak daha kapsamlı bir şekilde açıklanması söz konusu olabilir. Son olarak, gelecek çalışmalarda deneysel işlem süreci daha uzun planlanabilir, 5E yapılandırmacı yaklaşım temelinde gerçekleştirilen bu çalışma psiko-motor ve duyuşsal alan kazanımları ile zenginleştirilmiş bireysel ve grup çalışması uygulamaları ile genişletilebilir.

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Identity Construction in Social Studies Curriculums from 1968 to the Present

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Abstract

This research aims to reveal the identity desired to be built in the Social Studies Curriculum since 1968 and the change that has occurred. A case study, one of the qualitative research designs, was used. The research data sources consist of the Social Studies and Citizenship course curriculum from 1968 to the present. Research data were analyzed using by content analysis method. As a result of the research, it has been determined that eight different identity types, which have been created in the light of the data obtained from the Social Studies Curriculum since 1968, are included in the programs. It was observed that mainly national, social, and individual identities were included among these identities. It has been determined that the construction of national identity in Social Studies Curriculums since 1968 is desired to be formed on an ideological basis through history, geography, and national values. The emphasis is on living together for social identity. Individual identity increased in 2005 and after, and it has been realized based on the individual's awareness of his rights and responsibilities. In addition, in 2005 and after, it was determined that Social Studies Curriculum supports the formation of global and digital identity.

Keywords: Identity, ıdentity construction, curriculum, social studies, citizenship.

Introduction

In the historical process, it is known that individuals are educated in line with values and beliefs, especially the family, in order to belong to a particular society. Although the focus of each period is different, the target situations are the same. The individuals who formed the social structure before the modern period constructed identity in line with the beliefs and values they had gained in the family, based on religion. Based on this situation, the political forces of that period ruled society with the help of religious dogmas. In the pre-modern period, it is challenging to talk about collective identities and identity struggles in today's sense. In today's sense, the struggle between collective identities, the tension between individual identity and collective identity, and identity politics are products of the modern and post-modern (Karaduman, 2010).

In the modern era, identity has changed its shape as meaning and perception. The French Revolution, which is accepted as the beginning of the modern period, brought a new breath to the concept of "citizenship" with the idea of nationalism. At the same time, humanism, positivism, secularism, and free thought began to dominate society and state life. For this reason, as a requirement of the French Revolution and the Modern Age, nation-states began the process of rebuilding society and the state by combining education and ideology (Marshall & Bottomore, 2000:47). It is stated that nation-states are the model for determining identity politics in the modern period. This model political organization style is built on the concepts of religion, language, culture, land, people, and state, which are appropriately articulated with each other (Duman, 2007: 17). The phenomenon that these concepts come together to form is citizenship. Citizenship is important in the identity construction process of nation-states in the modern period. Therefore, this construction process aims to transfer the ideology of power directly to individuals through schools for nation-states living under a single roof to raise citizens. Thus, it is stated that the process of nation-statization, which emerged as a product of the modern period, led to the emergence of the concept of "national identity" (Aydın, 1999:22).

It is seen that the end of the modern period and the transition to the post-modern period have diversified identities. In this period, it is stated that the border lines that make up the

identities became unclear. Compared with past periods, it is striking that people's identity acquisition processes have become easier in the post-modern period. For this reason, it is emphasized that fixed identities disappear. The phenomenon of globalization has developed as an extension of the post-modern process and has contributed to identity becoming variable and uncertain. The socialization process has moved to the global stage, and identities have begun to take shape with the effect of highly variable elements. In parallel, people have started to build identities according to the characteristics outside the dominant culture (Girgin, 2018: 204).

In the identity acquisition process of individuals, various identity options are offered by society. In this process, the individual chooses the one that suits him/herself among the options presented. However, it is seen that the individual adopts the identity chosen by society. Therefore, although individuals are thought to be free in their choice of identity, it is seen that they are not always completely free in their choices (Kurnaz, 2013:27). From this point of view, the vast majority of identities are created artificially. These artifacts manifest themselves in different levels of oppression, encouragement, or freedom. As Anderson (2020) states, identities are imagined selves; they reveal what we think we are and what we want to be, but we may not be able to use these identities in practice. Because all of them are to create imaginary communities that exist in writing and are thought to be content with what exists without knowing our own identity (Anderson, 2020:52).

The most remarkable identity transformation in Turkish society in recent history began with the establishment of the Republic of Turkey, starting from the last period of the Ottoman Empire. The process of losing the appeal of Ottomanism first, then of Islamism, and finally, the introduction of Turkish nationalism is often described as a logical elimination process. Ottomanism, which was still a motto in the 1908 revolution, lost value as the Ottoman Christian communities moved away from the Empire during the Balkan Wars. After the Arab revolt, it was necessary to eliminate Islamism to lighten the burden, so Turkism remained the only viable option (Zürcher, 2015:333). As a result, society was shaped by the state, and the foundations of the nation-state were laid.

Education has never been independent of the political structure. Each state shapes the society with its ideological tools, realizes social acceptance in the same society, and gains legitimacy (Kuş, 2020:22). Nation states adopt a national education approach and organize schools, education, curriculum, and courses in the direction of "nation-state building." Therefore, the national education system is an ideological institutional structure in which citizens define themselves and produce a sense of belonging (Caymaz, 2007:5), as well as ensuring national integration, giving individuals a sense of national identity and instilling a sense of "patriotism" by teaching them their common history (İnal, 2004:61). Based on this situation, the curriculum and courses that states want to create based on ideology have changed. Curriculums are tools to develop the individual ideologically and psycho-socio-culturally in accordance with the conditions of the age of nation-states at all levels of value and knowledge (İnal, 2008:129). From the modern age to the present, the type of citizen that the political power aims to raise with a national education through citizenship education programs has changed and evolved into a citizen who meets the values and skills of the age. The most significant change that meets this situation is found in the Citizenship and Social Studies curriculum.

Although citizenship education and identity construction in our country have continued since the Constitutional Monarchy, identity construction within the scope of Social Studies education started in 1968. Social Studies programs have been reorganized in constructing identity according to the political, social, and cultural structure that has changed in the historical process. The fact that identity construction is a process that cannot be completed by being affected by the changes is also reflected in the curriculum. In this context, Social Studies curriculum are based on the official state ideology and the conditions of the age in which we live; they enable the formation of new identities in individuals and traditional identities.

This research investigates the identity desired to be built through the Social Studies and Citizenship Education programs from 1968 to the present in the historical process. In order to understand the role of social studies courses in identity formation, the development and change process of the Social Studies Curriculum over time will also be discussed. When the literature is examined, it is seen that there are studies on history education and identity construction (Şıvgın, 2009; Turan, 2009; Pamuk, 2013; Yıldırım, 2014), geography and identity (Kuş and Mert, 2021) and in recent years, there are identity studies, especially in the field of social studies and citizenship education (Sertkaya, 2010; Keskin and Keskin, 2013; Türkcan and Bozkurt, 2015; Kayaalp, 2015; Kırıkçı, 2017; Avcı and İbret, 2018; Kuş and Ozan, 2020; Kurtdaş and Öteleş, 2021; Joppke, 2007; Gutorov, 2015; Pena, 2017). In line with this purpose, the problem sentence of the research, "What is the identity that is desired to be built in the Social Studies curriculum implemented from 1968 to the present?" has been determined.

Method

In this research, which aims to examine identity construction in Social Studies Curriculum since 1968, a case study, one of the qualitative research designs, was used. A case study is a method in which a single situation or event is examined in depth, data is collected systematically, and what is happening in the real environment is looked at. The results reveal why the event occurred in that way and what should be focused on in future studies (Davey, 1991).

Data sources

The data sources of this research are the Social Studies and Citizenship programs, which took the name of Social Studies in 1968 and took its final form until today. The preparation of citizenship education programs and their teaching as a separate courses may differ according to the semesters. While the citizenship course was taught as an independent course in some periods, it was integrated into the Social Studies curriculum in some periods. Since the citizenship course is intertwined with Social Studies, it was included in the data sources in this research.

In this context, 1968 Social Studies Curriculum, 1973 Social Studies Curriculum, 1985 National History, National Geography and Citizenship Curriculum, 1998, 2005 Social Studies Curriculum, 2010 Citizenship, and Democracy Education Curriculum, 2015 Social Studies Curriculum, Human Rights, Citizenship and Democracy Curriculum, 2018 Social Studies Curriculum, 2018 Curriculum, Human Rights Citizenship and Democracy Curriculum curriculum constitute the data sources in the research.

Data Analysis

The curriculum used in this study was analyzed using the content analysis method. The researcher analyzed the data collected in the study in four stages. The data obtained from the Social Studies curriculum within the period covering the research topic were examined and divided into meaningful sections. The conceptual meaning of each section was trying to be found. These sections, which form a meaningful whole in themselves, were coded by the researcher in line with the conceptual framework of the research. After all the data were coded, the code list obtained was transferred to the computer environment. The data set related to the code list in the computer environment was examined repeatedly, and the codes that are related to each other were classified and brought together (Yıldırım & Şimşek, 2018: 243). By determining the similarities and differences of the codes that emerged within the scope of the research, related codes were brought together, and themes were formed.

The researcher determined the main themes that constitute the scope of the content analysis in the research according to Table 1.

Table 1. *Identity construction content analysis main themes in social studies curriculum from 1968 to today**

Main Theme	*Description*
National Identity	It is the identity constructed over the commonalities of the dominant culture in the category of us as the product of the modern. It marginalizes individuals who are outside the dominant culture.
Social Identity	It consists of what our parents show us in the past or present orally and what is experienced in the social society.
Political Identity	An individual's political preferences, worldview, and ideology form his/her political identity.
Individual Identity	It is the repositioning of the individual in the face of a different event in a different context.
Global Identity	It expresses a holistic social structure by accepting the existence of different people and social groups, allowing us to perceive our own family, our country, and the world.
Environmental Identity	The environmentalist identity, developed based on the ideology of ecology, contributes to environmental problems occurring in the social field and in nature, to protect nature, to produce solutions to environmental problems, to perceive space, and produce solutions by addressing the economic and social dimensions of such problems.
Religious Identity	It is the identity that emerges by transforming the symbolic world's thinking into behaviors in the reproduction of social reality by individuals as theological thought.
Digital Identity	Virtual environments allow individuals to construct a self, self-presentation, and self-sharing.

*Pamuk, 2017: Identity and History Adapted from The Use of History in the Construction of Identity.

Table 1 shows a draft that has been created in light of the data obtained by reaching primary data sources from databases and literature. Each word, sentence, and paragraph in the Social Studies Curriculum and Citizenship programs included in the research process was analyzed by the researcher, and meaningful concepts were obtained. Sections and concepts with the same content were combined under a single roof, and the coding step was started. As a result of the coding, a framework was created.

Findings

1. National Identity

The national identity theme includes national history, homeland geography, national values, national economy, and Kemalism.

National History

The national history category is the most prominent in the theme of national identity. The national history of Turks, starting from Central Asia, is common to all curriculum from 1968 to 2018 social studies curriculum. Central Asian Turkish states, the first Turkish-Islamic states, the arrival of Turks in Anatolia and the Great Seljuk state, the period of principalities in Anatolia and the Anatolian Seljuk state, the Ottoman Empire, the First World War, the Armistice of Mondros, the War of Independence, the Lausanne Treaty, the declaration of the Republic, revolutions are among these topics;. The elaboration of these subjects may differ according to whether the curriculum is written in detail or not.

Homeland Geography

Another category that is prominently included in the national identity theme is the homeland's geography. In the curriculum, the homeland geography category includes topics such as Turkey's geographical regions and landforms, climate, vegetation, and rivers, which are the physical geography topics of Turkey. Although it varies according to the curriculum, it is aimed at children to get to know their city, region, and country starting from where they live. Another subject within the geography of the homeland is Turkey's strategic position and importance. The curriculum frequently emphasizes Turkey's strategic importance, mathematical position, and special position worldwide. The contents related to the geography of the homeland may vary in the curriculum. For example, in the 1973 Social Studies curriculum, statements about Turkey's landforms, places of touristic value, plains, straits, plateaus, and touristic values in the regional context in our country, as well as the distribution of the population in Turkey, were included. In the 2018 Social Studies program, Turkey's demographic characteristics are included based on the factors affecting the population distribution in Turkey.

National Values

The values of courage, hospitality, tolerance, and self-sacrifice of the Turkish nation are listed as national values in the curriculum. In addition, the values of patriotism, respect, and love for the Turkish flag, which is our national symbol, are emphasized in the curriculum. For example, in the 1968 Social Studies curriculum, values such as courage, hospitality, and tolerance are listed as the values of the Turkish nation. In the 1973 Social Studies curriculum, the Turkish flag and national anthem, which are our national symbols, and expressions related to the characteristics of the Turkish nation (sacrifice, courage, tolerance, etc.) were mentioned. In the 1998 Social Studies curriculum, the characteristics of the Turkish nation and the elements that make up the Turkish nation are mentioned, as well as the importance of raising individuals who love and protect their homeland.

Different from other curriculums, the 2018 Social Studies curriculum includes expressions within the category of national values, such as 15 July Democracy and National Unity Day, country independence, and the roles that an individual will undertake for country independence.

Kemalism

Another category within the theme of national identity is Kemalism. Within the Kemalism category, Atatürk's life, personality traits, Atatürk's system of thought, his words, and the importance he attached to reason and science are emphasized. For example, the 1973 Social Studies curriculum emphasizes Atatürk's life; the 1985 National History curriculum emphasizes Atatürk's life and personality traits; and the 1998 Social Studies curriculum emphasizes Atatürk's system of thought. However, in the Citizenship and Social Studies curriculum prepared in recent years, it is seen that Kemalism topics are very limited or not included at all.

2. Social Identity

Within the theme of social identity, there are categories of duty and responsibility, social life, social value, family, and culture.

Duty and Responsibility

In the Social Studies curriculum, a clear emphasis has been placed on duties and responsibilities in each term. In particular, there are many statements regarding the duties and responsibilities of citizens towards the state, administration, society, family, environment, and school. For example, in the 1968 Social Studies curriculum, the duties and responsibilities of citizens towards the state and administrative units; in the 1973 Social Studies curriculum, the timely payment of taxes, our responsibilities towards the family and the state; in the 1998 Social Studies curriculum, the duties and responsibilities at school, our duties in social life and our responsibilities in protecting the reforms were also included. In the 2005 and later Social Studies curriculum, unlike the other curriculum, expressions about the responsibility of humanity to keep the products of thought, art and literature, natural assets, and historical environments alive as elements of shared heritage, responsibilities against situations where rights and freedoms are violated or restricted, and the responsibility to protect the common goods of society are included.

Social Life

In the curriculum, under the category of social life, the curriculum until 2005 included statements about cooperation, division of labor, neighborhood relations, the necessity of living together, and social rules in the social field. For example, in the 1968 Social Studies curriculum, there were statements about the cooperation of the villagers with the mukhtar and the council of elders; in the 1973 Social Studies curriculum, there were statements about getting along well with people and respecting them, neighborhood relations in our neighborhood and village; and in the 1998 Social Studies curriculum, there were statements about solidarity within the society, the effects of choosing a profession on individual and social life, and democratic life.

In the 2005 and later Social Studies curriculum, there are statements about the culture of living together, the importance of effective communication, and that different views, thoughts, beliefs, understanding, and cultural values enrich social life.

Social Value

Until 2005, the Social Studies curriculum emphasized values such as not cheating, honesty, the importance of morality, respect, helpfulness, and cooperation within social values. For example, the 1973 curriculum emphasized honesty; the 1985 National Citizenship curriculum emphasized respect for thoughts and opinions; and the 1998 Social Studies curriculum emphasized social cooperation and helping others.

A large space is allocated for values in the 2005 Social Studies curriculum and after. For example, in the 2010 Citizenship curriculum, there are statements about protecting and developing the values that ensure the unity and solidarity of society, empathizing with disabled and elderly individuals and ensuring that they can live a comfortable life, showing sensitivity to non-discrimination by questioning various forms of discrimination, valuing oneself and those around them, that humanity will be protected and developed with human values, and that every human being is valuable and honorable. In the 2018 Social Studies curriculum, there are statements about respect for different cultures, values that make people human, participation in activities that support social assistance and solidarity, the value given to women in social life, and ways of carrying the responsibility of being human.

Family

Within the theme of social identity, there are expressions about the family, especially in the Social Studies curriculum of 1998 and before. For example, the 1968 Social Studies curriculum included respect for family members, rules governing family life, creating a family budget, trust between family members, and laws protecting the family. In the 1985 National Citizenship curriculum, there are expressions related to family understanding and family concept in Turks, division of labor in the family, population planning, and education within the family category. In addition, the protection of family reputation, the contribution of individuals to the family budget, and the place and importance of the family in society are also included. In the 1998 Social Studies curriculum, statements about the definition of family structure and the importance of family structure, democratic life in the family, social security in family life, family budget, and planning were included in the family category.

Culture

It is seen that the culture category, which is included in the theme of social identity, is emphasized, especially in the 2005 and later Social Studies curriculum. Within the category of culture in the 2005 Social Studies curriculum, there are statements about the oral and written elements of our culture, the relationship between the practices in celebrations and ceremonies and the features that make up our culture, and the similarities and differences in different cultural regions in our country.

In the 2018 Social Studies Curriculum, on the other hand, in the category of culture, there are statements about the cultural characteristics that vary in our country and the difference between the cultural characteristics in the environment where they live, the comparison of the cultural elements of different countries with the cultural elements of our country, the historical development of cultural elements, the comparison of traditional children's games with today's games, and the role of cultural elements in the coexistence of people.

3. Political Identity

Within the theme of political identity, there are categories of democracy, government, constitution, and regime.

Democracy

It is seen that the category of democracy is included in the curriculum as; democracy as a concept, the meaning of democracy, the basic principles of democracy, and the history of democracy. In these curriculum, it is seen that the idea of election is especially emphasized, and the right to vote and be elected is brought to the forefront in the context of democracy. As we get closer to the present day, it is seen that the place and importance allocated to democracy in curriculum have increased. In the curriculum prepared in the last 20 years, it is seen that democracy as a lifestyle is emphasized, and especially the qualities of active and participatory citizens are included in the curriculum. Within the democracy category, social participation, the right to live in democratic governments, the right to personal immunity, freedom of religion and conscience, the characteristics of the democratic individual and democracy, democracy as a way of life, non-governmental organizations and their functions, the concept of active citizenship, the work of foundations and their role in social life come to the fore. For example, in the 2015 Citizenship curriculum, democratic values, democratic institutions, social participation, justice and equality, freedom and responsibility, non-governmental organizations, active citizenship, and citizen responsibilities are included.

Government

In the curriculum, expressions are related to the local and central government within the government category. Regarding the local government, there are statements about village administration, district administration, municipality administration, duties and powers, organization, other administrative units affiliated with the center, and the basic duties of these units. For example, In the 1968 Social Studies curriculum, the district administration and the organization of the district, the duties and powers of the municipality, the duties of the governor at the head of the province, the duties of the headman and the council of elders in the village are included.

Regarding the central government, the concepts of legislative, executive, and judiciary are included in the governance structure of the Republic of Turkey. For example, in the 2015 Social Studies program, the principle of separation of powers and the fact that the legislative, executive, and judicial powers have their own powers and responsibilities, as well as the relationship between these bodies, are included.

Constitution

In the curriculum, specific points are highlighted within the constitution category. The first is democracy as a concept and the concepts related to democracy. Another point is the history of the constitution. According to the period in which the curriculum was prepared, there is information about which constitution existed in the past and at that time. For example, in the 1985 Citizenship curriculum, there are statements about the basic principles and general principles of the constitution, the provisions that will not be changed, the preparation of the new constitution, the submission of the constitution to the referendum, and the difference between the constitution

and other laws. In all curriculum, there is an emphasis on the obligation of all citizens to comply with the laws in the constitution as the rules regulating social life.

Regime

In all curriculum, the Republic, the proclamation of the Republic, and the meaning and importance of the republican administration are included in the regime category. For example, in the 2018 Citizenship curriculum, there is a statement about the contribution of the Republic and its values to the culture of living together.

4. Individual Identity

The individual identity theme includes the categories of individual rights and freedoms, individual differences, individual needs, and individual skills.

Individual Rights and Freedoms

It is seen that individual rights and freedoms are given more space in the curriculum as we approach the present day. Within the scope of individual rights and liberties, individual freedom and security, privacy and protection of private life, personal immunity, freedom of settlement and travel, freedom of religion and conscience, and freedom of thought and opinion are expressed. In addition, personal and social rights such as freedom of science and art, freedom of the press and broadcasting, property right, right to education and training, right to work, right to form trade unions, right to strike and lockout, right to housing, right to social security, right to education and training, school education and public education are also included. It is seen that this category is given more space, especially in the citizenship curriculum. For example, in the 1985 Citizenship curriculum, personal freedom and security, privacy and protection of private life, personal inviolability, freedom of settlement and travel, freedom of religion and conscience, and freedom of thought and opinion are expressed.

In addition, it is seen that children's rights were also given wide coverage in the curriculum after 1998. For example, the 1998 Social Studies curriculum directly includes statements on children's rights and the importance of protecting children.

Individual Differences

While individual differences were not emphasized in the previous curriculum, it is seen that individual differences are included in the curriculum prepared in recent years. The 2010 Citizenship Program includes statements that each individual has unique characteristics, recognizing individual differences and what their individual differences can contribute to society. The 2018 Social Studies Curriculum is expressed as respecting the different characteristics of other individuals and discovering their differences by recognizing their individual interests, needs and abilities.

Individual Needs

Only a few of the curriculum have a limited emphasis on individual needs. For example, the 2005 Social Studies curriculum includes statements on distinguishing wants and needs, making inferences about people's individual needs based on their needs, the individual needs of society and the institutions that serve these needs, designing unique products based on the needs

in the environment, associating needs with existing resources, and associating needs with occupations.

Individual Skills

An emphasis on individual skills began with the 2005 program. The 2005 Social Studies curriculum also includes expressions about communication and entrepreneurship skills, planning for professional preferences in line with their interests and abilities, and expressing their feelings and thoughts about different situations by comprehending the aim of education to acquire a profession.

5. Global Identity

The theme of global identity includes the categories of international relations, world geography, and European history.

International relations

The category of international relations is included in the 1968 Social Studies curriculum in the context of Turkey's economic and cultural ties with other countries. In this context, there are expressions such as Turkey's neighbors, countries with which Turkey exchanges (USA, United Kingdom, Germany, France, Italy, Sweden), Turkey's domestic and international tourism, and sports match between countries.

As we get closer to today, it is seen that the category of international relations has a broader place in the curriculum. In the 1998 Social Studies curriculum, there are statements about the social, cultural, and economic ties of Turks with their neighboring countries, the social, cultural, and economic relations of Turks living in Europe with their countries, and international organizations that Turkey is a member of. The 2005 Social Studies program contains statements about the economic exchanges between countries, the place of tourism in international relations, and the role of international culture, art, fairs, and sports activities in inter-communal interaction. In addition, our country's cooperation with other countries in natural disasters and environmental problems, the personal responsibility of the individual in realizing the solutions to global issues, and the establishment purposes of international organizations are also included.

World Geography

As the world geography category approaches today, it is seen that it has a broader place in the curriculum. The 1973 Social Studies curriculum includes the large and vital regions of Europe, Europe, the countries in Europe, and the Asian continent, and their importance. In addition, the American continent and its short history, the poles, and expeditions are also included.

The 1985 National Geography curriculum contains expressions about the continents and oceans in the world. These expressions are expressed as European continent and European countries, Asian continent and countries. The 2015 Social Studies program includes a geographical comparison of regions of the world with different levels of development, climatic characteristics of those environments based on human experiences in different natural environments of the world, the characteristics of various countries in the world, and global problems. In addition, statements about comparing our own culture with the cultural elements of different societies worldwide are also included.

European History

The category of European history can be found in curriculum in 1998 and later. For example, in the 1998 Social Studies curriculum, European innovations and developments are expressed as phenomena caused by the French Revolution. The 2018 Social Studies curriculum covers phenomena that deeply affect the world, such as Geographical discoveries, the Renaissance, the Age of Enlightenment, Reform, the French Revolution, the Industrial Revolution, and colonialism.

6. Environmental Identity

The environmental identity theme includes protecting and recognizing the environment and environmental problems.

Environmental Protection

Regarding the environment, the curriculum primarily includes statements about protecting the environment. In the 1968 and 1973 Social Studies curriculum, there are statements about the protection of trees and flowers, protecting forests, natural beauties, and the place and importance of trees. In the 2015 Social Studies curriculum, there are statements about activities to protect the natural environment, the importance of protecting the natural environment and cultural elements where we live, the necessity of conscious use of natural resources in the world, using the resources around them without wasting them, and the concept of sustainability.

Recognizing the Environment

The category of recognizing the environment was mostly shaped within the framework of perception of space and map literacy skills. These statements are related to map knowledge, map reading techniques, and recognizing and understanding the environment. In addition, there are statements about the importance of utilizing maps, address information, and the ability to use address information, direction information, and sketch information. For example, in the 2015 Social Studies curriculum, there are statements about the location of the home and school, classifying countries in terms of location characteristics using the geographical coordinate system, and sketching the route between two places/points within the category of knowing the environment.

Environmental Problems

In the curriculum, environmental problems include statements on the issues caused by environmental concerns, ways of protection from natural disasters, damages caused by natural disasters to our country, and measures to be taken to solve environmental issues. In addition, the duties of individuals in solving environmental problems and solution suggestions for eliminating the issues related to the settlements in our country are also included. For example, in the 2018 Social Studies curriculum, there are statements about questioning the causes and consequences of disasters and environmental problems and making necessary preparations for natural disasters.

7. Religious Identity

The categories within the theme of religious identity are Islamic history and Turkish-Islamic history. The most frequently expressed category among these categories is the Islamic

history category. Within the Islamic history category, it was concluded that the historical process of the birth and spread of Islam was expressed chronologically. These expressions were found in the 1973 Social Studies Curriculum, 1985 National History, 1998, 2005, 2015, and 2018 Social Studies Curriculum.

8. Digital Identity

The digital literacy category is included in the digital identity theme. It is seen that the theme of digital identity is given more space as we approach from the past to the present. For example, the 1998 Social Studies curriculum has a digital literacy category within the digital identity theme. In this category, there are statements about the effects of harmful publications on children and being able to choose useful publications for themselves. In the 2015 Social Studies curriculum, there are statements about the importance of using information-communication technologies correctly and safely, periodicals appropriate to the level of science and technology, and using technological products without harming themselves, others and nature. Finally, in the 2018 Social Studies curriculum, there are statements about the accuracy and reliability of the information obtained in the virtual environment, security rules when using the virtual environment, and the changes brought about by digital technologies in the production, distribution, and consumption network. In addition, e-commerce, e-government system and services provided through this system, and the role of media in social change and interaction are also included.

Discussion and Conclusion

When the 1968 Social Studies curriculums from 1968 to the present are examined, it has been concluded that the content related to the theme of national identity is primarily included. Within the theme of national identity, the categories of national history and homeland geography are mostly encountered. It is seen that the expressions in the category of national history are expressed chronologically in the period from Central Asia to the proclamation of the Republic. Pamuk (2017) states that history is the primary tool of national identity in forming the nation. Altuntaş and Budak (2013) state that the use of history in the formation of national identity, the transition to the nation-state stage, and the rewriting of history are simultaneous and that it is normal to use historical processes while creating a national state. Copeaux (2016) emphasized that the study of history provides national consciousness and that history instills a sense of belonging to a community, identity, and duty. Balta and Demir (2016) emphasized that one of the main areas where national consciousness and memory are established is past knowledge and national history, and the importance of memory in forming identity is the importance of the past.

It is very important to recognize the homeland, know its strategic importance, and love and own it in forming a national identity. Regarding this situation, there are many emphases on homeland geography in curriculum. Smith (2013) explained that one of the primary conditions for the formation and survival of national identity is "a historical land/country or homeland." Understanding these lands with all their geographical features by the citizens and realizing that they are unique in the world has a significant place in constructing national identity. In his study, Aksoy (2003) stated that the idea of homeland is important in the formation of national identity and that the development and rooting of patriotism can be possible with geography education, as

"homeland is geography itself." Akınoğlu and Sarı (2009) concluded in their study that geography education will increase the love of individuals towards their country and nation. At the same time, while creating the idea of being a citizen thanks to the country's awareness, the individual has determined that he sees himself as a part of the society in which he lives. In his study, Yörü (2007) concluded that homeland geography education gives individuals patriotism and citizenship awareness. Based on this result, Okur (2013) determined in his study that the learning of homeland geography in Social Studies teaching is effective in learning Turkey's position in the world, the formation of a sense of ownership of the homeland, the need to protect natural, historical and cultural heritage, transferring the values of nature and human beings to future generations, and using the space correctly and effectively. Thus, it was concluded that geographical knowledge is an effective course in creating national identity awareness in students.

Another result reached in the research is the statements about the national economy. These statements occupy a prominent place in the curriculum. Regarding the national economy, the importance of our national income sources is mentioned by recognizing Turkey's human and economic activities. In addition, statements about the importance of raising qualified personnel based on the resources of our country were also identified. In his study, Çiftçi (2007) states that the formation process of national identity is possible with a modern state system that will keep up with the age requirements for the state to survive and live forever. In this context, Karakoç and Yıldırım (2021) emphasized a strong and independent economy in the international arena by talking about the formation of a modern state, especially in the fields of economy, politics, education, culture, art, and agriculture; a state that is capable of competing with other states equipped to keep up with the age and self-sufficient.

Another result of the research is the statements related to national values. It was concluded that the Social Studies Curriculum includes statements about national symbols and our love for them. At the same time, mentioning the characteristics of the Turkish nation and including national days and national values were important in national identity formation. Turan (2009) concluded in his study that national symbols are used in textbooks and programs by nation-builders to excite the masses, to arouse national feelings, and to gather the nation around a lofty goal, that is, to give the nation a national identity. It is known that national symbols (flag, national anthem, national holidays, national monuments, inns, bridges, etc.) are parallel to nationalism, which is the feeling of attachment to a homeland, common language, shared ideals, traditions, and values.

In addition, it has been determined that the subjects of Kemalism are mentioned in the expressions related to the theme of national identity. It is possible to list the programs in which these expressions are included in the 1973 Social Studies Curriculum, 1985 National History, 1998, 205, and 2015 Social Studies Curriculum. The idea of Kemalism in the formation of national identity has taken place in Social Studies Curriculum as an indispensable ideology or model. However, this does not apply to the most recent 2018 Social Studies Curriculum. In his study, Keskin (2002) stated that the Kemalist worldview should be brought to individuals through education programs and Social Studies courses. Because the Kemalist worldview has a national character, he emphasized the importance of the idea of Kemalism for the formation of national identity by expressing that the emergence and establishment of the Republic of Turkey as an idea

is based on the idea of nationalism. In the study of Ozan (2020), it was determined that in the Citizenship Education Programs from the Constitutional Period to the Republic, a national identity was tried to be built in line with Atatürk's principles and reforms. From this point of view, it has been seen that the national identities built from the past to the present are shaped around the Kemalist thought system. Still, this situation was more dominant in the curriculum that existed in the past.

According to the research results, another identity included in SST programs is social identity. It is seen that there are expressions related to duties and responsibilities intensively within the theme of social identity. These duties and responsibilities may differ. For example, intense emphasis is placed on the individual's duties towards himself, his environment, his family, and his state. However, there were primarily statements about duties and responsibilities towards the state. In Demirkaya Güler's (2015) study, one of the characteristics of the individual and society that the Republican regime wants to construct is a society that is aware of its duties and responsibilities. In his description of the acceptable citizen, Üstel (2016) stated that individuals who give up individual interests and are aware of their duties and responsibilities for the interests of society, and act in a spirit of benevolence and solidarity should be raised.

As a result of the research, it is seen that there are many expressions related to values within the theme of social identity. These values are mainly respect, sensitivity, helpfulness, honesty, and scientificness. While there are indirect statements about these values "before the 2005 Curriculum", it is seen that the values are expressed directly, and value education is aimed at the 2005 Social Studies curriculum. There is an increase in the number of values in the 2018 Curriculum. In the curriculum, the family has an important place in the theme of social identity. Regarding the family, there are results related to the content of the concept of family, the importance of the family, unity, and distribution of duties within the family. Karpat (2006) stated in his study that the family is the most important institution that protects and transfers the culture to the next generation and the foundation of society in gaining social identity. In the curriculum, it has been determined that the family is essential in the construction of society. In the study of Üstel (2016), it was emphasized that the structure of social identity would take place based on the family. Accordingly, individuals should act in harmony with the feelings of mutual love, respect, and cooperation.

According to the research results, political identity is another identity included in the Social Studies curriculum among identity types. It has been determined that there are expressions related to the category of democracy, constitution, government, and regime within the theme of political identity. In the category of democracy, it was seen that there were expressions related to democratic principles, democratic values, democratic institutions, democratic administrations, and democratic concepts. In the constitution category, the constitutions of the Republic of Turkey and their features are mentioned based on many concepts related to the constitution. Within the government category, there are expressions related to administrative and local administrations. Within the regime category, it was determined that the republican administration was emphasized based on the state and the forms of administration. It has been determined that the emphasis of the republican administration in the formation of political identity is mainly in the Social Studies curriculum in 2005 and before.

In general, it was found that the theme of political identity was included in the Social Studies curriculum with an emphasis on the subcategory of democracy. In addition, the programs in which no statements on the theme of political identity and its subcategories were found were the 1985 National History and Geography programs. With the 2018 Social Studies curriculum, the political literacy skill that emerged supports the formation of political identity. However, despite the existence of this skill, it was found that only knowledge-based statements were included in the construction of political identity. In his study, Görmez (2018) emphasized that the Social Studies curriculum includes many topics and concepts such as constitution, law, human rights, freedom, independence, social participation, respect for differences, right to participation, freedom of thought, freedom of communication, duties, and responsibilities of citizens, taxation, conscious consumer, children's rights, democracy, democratic and non-democratic forms of government, etc., which form the basis of political literacy skills. In addition to this information, the existence of environments conducive to applying this information is also very important in acquiring political literacy skills. In order to increase the participation of individuals in politics, political education is a must. He emphasized that the aim of political education is not to provide students with basic political knowledge.

In the Social Studies Curriculum examined, individual rights and freedoms, individual needs, individual differences, and individual skills categories were included within the theme of individual identity. Among these categories, it was observed that the expressions related to individual rights and freedoms took place the most. It has been determined that the expressions within the individual rights and freedoms category are shaped around fundamental rights and freedoms. It has been determined that individual rights and freedoms are directly involved in the Social Studies curriculums, and their importance has increased over time. Civan (2007) emphasized in his study that when the change of individual rights and freedoms from past to present is examined, economic, political, and social obligations were in question before the Republic, and individuality was not mentioned. Today, this situation has changed with the development of individuality. It has been determined that importance is given to raising individuals who are aware of their rights and freedoms and know how to use them.

According to the results of the research, another category in the theme of individual identity is the category of individual differences. It has been determined that the expressions in this category are expressions about discovering the individual's unique features based on the individual's common and different aspects with other living things. The curriculums in which these statements are included are only the 2010 Citizenship Curriculum and the 2018 Social Studies Curriculum. From this point of view, the emphasis on individuality is a topic that has emerged recently and has become the subject of programs. The formation of individual identity has also developed in this direction. Pamuk (2017) emphasized in his study that while trying to be himself, on the one hand, the individual has to be the 'me' that society wants. On the other hand, the individual should consider the wishes of society while discovering his individual differences. In addition, Ozan (2020) states in his study that the individual, as a citizen, should be aware of his differences with his own will, which is the purpose of individual identity construction in curriculum.

Among the mentioned identity types, another identity in Social Studies Curriculums is global identity. The categories within the theme of global identity are international relations, world geography, the Turkish world, and European history. Among the mentioned categories, the most expressed is the international relations category. It has been determined that the expressions in the category of international relations are shaped around the political, cultural, and economic relations of our country with other countries. Although all curriculums have expressions about global identity, it has found a vast place, mainly with the 2005 program. Aytaç (2011) stated in his study that with the "Global Connections" approach that came to the fore in the 2005 Social Studies curriculum, an effort was made to harmonize the education programs with the European Union. In the study of Öcal and Yakar (2015), it was determined that geographical awareness, global economic relations, and social-cultural interaction, in short, international relations, were given importance in the aims of the 2005 Social Studies course. In their study, Çakmak and Bulut (2019) state that with the realities brought by the 21st century, it is aimed for the individual to be active in the global world, to make sense of the world, to acquire knowledge, skills, attitudes, and behaviors that can gain an international identity as an active and global citizen, in short, to become global literate. Thus, with the effect of globalization, the importance of Social Studies education in raising both national and world citizens has increased.

According to the results of the research, another category within the theme of global identity is the category of world geography. It has been concluded that within the category of world geography, there are statements about global problems and the effects of these problems on people, shaped around the continents and oceans of the world. İbret and Avcı (2018) state that with the acquisition of global identity in individuals, individuals will take responsibility and have accurate information about different cultures. In this way, world citizenship will be formed.

Among the mentioned identity types, another identity included in Social Studies Curriculums is the environmentalist identity. The categories within the environmental identity theme are environmental protection, environmental problems, and environmental awareness. It was concluded that the expressions related to the environmental protection category were the most among the mentioned categories. It is very important to educate young people to raise citizens who respect the environment, use the environment consciously, know environmental problems, know how these problems can be solved, and are also environmentally literate. While many programs include statements about environmental education, environmental protection skills are provided under environmental literacy in Social Studies Curriculums. In the study of Öztürk and Öztürk (2015), it is seen that among the objectives of the Social Studies curriculum, there is the expression "raising citizens who are sensitive to the environment they live in," which meets environmental education.

Another category within the environmental identity theme is the category of environmental problems. It has been concluded that the expressions in the category of environmental problems are related to the environmental problems that occur in our world and around us and their effects. The programs with these statements are included in the 1998, 2015, and 2018 Social Studies Curriculums. In Erten (2004) study, there are statements about increasing positive attitudes and thoughts about the environment, which is the main point in the formation of environmental awareness within the environmental education of the individual. Thus, the

individual will not be indifferent to the environmental problems that cause the deterioration of the environment and will start to produce solutions for them. For this reason, the content, scope, and quality of education about the environment within the social school system are extremely important. In addition to environmental education, it is possible to cope with pollution and produce solutions to environmental problems by forming an environmentalist identity that internalizes it (Kılıç and Tok, 2013). In light of the results obtained in the study of Karatekin, Kuş, and Merey (2014), it has been determined that teachers and pre-service teachers are not sensitive to environmental problems and do not engage in an active process for their solution. However, within the scope of the renewed Social Studies curriculum, it has been seen that environmental education and sustainability are emphasized within the scope of the problems of the age, and it is desired to instill an environmentalist identity in individuals. However, insufficient knowledge of teachers and curriculum about these subjects negatively affects the identity formation process.

According to the research results, another category within the environmental identity theme is recognizing the environment, which includes space perception and map literacy skills. In addition, Özünal and Özer (2016) used the statement that individuals with a developed sense of space will be a citizen who is loyal to national values, protects their homeland, takes responsibility for the protection of the world, and humanity develops and implements methods of carrying nature and human values to the future by using geographical knowledge and skills in the context of recognizing the environment.

According to the research, another identity included in Social Studies curriculum among identity types is religious identity. The categories within the religious identity theme are Islamic history and Turkish-Islamic history. The most frequently mentioned category among these categories is the Islamic history category. Within the Islamic history category, it was concluded that the historical process of the birth and spread of Islam was expressed chronologically.

Religion has been seen as the basic building block in identity formation from the past to the present. While expressing himself, the individual usually expresses religious identity. Social Studies is interested in historical processes concerning human beings and every social field. Since religion is a social phenomenon, it appears in the process of identity formation in the Social Studies Curriculum. At the same time, it is seen as a tool in shaping the Muslim identity and conveying the historical development of the religion of Islam. Karpat (2006) states that the dominant identity among Muslims in gaining national identity is religious identity. Also, Heywood (2015) states that religion is another element of being a nation, expressing shared moral values and spiritual beliefs. According to the research results, the Turkish-Islamic history category is another category within the religious identity theme. It has been concluded that the expressions in Turkish-Islamic history, within the scope of the effects of Islam on the Turkish states, include the expressions about the chronological emergence of the states that make up Turkish-Islamic history. Pamuk (2017) states in his study that the relationship between religious identity and history is direct and uses the reference points of history.

Among the mentioned identity types, digital identity is another identity that is included in Social studies Curriculums. In the digital identity theme, it was determined that there are expressions related to digital literacy. Based on the statements in the digital literacy category, it was concluded that there are statements about the use of technological products and networks

based on the development and changes in the information and communication society and that identity is desired to be created accordingly. Kavut (2020) stated in his study that considering that we use the internet and digital communication technologies more and more every day and that dependence on digital systems is increasing, the importance of digital identity will increase in the future and that identities have entered a serious transformation process and that this transformation process will continue in the future. This situation shows that the tools that will enable the use of technology in terms of content to benefit from the digital environment and consequently gain digital competencies are education programs, and among the programs, the Social Studies curriculum is the most prone to digital identity formation (Kuru, 2019).

In summary, it has been observed that the Social Studies curriculum from 1968 to the present has undertaken an important mission in identity construction. Based on the data obtained, it was determined that the existence of eight identities was clearly expressed in the curriculum, and among these identities, national and social identities were given the most weight. It has been seen that the curriculums have been updated each time, and new identities have been added according to the requirements of the age. In the curriculum prepared in recent years, it was seen that Global, Environmentalist, and Digital identities were emphasized.

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1968'den Günümüze Sosyal Bilgiler Öğretim Programlarında Kimlik İnşası

Giriş

Tarihsel süreç içerisinde bireylerin belirli bir topluma ait olması için aile başta olmak üzere; değer ve inanç doğrultusunda eğitildiği bilinmektedir. Her dönemin odak noktası farklı olmasına karşın hedef durumları aynıdır. Modern dönem öncesinde toplumsal yapıyı oluşturan bireyler, ailede kazanmış olduğu inanç ve değerler doğrultusunda kimlik inşasını din odaklı gerçekleştirmiştir. Bu durumdan hareketle o dönemin siyasi güçleri dini dogmaların yardımıyla toplumu yönetmiştir. Modern öncesi dönemde bugünkü anlamda kolektif kimliklerden ve kimlik mücadelelerinden bahsetmek oldukça zordur. Bugünkü anlamda kolektif kimlikler arası mücadele, bireysel kimlik ve kolektif kimlik gerilimi ve kimlik politikaları, modernin ve post-modernin ürünüdür (Karaduman, 2010).

Bireylerin kimlik edinim sürecinde toplum tarafından çeşitli kimlik seçenekleri sunulmaktadır. Bu süreçte sunulan seçenekler içinden birey kendisine uygun olanı seçer bununla birlikte toplum tarafından seçilen kimliğin bireye benimsetildiği de görülmektedir. Dolayısıyla bireylerin kimlik seçiminde özgür olduğu düşünülmesine rağmen aslında seçimlerinde her zaman tamamen özgür olmadığı görülmektedir (Kurnaz, 2013:27). Buradan hareketle kimliklerin büyük çoğunluğu yapay bir şekilde oluşturulur. Bu yapaylıklar farklı düzeylerde baskı, teşvik ya da özgürlük koşullarında kendini gösterir. Anderson (2020)'ın ifade ettiği üzere kimlikler düşlenen benliklerdir; ne olduğumuzu sandığımızı, ne olmak istediğimizi ortaya koyarlar ancak uygulamada bu kimlikleri kullanamayabilirler. Çünkü hepsi yazıda var olan ve kendi kimliğimizi bilmeden var olanla yetinmemiz gerektiği düşündürülen hayali topluluklar meydana getirmektir (Anderson, 2020:52). Yakın tarih sürecinde Türk toplumundaki en büyük kimlik dönüşümü Osmanlı Devleti'nin son döneminden başlamak üzere Türkiye Cumhuriyetinin Kuruluş süreci ile yaşanmaya başlamıştır. Önce Osmanlıcılığın, daha sonra ise İslamcılığın çekiciliğini kaybetmesi ve

en sonunda Türk milliyetçiliğinin getirilmesi süreci genellikle mantıksal bir eleme süreci olarak tasvir edilmektedir. 1908 devriminde hala bir düstur olan Osmanlıcılık, Osmanlı Hıristiyan topluluklarının Balkan Savaşı esnasında İmparatorluktan uzaklaşmaları nedeniyle değerini kaybetmişti; Arap isyanından sonra İslamcılıktan da, yükü hafifletmek için, kurtulmak gerekmişti, dolayısıyla geriye tek elverişli seçenek olarak Türkçülük kalmıştır (Zürcher, 2015:333). Bunun sonucunda toplum, devlet tarafından biçimlendirilmiş, ulus devletin temelleri atılmıştır.

Ülkemizde vatandaşlık eğitimi ve kimlik inşası Meşrutiyet'ten günümüze kadar sürse de Sosyal Bilgiler eğitimi kapsamında kimlik inşası 1968 yılı itibariyle başlamıştır. Tarihsel süreçte değişen siyasal, sosyal, kültürel yapıya göre kimliğin inşasında Sosyal Bilgiler programları yeniden düzenlenerek günümüze kadar gelmiştir. Kimlik inşasının meydana gelen değişimlerden etkilenerek tamamlanamayan bir süreç olması öğretim programlarına da yansımaktadır. Bu bağlamda Sosyal Bilgiler öğretim programları resmi devlet ideolojisinin yanında yaşanılan çağın koşullarını da temel alarak; bireylerde geleneksel kimliklerle birlikte yeni kimliklerin oluşumunu sağlamaktadır.

Bu araştırmanın amacı, tarihsel süreç içerisinde 1968'den günümüze kadar olan Sosyal Bilgiler ve Vatandaşlık Öğretim programları aracılığıyla inşa edilmek istenen kimliği araştırmaktır. Sosyal bilgiler dersinin kimlik oluşumundaki rolünün anlaşılması için ise Sosyal Bilgiler Dersi Öğretim programlarının zaman içindeki gelişim ve değişim süreci de ele alınacaktır. Literatür incelendiğinde özellikle tarih eğitimi ve kimlik inşasına yönelik çalışmaların yer aldığı (Şıvgın, 2009; Turan,2009; Pamuk, 2013;Yıldırım, 2014) son yıllarda ise özellikle sosyal bilgiler ve vatandaşlık eğitimi alanında kimlik çalışmalarının yer aldığı görülmektedir (Sertkaya, 2010; Keskin ve Keskin, 2013; Türkcan ve Bozkurt, 2015; Kayaalp, 2015; Kırıkçı, 2017; Avcı ve İbret, 2018; Kuş ve Ozan, 2020; Kurtdaş ve Öteleş, 2021; Joppke, 2007; Gutorov, 2015; Pena, 2017). Bu amaç doğrultusunda araştırmanın problem cümlesi, "1968'den günümüze kadar uygulanan Sosyal Bilgiler öğretim programlarında inşa edilmek istenen kimlik nedir ?" olarak belirlenmiştir.

Yöntem

1968'den günümüze Sosyal Bilgiler Öğretim Programlarında kimlik inşasını incelemeyi amaçlayan bu araştırmada nitel araştırma desenlerinden durum çalışması kullanılmıştır. Bu araştırmanın veri kaynaklarını, 1968 yılında Sosyal Bilgiler adını aldığı ve günümüze kadar olan süreçte son halini alan Sosyal Bilgiler ve Vatandaşlık programları oluşturmaktadır. Bu kapsamda;1968 Sosyal Bilgiler Öğretim Programı, 1973 Sosyal Bilgiler Öğretim Programı, 1985 Milli Tarih, Milli Coğrafya ve Vatandaşlık öğretim programları, 1998, 2005 Sosyal Bilgiler Dersi Öğretim Programı, 2010 Vatandaşlık ve Demokrasi Eğitimi Öğretim Programı, 2015 Sosyal Bilgiler Dersi Öğretim Programı, İnsan Hakları Yurttaşlık ve Demokrasi Dersi Öğretim Programı, 2018 Sosyal Bilgiler Dersi Öğretim, 2018 Programı, İnsan Hakları Yurttaşlık ve Demokrasi Öğretim Programı Öğretim programları araştırmada veri kaynaklarını oluşturmaktadır. Bu araştırmada kullanılan öğretim programları içerik analizi yöntemiyle analiz edilmiştir.

Bulgular

1. Milli Kimlik

Milli kimlik teması içerisinde milli tarih, vatan coğrafyası, milli değerler, milli ekonomi ve Atatürkçülük kategorileri yer almaktadır.

Milli Tarih

Milli kimlik teması içerisinde en belirgin olarak milli tarih kategorisi yer almaktadır. Türklerin milli tarihi orta Asya'dan başlanarak kronolojik 1968'den 2018 sosyal bilgiler öğretim programına kadar bütün öğretim programlarında ortak yer almaktadır.

Vatan Coğrafyası

Milli kimlik teması içerisinde belirgin olarak yer alana bir diğer kategori vatan coğrafyasıdır. Öğretim programlarında vatan coğrafyası kategorisi içerisinde Türkiye'nin fiziki coğrafya konuları olan, Türkiye'nin coğrafi bölgeleri ve yer şekilleri, iklim, bitki örtüsü, akarsular gibi konular yer almaktadır.

Milli Değerler

Öğretim programlarında milli değerler olarak Türklerin milletinin sahip olduğu cesurluk, konukseverlik, hoşgörü, fedakârlık değerleri sıralanmaktadır. Ayrıca öğretim programlarında vatanseverlik, milli sembollerimiz olan Türk bayrağı istiklal marşına karşı saygı ve sevgi değerleri vurgulanmaktadır

Milli Ekonomi

Milli kimlik teması içerisinde milli ekonomi kategorisine ilişkin ifadeler de yer almaktadır. Milli ekonomi kategorisi içerisinde, milli kalkınmada ekonomin önemi, milli gelir kaynaklarımızın korunması ve geliştirilmesi, yurdumuzun kaynakları kısacası Türkiye'nin beşeri ve ekonomik faaliyetlerine ilişkin ifadeler yer almaktadır.

Atatürkçülük

Atatürkçülük kategorisi içerisinde Atatürk'ün hayatına, kişilik özelliklerine, Atatürkçü düşünce sistemine, O'nun sözlerine, akla ve bilime verdiği öneme vurgu yapılmaktadır. Örneğin; 1973 Sosyal Bilgiler öğretim programında Atatürk'ün hayatına; 1985 Millî Tarih öğretim programında Atatürk'le ilgili olarak Atatürk'ün hayatı ve kişilik özelliklerine; 1998 Sosyal Bilgiler öğretim programında ise Atatürkçü düşünce sistemine yer verilmektedir. Ancak son yıllarda hazırlanan Vatandaşlık ve Sosyal Bilgiler öğretim programlarında Atatürkçülük konularının oldukça sınırlı yer aldığı ya da hiç yer almadığı görülmektedir.

2. Toplumsal Kimlik

Toplumsal kimlik teması içerisinde görev ve sorumluluk, toplumsal yaşam, toplumsal değer, aile ve kültür kategorileri yer almaktadır.

Görev ve Sorumluluk

Sosyal Bilgiler öğretim programlarında her dönem görev ve sorumluluklara belirgin vurgular yapılmıştır. Özellikle yurttaşların devlete, yönetime, topluma, aileye, çevreye ve okula karşı görev ve sorumluluklarına ilişkin çok sayıda ifadeler yer almaktadır.

Toplumsal Yaşam

Öğretim programlarında, toplumsal yaşam kategorisi içerisinde 2005 yılına kadar öğretim programlarında toplumsal alanda işbirliğine, iş bölümüne, komşuluk münasebetlerine, bir arada yaşama zorunluluğuna, toplumsal kurallara ilişkin ifadeler yer almaktadır.

Toplumsal Değer

2005 yılına kadar Sosyal Bilgiler öğretim programlarında toplumsal değer kategorisi içerinde hile yapmamak, dürüstlük, ahlakın önemi, saygı, yardımseverlik, işbirliği gibi değere vurgu yapılmaktadır. Örneğin; 1973 Programında dürüstlük; 1985 Milli Vatandaşlık öğretim programında düşüncelere ve kanaatlere saygı; 1998 Sosyal Bilgiler öğretim programında ise toplumsal yardımlaşma ve başkalarına yardım etmeye yönelik ifadeler yer almaktadır.

2005 Sosyal Bilgiler öğretim programı ve sonrasında ise değerler ile ilgili geniş bir yer ayrılmaktadır.

Aile

Toplumsal kimlik teması içerisinde özellikle 1998 ve öncesi Sosyal Bilgiler öğretim programlarında aileye ilişkin ifadeler yer almaktadır. 1985 Milli Vatandaşlık öğretim programında aile kategorisine içerisinde Türklerde aile anlayışı ve aile kavramına, ailede iş bölümü, nüfus planlaması ve eğitime ilişkin ifadeler yer almaktadır. 1998 Sosyal Bilgiler öğretim programında ise aile kategorisi içerisinde aile yapısının tanımlanması ve aile yapısının önemine, aile içerisindeki demokratik hayata, aile hayatındaki sosyal güvenceye, aile bütçesi ve aile planlanmasına dair ifadelere yer verilmiştir.

Kültür

Toplumsal kimlik teması içerisinde yer alan kültür kategorisine özellikle 2005 ve sonrası Sosyal Bilgiler öğretim programında arında belirgin vurguların yapıldığı görülmektedir. 2005 Sosyal Bilgiler öğretim programında kültür kategorisi içerisinde kültürümüzün sözlü ve yazılı ögelerine, kutlama ve törenlerdeki uygulamaların kültürümüzü oluşturan unsurlarla ilişkisine, ülkemizde yer alan farklı kültür bölgelerindeki benzerlik ve farklılıklarına ilişkin ifadeler yer almaktadır.

2018 Sosyal Bilgiler Öğretim Programında ise kültür kategorisine ilişkin, ülkemizde çeşitlilik gösteren kültürel özelliklere ve yaşadığı çevredeki kültürel özellikler arasındaki farka, farklı ülkelere ait kültürel unsurlarla ülkemizin sahip olduğu kültürel unsurların karşılaştırılmasına, kültürel unsurların tarihî gelişimine, geleneksel çocuk oyunlarını günümüzdeki oyunlarla karşılaştırılmasına ayrıca kültürel ögelerin insanların bir arada yaşamasındaki rolüne ilişkin ifadelere yer verilmiştir.

3. Politik Kimlik

Politik kimlik teması içerisinde demokrasi, yönetim, anayasa ve rejim kategorileri yer almaktadır.

Demokrasi

Demokrasi kategorisi, öğretim programlarında bir kavram olarak demokrasi, demokrasinin anlamı, demokrasinin temel ilkeleri ve demokrasinin tarihçesi şeklinde yer verildiği görülmektedir. Bu öğretim programlarında özellikle seçim kavramına yoğun bir vurgu yapıldığı ve demokrasi bağlamında seçme-seçilme hakkının ön plana çıkarıldığı görülmektedir. Günümüze yaklaştıkça öğretim programlarında demokrasiye ayrılan yerin ve önemin arttığı görülmektedir. Son 20 yılda hazırlanan öğretim programlarında bir yaşam tarzı olarak

demokrasiye vurgu yapılıp özellikle aktif ve katılımcı vatandaşın niteliklerine öğretim programlarında yer verildiği görülmektedir.

Yönetim

Öğretim programlarında, yönetim kategorisi içerisinde yerel ve merkezi yönetime ilişkin ifadeler yer almaktadır. Yerel yönetim ile ilgili olarak köy yönetimi, ilçe yönetimi, belediye yönetimi, görev ve yetkileri, teşkilatlanmasına ayrıca merkeze bağlı diğer yönetim birimleri ile bu birimlerin temel görevleri ilişkin ifadeler yer almaktadır.

Merkezi yönetim ile ilgili olarak ise Türkiye Cumhuriyeti Devleti'nin yönetim yapısını yasama, yürütme ve yargı kavramlarına yer verilmiştir.

Anayasa

Öğretim programlarında, anayasa kategorisi içerisinde belirli noktalar ön plana çıkarılmaktadır. Bunlardan ilki bir kavram olarak demokrasi ve demokrasi ile ilgili kavramlardır. Diğer bir nokta anayasa tarihidir. Öğretim programının hazırlandığı döneme göre geçmişte ve o dönemde hangi anayasa varsa ona ilişkin bilgiler yer almaktadır.

Rejim

Bütün öğretim programlarında rejim kategorisi içerisinde cumhuriyet, cumhuriyetin ilanı, cumhuriyet idaresinin anlamı ve önemi yer almaktadır.

4. Bireysel Kimlik

Bireysel kimlik teması içerisinde bireysel hak ve hürriyetler, bireysel farklılıklar, bireysel ihtiyaçlar ve bireysel beceriler kategorileri yer almaktadır.

Bireysel Hak ve Hürriyetler

Öğretim programlarında günümüze yaklaştıkça bireysel hak ve özgürlüklere daha geniş yer verildiği görülmektedir. Bireysel hak ve özgürlükler kapsamında kişi hürriyet ve güvenliği, özel hayatın gizliliği ve korunması, kişi dokunulmazlığı, yerleşme ve seyahat hürriyeti, din ve vicdan hürriyeti, düşünce ve kanaat hürriyeti şeklinde ifade edilmektedir. Ayrıca bilim ve sanat hürriyeti, basın ve yayın hürriyeti, mülkiyet hakkı, eğitim ve öğretim hakkı, çalışma hakkı, sendika kurma hakkı, grev ve lokavt hakkı, konut hakkı, sosyal güvenlik hakkı, eğitim ve öğretim hakkı, okul eğitimi ve halk eğitimi gibi kişisel ve sosyal haklara da yer verilmiştir. Özellikle vatandaşlık dersi öğretim programlarında bu kategoriye daha fazla yer verildiği görülmektedir.

Bireysel Farklılıklar

Daha önceki hazırlanan öğretim programlarında bireysel farklılıklara vurgu yer almazken son yıllarda hazırlanan öğretim programında bireysel farklılıklara yer verildiği görülmektedir. 2010 Vatandaşlık programında her bireyin kendine has özelliklerinin olduğu, bireysel farklılıkları tanımaya ve kendi bireysel farklarının topluma neler katabileceğine dair ifadeleri içermektedir. 2018 Sosyal Bilgiler Öğretim Programında ise bireysel ilgi, ihtiyaç ve yeteneklerini tanıyarak farklılıklarını keşfetmeye, diğer bireylerin farklı özelliklerini saygı şeklinde ifade edilmektedir.

Bireysel İhtiyaçlar

Öğretim programlarında sadece birkaç öğretim programında bireysel ihtiyaçlara sınırlı vurgu vardır.

Bireysel Beceriler

Bireysel becerilere 2005 programı ile birlikte bir vurgu başlamıştır. 2005 Sosyal Bilgiler öğretim programında iletişim ve girişimcilik becerilerine ayrıca eğitimin meslek edindirme hedefini kavrayarak ilgi ve yetenekleri doğrultusunda meslekî tercihlerine yönelik planlama yapabilme, farklı durumlara ait duygu ve düşüncelerini ifade etmeye dair ifadeleri de içermektedir.

5. Küresel Kimlik

Küresel kimlik teması içerisinde uluslararası ilişkiler, dünya coğrafyası ve Avrupa tarihi kategorileri yer almaktadır.

Uluslararası İlişkiler

Uluslararası ilişkiler kategorisine 1968 Sosyal Bilgiler öğretim programında Türkiye'nin diğer ülkelerle olan ekonomik ve kültürel ilişkileri bağlamında yer verilmektedir. Bu kapsamda Türkiye'nin komşuları, Türkiye'nin alışveriş yaptığı ülkeler (ABD, Birleşik Krallık, Almanya, Fransa, İtalya, İsveç), Türkiye'nin iç ve dış turizmi ve ülkelerarası spor karşılaşmaları şeklinde ifade edilmektedir.

Günümüze yaklaştıkça uluslararası ilişkiler kategorisinin öğretim programlarında daha geniş yer tuttuğu görülmektedir. 1998 Sosyal Bilgiler öğretim programında Türklerin komşu olduğu ülkelerle olan sosyal, kültürel ve ekonomik ilişkisi, Avrupa'da yaşayan Türklerin ülkeleriyle olan sosyal, kültürel ve ekonomik ilişkisi, uluslararası kuruluşlar ve Türkiye'nin üyesi olduğu uluslararası kuruluşlara ilişkin ifadeler yer almaktadır. 2005 Sosyal Bilgiler programında ise ülkeler arasında gerçekleşen ekonomik alışverişlere, turizmin uluslararası ilişkilerdeki yerine, uluslararası kültür, sanat, fuar ve spor etkinliklerinin toplumlar arası etkileşimdeki rolüne ilişkin ifadeler yer almaktadır.

Dünya Coğrafyası

Dünya coğrafyası kategorisi de günümüze yaklaştıkça öğretim programındalar daha geniş yer bulduğu görülmektedir. 1973 Sosyal Bilgiler öğretim programında Avrupa'nın büyük ve önemli bölgelerini, Avrupa ve Avrupa'da yer alan ülkeleri, Asya kıtası ve önemini içermektedir. Ayrıca Amerika kıtası ve kısa tarihine, kutuplar ve keşif seyahatlerine de yer verilmiştir.

1985 Milli Coğrafya öğretim programında dünya üzerinde yer alan kıtalar ve okyanuslara ilişkin ifadeler yer almaktadır. Bu ifadeler Avrupa kıtası ve Avrupa ülkeleri, Asya kıtası ve ülkeleri şeklinde ifade edilmektedir. 2015 Sosyal Bilgiler programında dünyanın gelişmişlik düzeyleri farklı olan bölgelerini coğrafî açıdan karşılaştırması, dünyanın farklı doğal ortamlarındaki insan yaşantılarından yola çıkarak o ortamların iklim özellikleri, dünya üzerindeki çeşitli ülkelerin özellikleri ve küresel sorunlara ilişkin ifadeler yer almaktadır.

Avrupa Tarihi

Avrupa tarihine kategorisine öğretim programlarında 1998 ve sonrasında rastlanmaktadır. 2018 Sosyal Bilgiler öğretim programı Coğrafi keşifler, Rönesans, Aydınlanma Çağı, Reform, Fransız İhtilali, Sanayi İnkılâbı, sömürgecilik gibi dünyayı derinden etkileyen olguları kapsamaktadır.

6. Çevreci Kimlik

Çevreci kimlik teması içerisinde çevreyi koruma, çevreyi tanıma ve çevre sorunları kategorileri yer almaktadır.

Çevreyi Koruma

Çevre ile ilgili olarak öğretim programlarında en fazla çevreyi korumaya ilişkin ifadeler yer almaktadır. Çevreyi koruma 1968 ve 1973 Sosyal Bilgiler öğretim programında çevresindeki ağaç ve çiçeklerin korunmasına, ormanları korumaya, tabiat güzelliklerine, ağacın yeri ve önemine ilişkin ifadelere yer verilmektedir. 2015 Sosyal Bilgiler öğretim programında doğal çevrenin korunmasına yönelik faaliyetler, yaşadığı yerdeki doğal çevrenin ve kültürel unsurların korunmasının önemine, dünyadaki doğal kaynakların bilinçli kullanılmasının gerekliliğine, çevresindeki kaynakları israf etmeden kullanmaya ve sürdürülebilirlik kavramına ilişkin ifadeler yer almaktadır.

Çevreyi Tanıma

Çevreyi tanıma kategorisi içerisinde daha çok mekânı algılama ve harita okuryazarlığı becerileri çerçevesinde şekillenmiştir. Bu ifadeler harita bilgisi, harita okuma teknikleri ile çevreyi tanıma ve anlama ile ilgilidir. Bunun yanı sıra haritadan yararlanmanın önemi, adres bilgisi ve adres bilgisini kullanabilmeye, yön bilgisi ve kroki bilgisine ilişkin ifadeler yer almaktadır.

Çevre Sorunları

Öğretimim programlarında çevre sorunları içerisinde çevre sorunlarının doğurduğu sorunlar, doğal afetlerden korunma yolları, doğal afetlerin ülkemize verdiği zararlar, çevre sorunlarının çözümünde alınacak önlemlere ilişkin ifadeler yer almaktadır. Ayrıca çevre sorunlarının çözümünde bireylerin üzerine düşen görevlere, yurdumuzdaki yerleşim yerleriyle ilgili sorunların giderilmesiyle ilgili çözüm önerilerine de yer verilmiştir.

7. Dini Kimlik

Dini kimlik teması içerisinde yer alan kategoriler İslam tarihi ve Türk- İslam tarihi kategorileridir. Bahsedilen kategoriler arasında en çok ifade edilen ise İslam tarihi kategorisidir. İslam tarihi kategorisi içerisinde İslamiyet'in doğuşu ve yayılışına dair tarihsel süreç kronolojik olarak ifade edildiği sonucuna ulaşılmıştır. Bu ifadeler 1973 SBÖP, 1985 Milli Tarih, 1998 SBÖP, 2005 SBÖP, 2015 SBÖP ve 2018 SBÖP içerisinde yer aldığı görülmüştür.

8. Dijital Kimlik

Dijital kimlik teması içerisinde dijital okuryazarlık kategorisi yer almaktadır. Dijital kimlik temasına geçmişten günümüze yaklaştıkça daha geniş yer verildiği görülmektedir. 2015 Sosyal Bilgiler öğretim programda ise bilgi-iletişim teknolojilerini doğru ve güvenli kullanmanın önemi,

bilim ve teknoloji ile ilgili düzeyine uygun süreli yayınlara, teknolojik ürünleri kendisine, başkalarına ve doğaya zarar vermeden kullanmaya ilişkin ifadeler yer almaktadır. En son olarak ise 2018 Sosyal Bilgiler öğretim programında sanal ortamda ulaştığı bilgilerin doğruluk ve güvenilirliğine, sanal ortamı kullanırken güvenlik kurallarına, dijital teknolojilerin üretim, dağıtım ve tüketim ağında meydana getirdiği değişimlere ilişkin ifadeler yer almaktadır..

Tartışma ve Sonuç

1968 SBÖ programından günümüze kadar geçen süreç içerisinde yer alan öğretim programları incelendiğinde en fazla milli kimlik temasına ilişkin içeriklerin yer aldığı sonucuna ulaşılmıştır. Milli kimlik teması içerisinde ise en fazla milli tarih ve vatan coğrafyası kategorilerine rastlanmaktadır. Araştırmada ulaşılan bir diğer sonuç milli ekonomiye dair ifadelerdir. Bu ifadeler öğretim programlarında geniş yer tutmaktadır. Milli ekonomi ile ilgili olarak Türkiye'nin beşeri ve ekonomik faaliyetlerini tanıyarak milli gelir kaynaklarımızın öneminden bahsedilmektedir. Ayrıca yurdumuzun kaynaklarından hareketle nitelikli eleman yetiştirmenin önemine ilişkin ifadeler de tespit edilmiştir. Araştırmada ulaşılan bir diğer sonuç ise milli değerlere ilişkin ifadelerdir. Bu ifadeler Sosyal Bilgiler Öğretim Programlarında milli sembollerimiz ve onlara duyulan sevgiye ilişkin ifadelerin yer aldığı sonucuna ulaşılmıştır. Ayrıca milli kimlik temasına ilişkin ifadelerde Atatürkçülük konularına değinildiği de tespit edilmiştir. Bu ifadelerin yer aldığı programlar 1973 SBÖP, 1985 Milli Tarih, 1998 SBÖP, 2005 SBÖP ve 2015 SBÖP şeklinde sıralamak mümkündür. Milli kimlik oluşumunda Atatürkçülük düşüncesi ve fikri vazgeçilmez bir ideoloji veya model olarak SBÖ programlarında yer almıştır. Ancak bu durum en son hazırlanan 2018 SBÖP için geçerli değildir.

Araştırma sonucuna göre SBÖ programlarında yer alan bir diğer kimlik toplumsal kimliktir. Toplumsal kimlik teması içerisinde yoğun olarak görev ve sorumluluklara ilişkin ifadelerin yer aldığı görülmektedir. Bu görev ve sorumluluklar farklılık gösterebilmektedir.

Araştırma sonucunda, toplumsal kimlik teması içerisinde değerlere ilişkin çok sayıda ifadelerin yer aldığı görülmektedir. Bu değerler ağırlıklı olarak saygı, duyarlılık, yardımseverlik, dürüstlük ve bilimsellik değerleridir.

Araştırma sonucuna göre kimlik türleri içerisinden SBÖ programlarında yer alan bir diğer kimlik politik kimliktir. Politik kimlik teması içerisinde demokrasi, anayasa, yönetim ve rejim kategorisine ilişkin ifadeler yer aldığı tespit edilmiştir. Demokrasi kategorisinde demokratik ilkeler, demokratik değerler, demokratik kurumlar, demokratik yönetimler ve demokratik kavramlara ilişkin ifadelerin yer aldığı görülmüştür

İncelen Sosyal Bilgiler Öğretim Programlarında bireysel kimlik teması içerisinde, bireysel hak ve hürriyetler, bireysel ihtiyaçlar, bireysel farklılıklar ve bireysel beceriler kategorileri yer almıştır. Bu kategoriler içerisinde en fazla bireysel hak ve hürriyetlere ilişkin ifadelerin yer aldığı görülmüştür.

Bahsedilen kimlik türleri içerisinden SBÖ programlarında yer alan bir diğer kimlik küresel kimliktir. Küresel kimlik teması içerisinde yer alan kategoriler uluslararası ilişkiler, dünya coğrafyası, Türk dünyası ve Avrupa tarihi kategorileridir. Bahsedilen kategoriler arasında en çok ifade edilen ise uluslararası ilişkiler kategorisidir. Uluslararası ilişkiler kategorisi içerisinde yer

alan ifadeler ülkemizin diğer ülkelerle olan politik, kültürel ve ekonomik ilişkileri etrafında şekillendiği tespit edilmiştir.

Bahsedilen kimlik türleri içerisinden SBÖ programlarında yer alan bir diğer kimlik çevreci kimliktir. Çevreci kimlik teması içerisinde yer alan kategoriler ise çevreyi koruma, çevre sorunları ve çevreyi tanıma kategorileri yer almaktadır. Bahsedilen kategoriler arasında en fazla çevreyi koruma kategorisine ilişkin ifadelerin yer aldığı sonucuna ulaşılmıştır. Çevreye saygılı, çevreyi bilinçli kullanan, çevre sorunlarını bilen ve bu problemlerin nasıl çözülebileceğinin farkında olan, aynı zamanda çevre okuryazarı olan vatandaşlar yetiştirmek için insanları küçük yaşlarda eğitmek büyük önem taşımaktadır.

Araştırmaya göre kimlik türleri içerisinden Sosyal Bilgiler öğretim programlarında yer alan bir diğer kimlik dini kimliktir. Dini kimlik teması içerisinde yer alan kategoriler İslam tarihi ve Türk- İslam tarihi kategorileridir. Bahsedilen kategoriler arasında en çok ifade edilen ise İslam tarihi kategorisidir. İslam tarihi kategorisi içerisinde İslamiyet'in doğuşu ve yayılışına dair tarihsel süreç kronolojik olarak ifade edildiği sonucuna ulaşılmıştır.

Bahsedilen kimlik türleri içerisinden SBÖ programlarında yer alan bir diğer kimlik dijital kimliktir. Dijital kimlik temasında temel olarak dijital okuryazarlığa ilişkin ifadelerin olduğu tespit edilmiştir. Dijital okuryazarlık kategorisi içerisindeki ifadeler bilgi ve iletişim toplumu içerisindeki gelişim ve değişimlerden yola çıkarak teknolojik ürünlerin ve ağların kullanımına ilişkin ifadelerin yer aldığı ve buna bağlı olarak bir kimlik oluşturulmak istenildiği sonucuna ulaşılmıştır.

Özetle; 1968'den günümüze Sosyal Bilgiler öğretim programlarının kimlik inşasında önemli bir misyonu üstlendiği görülmüştür. Elde edilen verilerden hareketle ortaya çıkarılan sekiz kimliğin varlığı öğretim programları içerisinde açık bir şekilde ifade edildiği ve bu kimlikler arasında ise en çok Milli ve Toplumsal kimliklere ağırlık verildiği tespit edilmiştir. Günümüze kadar gelen programların her seferinde güncellenerek çağın gereklerine göre yeni kimliklerin eklendiği görülmüştür. Son yıllarda hazırlanan öğretim programlarında ise Küresel, Çevreci ve Dijital kimliklere ağırlık verildiği görülmüştür.

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A Phenomenological Analysis on the Phenomenon of Social Justice

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Abstract

Social justice is generally defined as the fair and equitable distribution of power, resources, responsibilities in society to all people, regardless of race, ethnicity, age, gender, ability, sexual orientation and religious or spiritual background (Van den Bos 2003). The key principles underlying this definition include the values of inclusion, cooperation and solidarity, as well as equal access and equal opportunity. These values are also the foundation of a democratic and egalitarian society (Sue 2001). Therefore, the phenomenon of social justice should be available in all institutions of the society. However, educational institutions in particular, have a significant role in the establishment of social justice. When the education system does not offer equal opportunities and is privileged only for a certain group, it negatively affects a society both culturally and economically. The effort to achieve social justice in education also includes the effort to correct some inequalities in education. In this context, the aim of this research is to try to reveal the social justice/injustice experiences of social studies teacher candidates and to make predictions for social justice education based on these experiences.

Keywords: Social justice, social justice experiences, education, phenomenology.

Introduction

Social justice, a concept that has been in the discourse of many thinkers for hundreds of years, became more significant with the Industrial Revolution in the 19th century. When viewed from the perspective of human rights, especially the fundamental rights and freedoms, which are called first generation rights and gained through the struggle of the bourgeoisie class, adopted a different appearance with the Industrial Revolution. The fact that people are faced with bad and dangerous working conditions, exploitation, and other unjust systems under the influence of capitalism has revealed the concept of dehumanization that disregards human dignity. Thus, as a result of the struggles of the working class, the demand for social rights, which are described as second-generation rights, came to the fore. The severe humanitarian destruction experienced after the Second World War, on the other hand, enabled the expression of the rights of solidarity, which are called third generation rights such as the right to peace and environmental right. The concept of social justice, which rose in the process of obtaining social rights, reached its climax with the rights of solidarity and has maintained significance until today. In recent years, neoliberal policies in the world have brought individualism and competition to the fore since neoliberal way of thinking, as a tool of social justice and equality, directs the individual to take responsibility instead of directing the society taking social responsibility. The school curriculum, which is based on the principles of global neoliberalism, prioritizes competition rather than equality-based acquisitions. This leads to the marginalization of the phenomenon of social justice. A good definition of social justice from a critical perspective will make it part of the agenda. In this context, first of all, this study will define the concept of social justice with its various dimensions and analyze the students' social justice experiences as one of the most important elements of the educational environment, by focusing on the phenomenon of social justice in education.

The Concept of Social Justice

The concept of justice is defined as one of the oldest human virtues in the world (Ogunmodede, 2005), and the oldest version of word justice is maat which originates from Ancient Egypt. With its earliest meaning in the Ancient Egyptian Wisdom Literature and Old Testament,

justice means moral uprightness, honesty, or moral perfection or competence. One of the philosophers who put forward ideas about justice in ancient Greek philosophy is, Plato. Plato, who defines justice as the harmonious functioning of the constituent parts of the individual or the state, takes justice as the basis of society and emphasizes another aspect of it as follows; "Justice is to keep what is rightfully your own and to mind your own business" (Obioha, 2011). Aristotle, another Ancient Greek philosopher, argues that the concept of justice should be discussed with a dialectical approach by considering it with its opposite, the concept of injustice. In this context, while acts such as acting against the law and arranging it according to personal interests are defined as inequality and therefore, injustice, in opposition to that, acting in accordance with the law, practicing equality before the law and living faithful and responsible to the principle of equality are defined as justice (Çakır, 2017). Today, according to Turkish Language Association's definition; The concept of justice is, ensuring that the rights given by the laws are exercised by everyone (TDK, 2009).

Social justice, on the other hand, is generally defined as the fair and equitable distribution of power, resources and responsibilities in society to all people, regardless of race or ethnicity, age, gender, ability status, sexual orientation and religious or spiritual background (van den Bos, 2003). The key principles underlying this definition include the values of inclusion, cooperation and solidarity, as well as equal access and equal opportunity. These values are also the foundation of a democratic and egalitarian society (Sue, 2001). Therefore, the phenomenon of social justice should be available in all institutions of the society. However, educational institutions in particular, have a significant role in the establishment of social justice.

Social Justice in Education

If factors such as economic status, gender, race and ethnicity determine the quality of education an individual can receive, there is social injustice. When students who do not have the economic status, gender or ethnic background which are seen as more privileged in the society, cannot receive education of the same quality as the students who have these privileges, an incomplete/weak foundation is laid for the rest of their lives. These students may not be able to gain the skills or professional knowledge to earn a standard income, which may hinder their access to health care and comfortable and secure housing. At the same time, it inhibits the individual's potential for self-development and realization. When the education system does not offer equal opportunities and is privileged for a certain group, it negatively affects a society both culturally and economically. Putting in effort to achieve social justice in education also includes struggling against some inequalities in education. In this context, the aim of this research is to try to reveal the social justice/injustice experiences of social studies teacher candidates and to make predictions for social justice education, based on these experiences.

The pursuit of justice begins with the awareness that certain examples of injustice exist and that these cases of injustice must be morally eliminated (Snauwaert, 2011). The role of the educational institution, especially the social sciences education, is important in building this awareness. In this context, investigating the examples of social justice in education, constitutes the main concern of the study. In line with this concern, by clarifying the dimensions of social justice in education, it will be compared with the findings reached.

Dimensions of Social Justice in Education

In this research, the dimensions of social justice are discussed in three dimensions as economic, cultural and political. Fraser states that these different dimensions of justice are rarely separated from each other with sharp lines, however, this classification provides intuitive/heuristic advantages in combating injustices (Fraser, 2008; Power & Taylor, 2013; Power, 2012).

- The economic dimension is related to the distribution of material resources, which is, all students' benefiting equally from educational resources. These resources may include teacher qualification, physical and financial opportunities of the school, access to education and training technologies, transportation to school, and opportunities to realize human potential. When the material resources are not distributed in the right way, economic injustices arise. Inequalities in education can be mostly attributed to this maldistribution. The fact that the children of socio-economically disadvantaged families are more likely to attend schools with insufficient resources, results in these children having a lower level of education. In other words, according to Fraser, economic injustices include exploitation. Being limited to unwanted, low-paying jobs or being unable to access any of them brings about economic marginalization, and being deprived of an adequate financial standard of living creates deprivation. These injustices require a policy of redistribution that seeks to reduce barriers created by socioeconomic inequalities, by removing economic barriers or reallocating resources to close the gap. Education policies should also lead the way in generating these redistribution strategies.
- The cultural dimension of social justice is generally related to the policy of misrepresentation/recognition of cultures. Situations such as being exposed to comments and communication patterns that are related to another culture and unfamiliar or hostile to their own culture confront individuals with the phenomenon of cultural domination. Situations such as rendering the individual invisible through communicative and interpretive practices and routinely vilifying and humiliating in stereotyped cultural representations or in daily life environments also originate from the politics of misrecognition. The social injustices encountered in the case of educational content reflects certain dominant values and silences or misrepresents the values of culturally marginalized groups, require a policy of recognition. This policy of recognition may include affirmation strategies, in which misrecognized groups seek to reverse their low status and reaffirm the value of their previously underrated identities. On the other hand, this policy of recognition may also involve deconstructing categories that support status distinctions between groups and create misrecognition. As a result, just as the wrong distribution of economic resources requires a redistribution strategy, cultural injustices such as cultural misrecognition requires a policy of re-recognition.
- Political injustices are also closely linked to economic and cultural injustices. Misdistribution and misrecognition will inevitably limit people's opportunities to participate in any civil and political activity. Therefore, the political dimension of social justice refers to the capacity of individuals to engage in all kinds of civil and political activities. Political injustices occur when individuals or groups are deprived of equality in social interactions and decision-making processes. This type of injustice is not limited to

traditional political spheres. In fact, the political dimension of social justice includes democratic participation. In other words, it is necessary to ensure that every individual in the society participates equally in the policies that direct the individual's freedom of self-determination and self-expression. In order to be able to realize democratic participation, education and education policies must provide all opportunities for students to express and develop themselves.

It is important to discuss these different dimensions of social injustice since dealing with each of them means employing different strategies. For example, a policy of redistribution may be required to struggle with economic injustices. It may be possible to create a politics of recognition to struggle with cultural injustices and a politics of representation to struggle with political injustices (Power & Taylor, 2013). As these three dimensions are essential tools for the effective promotion of social justice, it is important to focus on social justice in terms of redistribution, recognition and representation since these concepts are highly related to each other and have common aspects.

Social justice should broadly achieve the following goals (Sainz, Juanes, García-Vélez, Jacotta & Maldonadoa, 2016):

- Achieving human dignity by developing talents and overcoming inequalities, and all people's achieving a dignified and meaningful life through the development of these talents.
- Achieving individual and social welfare; which can be done through the participation of all people in mutual assistance, cooperation and a fair democracy.
- To become social justice-oriented citizens who act as the means of change by being autonomous, active and critical people in the social, political and economic structures that promote inequalities and injustice.

The social justice dimensions mentioned in this study are discussed in terms of making it easier to classify what kinds of social injustice behaviors the teacher candidates have been exposed to during the education process. On the other hand, while analyzing the social justice experiences in Turkey, it will be beneficial to take the projections of the social justice in the Constitution of the Republic of Turkey into account.

Social Justice in Education of Turkey

The Fundamental Law of National Education, numbered 1739, included in the Constitution of the Republic of Turkey, contains articles related to the phenomenon of social justice as a law that determines the structure of the education system in the country. Article 4 of this law published in 1973 is about generality and equality, article 7 is about the right to education, article 8 is about equality of opportunity and feasibility and article 11 is about democracy education. In the article of generality and equality, it is stated that educational institutions are open to everyone without any discrimination and no one will be privileged. In the article about the right to education, it is stated that all Turkish citizens have the right to receive primary education, and that they can benefit from the next education levels according to their interests, tendencies and abilities. In the article on equality of opportunity and feasibility, it is stated that equality of opportunity and feasibility in education will be provided to everyone, and in order to achieve this,

students with no financial means will be supported by providing free boarding, scholarships, loans and other means. In addition to that, it emphasizes that special measures will be taken for the education of children in need of special education. In the article related to democracy education, it is mentioned that the elements such as awareness of democracy, sense of responsibility and respect for moral values will be tried to be gained to the students in order to build a free and democratic society. When these articles are viewed in general, it is seen that, in this law, which structures the basis of Turkish education, the concepts of equality, being against discrimination, the right to education for everyone, equal opportunities, providing assistance and support for disadvantaged students, and democracy are mentioned (National Education Basic Law, 1973).

In a nutshell, it is thought that educational institutions, especially Social Studies education/teachers, have an important role in creating the awareness of social justice. Above, it has been tried to form the background of the research by defining of the concept of social justice and mentioning the role of education in generating social justice, the dimensions of social justice and the legal reflections of social justice in the Turkish education system. Accordingly, the main question of the research is structured as follows; "What are the experiences of social studies teacher candidates about the phenomenon of social justice?".

Method

In the field of teacher training, phenomenology, which is a strong research method, has been determined as the method of this research in order to help teacher candidates learn from the experiences of others and to explore the problems related to social justice in the education system. Phenomenology can be defined as trying to explain the essence of a phenomenon by exploring it from the perspective of those who experience it. The aim of phenomenology is to define the meaning of this experience in terms of both the experiencer and how that person experiences it. There are different types of phenomenology. In this research, hermeneutic phenomenology has been employed. Hermeneutic phenomenology, which focuses on human experience and how it occurs, argues that individuals' realities are invariably influenced by the world they live in. Therefore, by going beyond the descriptive approach, hermeneutic phenomenology attempts to interpret experiences through the life of the individual (Neubauer, Witkop & Varpio, 2019) since phenomenology is based on a person's perception of his environment in a unique way. In phenomenology, not the meaning of an event, situation, object or any other thing, but the subjective meaning the person has about the phenomenon is important (Zahavi, 2018). This subjective meaning is realized by the perception generated through the experiences of the people about that phenomenon. In order to understand the subjects, the focus of which is on human, what is meaningful in that person's life and what that person is trying to achieve must be taken into account. Hermeneutic phenomenology, on the other hand, is based on the definition of this meaning through its interpretation.

Hermeneutic phenomenology refuses to separate experience and consciousness from the cultural and historical roots of the researcher, as a method. According to Heidegger, it is essential to correctly make sense of, analyze, describe and interpret all kinds of religious, moral, social, aesthetic and psychological experiences in human life. These descriptions and interpretations are subjective and do not have an understanding of setting up rules about the phenomena (Yıldırım & Şimşek, 2011). In perceiving, understanding and interpreting experiences, the "meaning map" of

the person and the conditions in which the experience gained are highly important (Sofuoğlu, 2009). People receive the events happening outside of them through their sense organs, perceive and interpret them according to their inner world, and therefore, they recreate them (Slattery, 2012). Each individual builds their life with the meanings they attribute to actions and objects. The phenomenon is not the real thing out there, but the understanding and interpretation of it by the consciousness. The researcher, on the other hand, tries to understand the situation from the inside by getting into the phenomenon (Çiftçi, 1999).

Considering that social justice consciousness is a product of the historical and cultural experiences of the individual, it is expected that hermeneutic phenomenology will provide distinctive and in-depth data for this research.

Determining the Participants

The basic principle underlying phenomenology is to ensure that the investigated phenomenon is explored with a small group, due to the relatively limited number of qualitatively different ways through which people experience phenomena or aspects of reality (Burke, O'Neill & Loveridge, 2018). Therefore, purposive sampling was employed to determine the participants in accordance with the aim of the research. In other words, people who had experiences with social justice, which is the phenomenon to be investigated, were sought. For this purpose, an open-ended question form was applied to a group of 40 teacher candidates. Focus reflective writing and in-depth interviews were conducted with 15 teacher candidates who were determined to have experiences with the phenomenon. Prior to starting this process, ethical approval had been received from the ethics committee of the university where the research would be conducted, and an informed consent form had been presented to the participants and they had been requested to sign it. The basic data of the research consisted of data obtained from in-depth interviews with 15 teacher candidates.

Table 1. *Characteristics of the participants*

Characteristics of the participants		Participants
Grade	2nd grade	P1, P2, P3, P4, P5
	3rd grade	P6, P7, P8, P9, P10
	4th grade	P11, P12, P13, P14, P15
Gender	Female	P1, P2, P6, P7, P9, P11, P12, P13,
	Male	P3, P4, P5, P8, P10, P14, P15
Age average	20-22	P1, P2, P6, P7, P10, P13, P14
	22-25	P3, P4, P5, P8, P9, P11, P12, P15
The place they were grown up	Metropolis	P2, P3, P7, P10
	City	P1, P4, P8, P9, P14, P15
	Town	P5, P11, P13
	Village	P6, P12
Socio-economic status	High socio-economic status	P4, P6, P7, P8, P14
	Middle socio-economic status	P2, P3, P9, P10, P13
	Low socio-economic status	P1, P5, P11, P12, P15

Data Collection

The data of the research were collected through semi-structured interviews with 15 teacher candidates who were studying at the Social Sciences Department of a state university in İstanbul during the 2021-2022 academic year. The semi-structured interviews, which have a

nature that prevents the focus of the interview from being distracted through pre-prepared open-ended questions, lasted an average of 120 minutes for each interviewee. Each interview began with a written exercise that encourage the participant to reflect on their past experience of social justice. The participants were requested to "write down the experiences of social justice/injustice they encountered throughout their education life and how they felt during these experiences". The participants were given 40 minutes to write about their experiences. After the articles of the participants were read, semi-structured interviews were conducted individually. Thus, data were collected by means of two different information collection tools by employing data triangulation, and the data were verified by comparing the data. In the findings section, direct quotations from the handwritings of the participants are included.

The interview started with questions about the participant's social justice experiences and their emotions during these experiences. Some of these questions are as follows:

- What do you understand of social justice? Could you give an example?
- Could you give examples of the social justice experiences you have had in your education environment so far?
- Could you give examples of the social injustice experiences you have had in your education environment so far?
- Have you witnessed situations in which social benefits, rights and responsibilities are distributed equally or not distributed equally? Could you give examples? (at school, in the classroom or other)
- How did you feel when you were a target of social justice/injustice? Could you describe your feelings?

Data Declaration/Analysis

Since the word analysis means dissection, it is possible to say that it is an incorrect use for phenomenology, which approaches phenomena with a holistic view (Groenewald, 2004). Therefore, the expression of "data declaration" has been used instead of data analysis and it has been discussed as investigating the components of a phenomenon by preserving the context of the whole.

The data declaration was carried out through the steps of phenomenological analysis process listed by Gürbüz, & Şahin (2014). These steps are as follows:

- Blocking and phenomenological reduction: The researcher became aware of their prejudices about the subject by defining their knowledge and experience about the phenomenon in question. Thus, they put their prejudices aside and focused on the statements of the participants.
- Deciphering the collected data: The records of the interviews with the participants were converted into text.
- Reading the texts over and over again and listening to the records: The recorded interviews were converted into text. An overview of the subject was developed by reading the interview and the reflective texts written by the participants before the interview, for several times and re-listening to the interview records. This re-reading and re-listening process is important in recognizing significant meanings and themes.

- Determination of meaningful and significant expressions: Among the words of the participants, expressions that are meaningful and significant for the aim of the research, have been sorted. These can sometimes be a paragraph, sometimes a sentence, and sometimes a word or phrase. These statements have later been brought together as a list.
- Bringing together expressions that are close to each other under themes: The researcher read the texts, identified the significant expressions and determined the main themes under which similar expressions can be clustered. All the interview texts were read over and over again and the main themes were listed. The interview texts were returned over and over again, in order to find statements that could be clustered under the main themes.
- Summarization of all interviews and their revision together with the themes: In the context of the main themes obtained from the findings, all the interview records of the participants were re-listened, their texts were analyzed and the interwiev of each participant was summarized. Similar main themes that came out from all interview texts were determined by the researcher. These are general or common themes that express the experiences of the participants. The researcher then identified themes that came out in only one interview, which reveals individual themes.
- Textural description: The researcher defined the experiences of the participants about the phenomenon which is the subject of the research by taking the main themes into account. The experiences of the participants were also described with exemples from their direct expressions.
- Structural description: The researcher defined the circumstances in which the experiences of the participants about the phenomenon that is the subject of the research (where, how, why, etc.) took place, by taking the main themes into account.
- Combined description: By combining the textural and structural description stages, the researcher defined what and how the experiences that are related to the phenomenon took place. This stage represents the basis of all experience.

Validity and Reliability of the Research

In qualitative research and in phenomenological research, particularly in this one, various methods are being employed to ensure the validity and reliability of the research. The methods employed in this research can be listed as follows (2020; Shaw & Gowacki-Dudka, 2019):

- At the beginning of the study, the researcher used bracketing to exclude their own assumptions, views and biases from the data. Bracketing is a way that gives the opportunity to the researcher to reflect on how they will affect data analysis by identifying their own perceptions, views, and biases.
- From the beginning of the study, the researcher kept a reflective journal at every stage of the process. Thus, the data obtained from the interview texts and the reflective texts written by the participants were made more understandable and transferable.
- The data of the research were obtained from the reflective texts written by the participants and interview records. Thus, by providing data diversity, the opportunity to compare the data has arisen.
- Following the analysis of the data and determination of the themes and clusters, the researcher prepared a summary of the interview for each participant, showed the

summaries to the participants and confirmed whether the interview was understood correctly by the researcher.

- Upon the collection the data, data analysis was conducted separately by receiving the support of another researcher. When the themes and clusters found by the researcher were compared with the themes and clusters found by the other researcher, a high level of similarity was observed. The themes that were not similar as a result of the analysis of the two researchers were not included in this article because they were not directly related to the research question.
- The findings of the research were presented by directly including the statements of the participants.

Ethical Permits of Research

In this study, all the rules specified to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were complied with. None of the actions specified under the heading "Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, have been taken.

Ethics Committee Permission Information

Name of the committee that made the ethical evaluation = Marmara Üniversitesi Eğitim Bilimleri Enstitüsü Araştırma ve Yayın Kurulu

Date of ethical review decision= 24.02.2022

Ethics assessment document issue number= 234657

Findings

11 themes that explain the experiences of social studies teacher candidates about the phenomenon of social justice or injustice have been discovered. Although the main themes of the research have been determined as the economic, cultural and political dimensions of social justice, as Fraser (2008) states, these dimensions are presented directly as sub-themes since they cannot always be separated with clear lines. In order to base the data, each theme has been presented with direct quotations from participant statements.

Table 2. *Themes and participants*

Themes	Participants
Providing financial support to the school	P3, P4
Attending school courses	P6, P5, P4, P7, P13
Children of families with insufficient income	P5, P7, P10
General facilities of the school	P5, P6
Gender discrimination	P11, P2, P12, P13, P6
Ethnic factors	P1, P9
Political discrimination	P14, P13
Categorizing the students	P14, P13
Disadvantaged children	P10, P15
Favoritism	P7, P8
Positive opinions	P3, P4, P5; P14

Theme 1: Providing Financial Support to the School

A theme mentioned by most of the participants in the economic dimension of social justice was that, students whose families provided financial support to the school (donating, donating

various materials and goods, providing service for free, sponsoring events, etc.) gained positive discrimination. The positive discrimination these students gained were privileges such as receiving special attention, raised grades, and the right to use the lockers available in the school or classroom.

Participant 3: *Our classroom teacher in primary school paid special attention to the children of families who provided more financial support for the school, and my family's financial situation was not good then. When other students with high financial status did not do their homework, our teacher would caress their heads and say "never mind". However, when I did not do my homework, the teacher would scold me in the classroom and hit me on the head with a ruler. Therefore, I could never forget this experience all my life and now I want to teach, but I tremble in front of the blackboard as I can't get those moments out of my mind.*

Participant 4: *When I was in primary school, lockers were installed in our classroom. We were told that we could use these lockers if we donate to the school. Thus, two social classes as wealthy and poor, emerged in the class. Since I was in the group of poor ones, I could never use these lockers. I always felt like a looser.*

As reflected in the statements of Participant 3 and Participant 4, positive discrimination towards the children whose parents provide financial support to the school, and even beyond positive discrimination, negative attitudes towards students whose financial situation is not good, have affected the rest of these children's lives. For example, the inability to speak in front of the public and trembling with excitement which are encountered by Participant 3 has been determined as the result of this injustice by the participant.

Theme 2: Attending School Courses

Paid courses for students are provided in schools to support them in their lessons. Families with sufficient financial income send their children to these courses. Many of the participants mentioned this theme under the economic dimension of social justice. Teachers privileged the students who attended their courses by paying more attention, answering their questions, ignoring their mistakes, and selecting them for various activities and so on.

Participant 6: *When I was attending to primary school, there was a science teacher. This teacher was giving courses outside of school. Around 15 students from the class were attending this course. When this teacher asked a question about the lesson in the class, he was always giving priority to those students and even was sparing time for them during breaks. I was very disturbed about this situation then.*

Participant 5: *Although I was very good in social studies, our teacher did not pick me for the trip to Çanakkale, but only picked the students who were attending to the private course. Moreover, that teacher gave high performance grades to those students just because they were attending to the private course. This situation caused me to get angry with the students attending to that teacher's course and turn against them.*

The statements of Participant 5 and Participant 6 reveal that the advantageous status of the students who attend school courses hinders communication and human relations among

students. However, maintaining the delicate balance among students and breaking down communication barriers should be among the primary duties of teachers.

Theme 3: Children of Families with Insufficient Income

In public schools, there are children of families with different financial income levels. Thus, some of the students in the classrooms lack some materials, some of them are not able to supply the expensive materials that teachers demand, or they cannot participate in the school trips that require to pay a fee.

Participant 5: *Students who did not have tracksuits were not allowed to attend the physical education class. As the families with limited financial income could not afford tracksuits, their children could not attend the class as if they were alien. However, any outfit in which the student could move comfortably could be accepted. I remember these students standing on a corner of the garden as if they were being punished. This was disturbing for me then. I could have been in the place of those students. What a humiliating scene.*

Participant 7: *When I was in the seventh grade, since my classmate did not have a notebook, the teacher insulted my classmate and instead of asking why, made my friend sit at the back of the classroom, crying. Then the teacher calmed down and asked "why don't you have a notebook" and got the answer "my mom will buy it tomorrow". The fact that the teacher made that student encounter such a situation in front of the whole class, caused the student to take a dislike of that lesson and become a shy person.*

Participant 10: *In primary school, our teacher asked us to take photos and exhibit them. However, the financial situation of many of us, especially mine, was not sufficient for this. However, our teacher made it compulsory and opened this exhibition by making the majority of the class buy cameras.*

The statements of the participants generally refer to the economic dimension of social injustice. In this regard, the situations that arise and disturb the students can be eliminated by the teacher through a more positive way of communication, empathy, and maybe even finding sponsors for teaching materials that the students cannot afford.

Theme 4: General Facilities of the School

The social justice phenomenon that individuals face, can also occur among friends who study side by side, or it might occur when students compare themselves with students from other schools. In Turkey, there are schools with very different facilities from each other in every region, every city, even in every neighborhood. Therefore, even in the same neighborhood, students do not have the opportunity to study at schools of the same quality.

Participant 5: *We had two schools in the same neighborhood. One had an indoor gym and a music room. Its garden was huge and it was surrounded with trees. There was a computer and foreign language laboratory. Its classrooms were large and spacious and the desks were also very nice. My friends were saying that their teachers were also very qualified. However, as my residence address did not conform to that school, I had to go to the other school without a gym and music room and with a small garden and old classrooms. Of course, the parents who donated were able to send*

their children to that school. I used to envy those who studied at that school. I used to think that I would be more successful if I studied there.

Participant 6: *When I was in high school, there was a school that everyone praised, but I could not register to that school as my residence address was out of the acceptance zone of that school and also my family could not afford to donate. Thus, everyone was belittling when I mentioned my school. There were even people who said, "That school cannot graduate any good students". This used to make me very upset. The inadequate physical or educational conditions of the school used to affect my motivation to learn and I used to feel excluded.*

Obviously, the general facilities of schools can also set an important example of social injustice in terms of equality in education. While it is initially only facing with injustice in situations such as not having the same educational opportunities, as stated by Participant 6, it goes even further with stigmatization.

Theme 5: Gender Discrimination

This theme, which arises when people's judgments about the other people are based on gender rather than personal values, and which includes discrimination based on gender in general, has been a phenomenon mentioned by the majority of the participants.

Participant 11: *We had a lecturer at the university who only took care of the male students. If we asked something, the lecturer did not answer, but was answering the questions of the male students. We were literally invisible for that lecturer. We were upset about this situation.*

Participant 2: *I have a mother who was not sent to school with the belief that "Girls should not go to school". As I am a girl, my father also wanted me to leave school after primary school, but my mother fought hard for me to keep studying. If my mother had not struggled that much, maybe I would have been one of those kids who could not study only because being a girl. We had a teacher in high school who used to say, "There is no need for the girls to study, they should stay at home and take care of their children". This used to make me very angry. After all, should this be the approach of a teacher who is expected be an intellectual? Therefore, I hated that teacher's classes, so, I barely passed*.

Participant 12: *I had a teacher who did not look at my face while talking to me, just because I am a woman. That teacher used to lecture looking at the male students' faces and did not recognize female students. Even in the applications of part-time job, that teacher gave priority to male students. When I wanted to apply, I contemptuously received the answer, "Will you be able to do it?". This was because this teacher regarded women as weaker than men. I would prefer to be regarded as a human being rather than a gender.*

Unfortunately, gender discrimination takes place in Turkey, as in many other countries in the world. Eliminating or reducing discriminatory thoughts on this subject can only be achieved through education. This is an indication of how important social justice awareness is in teacher training.

Theme 6: Ethnic Factors

In the cultural dimension of social justice, ethnic elements are emphasized as an important theme. Especially in recent years, with the Syrian and Afghan refugees' immigration to Turkey, ethnic elements have been coming to the fore more often.

Participant 1: *At the school where I was serving my internship, the attitude of a teacher to a student from a different ethnic background was quite interesting. The teacher had constant negative attitude towards the student on the grounds that the student disrupted the classroom discipline and was determined that the student would never improve due to the environment in which they grew up. Yet, the teacher marginalized the children's mischievousness by dealing with it with a racist attitude.*

Participant 9: *There were Syrian citizens in our class. Our friends used to say that, they could not make sense of their spoken language and words and that they were uncomfortable. This situation reached to the point of complaining about them to the teacher. Upon the complaints, the teacher tried to separate the refugee students by moving them to the back rows. I was very surprised and upset that the teacher also supported this exclusion. There are some Turkish children who also have to study in other countries. Would we like it if they treated them the same way?*

Respect for differences is the right of all individuals and the teacher should be the provider of this in an educational environment. Racist approaches such as ethnic factors are likely to come to the fore for various reasons. However, conflict management skills should be the greatest helper of the teacher in this issue.

Theme 7: Political Discrimination

There are participants who refer to the theme of political discrimination as treating someone differently and unequally from other people due to their political views, without any justification.

Participant 14: *One of my lecturers at the university scolded me during my presentation in the class for having different thoughts and beliefs and did not allow me to teach the class. This was because I mentioned a structure of congregation which then existed in our country. In the following classes, this lecturer made me and my friends sit in the back rows and if we did not receive the signature (attendance) list, the lecturer would not allow us to sign at the end of the class. This situation continued this way and my interest for the class and the lecturer decreased. Then I grew a hatred for this field*.

Participant 13: *In my first years at university, I had a great interest in the diplomatic field of the discipline of history. I started studying in this department with a great desire to learn Ottoman Turkish. However, the lecturer from whom I was receiving the diplomacy class, had a conservative character. The lecturer was answering the questions of the students wearing headscarves in a more detailed and instructive way, while giving more superficial and even irrelevant answers to the students who were not wearing headscarves. This lecturer sometimes did not answer these students' questions at all. Thus, those who were not wearing a headscarf were hesitant to ask questions. This situation reduced my interest in diplomacy and my enthusiasm to learn.*

Political discrimination is an instance of social injustice faced by students, especially at higher education levels. Accepting the diversity of ideas as a richness may be a more meaningful behavior at the academic level. Teachers should be trained to stand against attitudes of political discrimination among students.

Theme 8: Categorizing the Students

Most of the participants emphasized that it is an unfair attitude for teachers to categorize students as successful-unsuccessful, lazy-hardworking, rich-poor, good class-bad class. It is possible to say that, this situation reveals the learned helplessness motive in students and after a while they accept it.

Participant 14: *When I was in high school, class A was separated as the class of hardworking students and the only smart board of the school was installed in that classroom. As class L, we realized this situation and informed our parents. Then our parents tried to fix the situation by talking to the school administrators. The categorization of the whole school as hardworking students and lazy students made me feel like I was really lazy*.

Participant 13: *The teacher divided the classroom space into two and separated the students as successful ones and unsuccessful ones. The teacher privileged the rich children and the children who attend the courses and the private classes the teacher offered and moved them in the section of successful students. This situation gave me a lack of self-confidence and reluctance towards the class. I decided that, "The teacher is already caring for the successful students, so I do not need to show interest in this class".*

Theme 9: Disadvantaged Children

Some case studies that the participants emphasized as injustice were gathered under the theme of disadvantaged children. These disadvantages might be learning difficulties, attention deficit, having special needs, being raised an orphanage, stuttering while speaking or spelling while reading.

Participant 10: *Due to my learning difficulties, I was quite behind my class in reading and writing until the third grade of primary school. Since I was not given the chocolate and ribbon which were given to the students who started reading, I was ridiculed by my friends and my teacher constantly scolded me for my reading difficulties and decided that I should repeat the grade and moreover demanded from my parents to transfer me to another school, as I would tarnish the name of their school. The teacher made me sit in the back of the classroom and if I made the slightest noise my teacher was going off on me. That teacher did not even help me to read and write. I was going to school unwillingly and I was constantly pretending to be ill in order not to go to school. Eventually, I was transferred to another school and I learned to read and write in a short time thanks to the approach of my teacher there. I loved reading books and thanks to my new teacher, I got over this difficulty.*

Participant 15: *In the middle school, students from the kindergarten (reformatory/orphanage) came to the classroom and the teacher had shown a bad attitude towards them from the very first day. The teacher did not even ask their names and did not introduce them to the class. Those students were always excluded. This situation left the impression that, "they do not*

love me" on them. Treating those students, who are no different from any of us in terms of their right to education, badly was not a good behavior for a teacher.

Theme 10: Favoritism

Participants state that teachers positively discriminate especially the students who have a relation with them and whose families they have friendly relations with, especially in primary, secondary and sometimes high school level of classes.

Participant 7: *When we were in high school, one of our teachers was treating a student in our class more friendly as they were friends with the father of that student. That teacher was not friendly to the rest of the class. That student always got the highest scores in the exams and was seen as the most successful student in the class. We had the perception that the teacher favored that student and was even providing the exam questions beforehand. Therefore, except for that student, nobody liked that class and that teacher. We started to get disinterested and estranged. The teacher even compared that student to the rest of the class once, by saying, "While this student can do, why cannot you do?"*

Participant 8: *In high school, our teacher was treating the students whose families they were acquaintance with, with privileges. It is a great injustice for the other students that the teacher is constantly in contact with the student whose family they are acquaintance with. Hence, this situation caused an unease in the classroom and led to rumors of "favor and favoritism".*

Theme 11: Positive Opinions

In the themes listed above, students generally mentioned the situations and experiences they encountered social injustice. The experiences of the students who mentioned positive cases with traces of social justice and that were not included in the above themes, are presented under the theme of "positive opinions".

Participant 3: *There were Christian Armenian students in our class. Our teacher used to teach the class with a peaceful, conciliatory and multicultural approach. The teacher used to propose various activities for us to socialize with each other.*

Participant 4: *We had a friend who had difficulty in learning, in our class. The teacher used to care for that student and give extra exercises during breaks. This way, that teacher did not steal our times while also keeping our friend from falling behind.*

Participant 7: *In high school, a teacher of ours used to ask us to express our opinions freely in the class and never judged us for our opinions. Even in the cases of having different opinions than ours, that teacher appreciated us for being able to express ourselves, and never had prejudice against anyone.*

Participant 14: *There were refugee students in our class. Our teacher used to put an effort to socialize us with each other through games. The teacher used to propose Turkish games and sometimes the games of the refugee children by learning their local games. Thus, the marginalization of the different was eliminated.*

Participant 5: *Two students were arguing and fighting when the teacher entered the classroom. The teacher listened to both sides separately, treated them equally and tried to reconcile. The teacher did not take the side of the student who share the same opinion with them.*

Discussion and Conclusion

It is seen that the concept of "social justice" is frequently on the agenda in the field of education, due to the expectation that the education system will provide justice in accessing opportunities and results. Undoubtedly, it is known that schools serving the children of the poor, workers, immigrants and similar families in many countries have worse educational outcomes than the schools attended by the children of more advantaged families (Levin, Cornelisz & Hanish-Cerda, 2013). It should be noted that in this study, there are participants who attended public schools at different socio-economic levels, but there are not any participants who attended to a private school. The research was conducted only with participants who attended public schools. In this respect, the social justice/injustice experiences expressed by the participants are only experienced in public schools.

In this study, it has been tried to define the social justice experiences of teacher candidates and its effects on them. It has been observed that the participants experienced social justice within the framework of economic, cultural and political dimensions (Power & Taylor, 2013) mentioned by Fraser (2008).

In economic dimension; the teacher candidates who expressed their experiences on the themes such as financial support to the school, attending school courses, having families with insufficient financial income, general facilities of the schools, and favoritism, stated that they were most disturbed by the positive discrimination of the teachers to the students who attended the school courses. If a teacher looks out for certain students in the classroom environment due to their certain characteristics (student's socio-economic level, parent's profession, being friends with parents, etc.), it can be expressed as discrimination in all respects. This discrimination by the teachers causes other students to have negative feelings and thoughts such as disliking the teacher, being alienated from the class, being jealous of their friends, and losing their enthusiasm for learning (Pehlivan, Köseoğlu & Şen, 2018). In this study as well, the participants mentioned similar discriminatory behaviors that they perceive as social injustice in the economic dimension.

Related to the cultural dimension; the participants, who shared their experiences in the themes of gender discrimination, ethnic factors, categorizing students, and disadvantaged children, stated that they have mostly suffered from gender discrimination and that they felt like invisible. In our own national context, inequalities in educational experiences and outcomes appear strongly in relation to gender and socio-economic background. The statement of Connell (2012) that "schools and colleges do not only produce culture, they shape the new society that emerges around us" (Robertson & Dale, 2013) expresses that social justice in education does not only focus on equality of opportunity, but the equality of recognition is also necessary. It is because, the appropriate identities and subjectivities for the social relations necessary for the reproduction of patriarchal capitalism, are built at schools. An important aspect of this building act concerns the construction of gendered (feminine and masculine) subjectivities. Education systems play a key role in the reproduction of sexist stereotypes and values, both through the

information processes offered at the school and within the cultural climate offered by the school (Sayılan, 2014). On the other hand, as a reflection of its historical past, Turkey is one of the multicultural countries that incorporates different cultures and ethnic groups. The uneasiness in neighboring countries, civil wars and hosting a large number of immigrants for various reasons further expanded the multicultural structure of the Turkish society. In this context, an awareness-based social justice education approach should be adopted by integrating social justice education into teacher training programs, and teacher candidates should gain knowledge and experience about how the complex characteristics of ethnic groups, race, ethnic structure, language and social class affect student behavior (Şimşek, Dağıstan, Şahin, Koçyiğit, Dağıstan-Yalçınkaya, Kart & Dağdelen, 2019).

In school or classroom culture, categorization of students in terms of success or other criteria is often criticized. It is also found out in studies that these categorizations do not increase success and create some problems in individuals' perceptions of their own potential, and they are recommended to be avoided (Good & Brophy, 2000). Participants in the study also stated that they were categorized according to their success levels and thus, they felt themselves unsuccessful.

In the political dimension; only two of the teacher candidates shared their experiences and stated that their teachers treated them unfairly because they had different ideological views, and as a result, they were no longer interested in those classes. No study has been found in the literature on the exposure of students to political discrimination, and the political discrimination experienced by teachers in this regard has been investigated. Although, in this study, not many opinions were expressed about the students being the target of unjust behavior in the dimension of political discrimination, it is thought to be an area that needs to be investigated.

As they mentioned in their statements, the participants had fair experiences as well as the encounters of social injustice. It is hope-inspiring that there are also teachers who better manage factors such as ethnic or cultural diversity, and differences in learning levels. It is possible for these examples to become more widespread thanks to education, especially Social Studies education, which includes education on human rights and democracy as well as education on citizenship and values. The basis of this spread can be formed by including the awareness of social justice in the Social Studies class. Social Studies class, by its nature, has a suitable ground to develop the awareness of social justice.

In conclusion, in this study conducted in the province of İstanbul in Turkey, it has been observed that teacher candidates encountered cases of social injustice, mostly in economic and cultural dimensions, throughout their education process. Different results can be obtained with participants with different demographic characteristics. However, it has been concluded that social justice education is fundamental in teacher training in order to prevent students in schools or classrooms from being the target of unfair treatments in economic, cultural or political dimensions.

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Sosyal Adalet Olgusu Üzerine Fenomenolojik Bir Çözümleme

Giriş

Adalet kavramı, dünyadaki en eski insan erdemlerinden biri olarak tanımlanır (Ogunmodede, 2005) ve adalet için kullanılan en eski kelime Eski Mısır'daki maat sözcüğüdür. Eski Mısır Hikmet Edebiyatı ve Eski Ahit'te yer alan en eski anlamıyla adalet, ahlaki doğruluk, dürüstlük veya ahlaki mükemmellik ya da yetkinlik" anlamına gelir. Eski Yunan felsefesinde de adalet ile ilgili olarak fikir ortaya atan filozoflardan biri Platon'dur. Adaleti bireydeki veya devletteki kurucu parçaların uyumlu işleyişi olarak tanımlayan Platon adaleti toplumun temeli olarak kabul eder ve adaletin bir başka yönünü de "Adalet, hakkıyla kendine ait olanı tutmak ve kendi işini yapmaktır" sözleriyle vurgular (Obioha, 2011). Diğer bir Eski Yunan filozofu olan Aristoteles, adalet kavramını, karşıtı olan adaletsizlik kavramıyla ele alarak diyalektik bir anlayışla incelenmesi gerektiğini ileri sürer. Bu bağlamda kanunlara aykırı davranmak ve onları kişisel çıkarlarına göre düzenlemek gibi durumlar eşitsizlik, dolayısıyla adaletsizlik olarak tanımlanırken, bu durumun karşıtı olarak kanunlara uygun davranmak, kanunlar karşısında eşitliği uygulamak ve eşitlik ilkesine karşı sadakatle ve sorumlulukla yaşamak ise adalet olarak tanımlanır (Çakır, 2017). Günümüzde de adalet kavramı Türk Dil Kurumu tarafından yasalarla sahip olunan hakların herkes tarafından kullanılmasının sağlanması (TDK, 2011: 24) olarak ifade edilmektedir.

Sosyal adalet ise genel olarak toplumdaki gücün, kaynakların ve yükümlülüklerin ırk veya etnik köken, yaş, cinsiyet, yetenek durumu, cinsel yönelim ve dini veya manevi geçmişe bakılmaksızın tüm insanlara adil ve eşit dağılımı olarak tanımlanır (Van den Bos 2003). Bu tanımın altında yatan temel ilkeler, içerme, iş birliği ve dayanışma, eşit erişim ve eşit fırsat değerlerini içerir. Bu değerler aynı zamanda demokratik ve eşitlikçi bir toplumun temelidir (Sue 2001). Dolayısıyla sosyal adalet olgusu toplumun bütün kurumlarına yayılmalı ancak özellikle eğitim kurumu sosyal adaletin yerleşmesi açısından ayrı bir yer teşkil etmektedir.

Eğitimde Sosyal Adalet

Ekonomik durum, toplumsal cinsiyet, ırk, etnik köken gibi etkenler bir bireyin hangi nitelikte eğitim alabileceğini belirlediğinde sosyal adaletsizlik durumu ortaya çıkar. Toplumda daha ayrıcalıklı görülen ekonomik duruma, toplumsal cinsiyete ya da etnik kökene sahip olamayan öğrenciler, bu ayrıcalıklara sahip olan öğrencilerle aynı nitelikte eğitim alamadığında bu öğrencilerin hayatlarının geri kalanı için eksik/zayıf bir temel inşa edilir. Bu öğrenciler, standart bir gelir elde etme becerilerini ya da mesleki bilgilerini kazanamayabilirler ve bu da sağlık hizmetleri, rahat ve güvenli konutlar gibi erişimlerini engelleyebilir. Aynı zamanda bireyin kendini geliştirme ve gerçekleştirme potansiyeline ket vurur. Eğitim sistemi fırsat eşitliğini sunmadığında, belirli bir kesim için ayrıcalıklı olduğunda bir toplumu hem kültürel hem de ekonomik anlamda olumsuz etkiler. Eğitimde sosyal adaleti sağlamaya çalışmak, aynı zamanda eğitimdeki birtakım eşitsizliklerle de mücadele etmeyi kapsar. Bu bağlamda bu araştırmanın amacı Sosyal Bilgiler dersi öğretmen adaylarının sosyal adalet/adaletsizlik deneyimlerini ortaya koymaya çalışmak ve bu deneyimlerden yola çıkarak sosyal adalet eğitimi için öngörülerde bulunmaktır.

Adalet arayışı belirli adaletsizlik örneklerinin var olduğunun ve bu adaletsizliklerin ahlaki anlamda ortadan kaldırılması gerektiğinin bilinciyle başlar (Snauwaert, 2011). Bu bilinci oluşturmakta eğitim kurumunun özellikle de sosyal bilimler eğitiminin rolü önemlidir. Bu bağlamda eğitimde sosyal adalet olgusu ile ilgili örnekleri araştırmak çalışmanın ana problemini oluşturmaktadır. Bu problem doğrultusunda eğitimde sosyal adaletin boyutlarına da bir açıklık getirerek elde edilen bulgularla karşılaştırılacaktır.

Eğitimde Sosyal Adaletin Boyutları

Bu araştırmada sosyal adaletin boyutları ekonomik, kültürel ve politik olmak üzere üç boyutta ele alınmıştır. Fraser, bu farklı adalet boyutlarının nadiren birbirlerinden keskin çizgilerle ayrıldığını, ancak bu sınıflandırmanın adaletsizliklerle mücadele etmede sezgisel/buluşsal avantajlar sağladığını ifade etmektedir (Power & Taylor, 2013; Power, 2012; Fraser, 2008).

- Ekonomik boyut maddi kaynakların dağılımı ile ilgilidir. Yani tüm öğrencilerin eğitimle ilgili kaynaklardan eşit bir şekilde yararlanmasıdır. Bu kaynaklar arasında öğretmen niteliği, okulun fiziki ve maddi imkanları, eğitim ve öğretim teknolojilerine erişim, okula ulaşım, insani potansiyeli gerçekleştirme fırsatları olabilir. Maddi kaynakların yanlış dağılımında ekonomik adaletsizlikler baş gösterir. Önemli oranda eğitimde meydana gelen eşitsizlikler bu yanlış dağıtıma yüklenebilir. Sosyo-ekonomik açıdan dezavantajlı ailelerin çocuklarının devam etme olasılıkları yüksek olan okulların kaynak açısından yetersiz olması, bu çocukların daha düşük düzey eğitim düzeyine sahip olmalarıyla sonuçlanmaktadır. Bir başka ifadeyle Fraser'a göre ekonomik adaletsizlikler sömürüyü içermektedir. İstenmeyen, düşük ücretli işlerle sınırlı olmak veya hiçbirine erişememek ekonomik marjinalleşmeyi getirmekte, yeterli bir maddi yaşam standartından mahrum olma ise yoksunluk yaratmaktadır. Bu adaletsizlikler, ekonomik engelleri ortadan kaldırarak veya açığı kapatmak için kaynakları yeniden tahsis ederek sosyoekonomik eşitsizliklerin neden olduğu engelleri azaltmaya çalışan bir yeniden dağıtım politikasını gerektirmektedir. Eğitim politikaları da bu yeniden dağıtım stratejilerini oluşturmada öncülük etmelidir.

- Sosyal adaletin kültürel boyutu ise genel olarak kültürlerin yanlış tanıtılması/tanınması siyaseti ile ilgilidir. Bireyin, başka bir kültürle bağlantılı ve kendi kültürüne yabancı ya da düşmanca yorum ve iletişim kalıplarına maruz kalma gibi durumlar onu, kültürel tahakküm olgusu ile karşı karşıya bırakmaktadır. Yine bireyin iletişimsel ve yorumlayıcı uygulamalar aracılığıyla görünmez kılınması ve kalıplaşmış kültürel temsillerde ya da günlük yaşam ortamlarında rutin bir biçimde kötülenerek saygısızlığa maruz kalması, küçük düşürülmesi gibi durumlar yanlış tanıma siyasetinin ürünleridir. Eğitim içeriğinin belirli baskın değerleri yansıttığı ve kültürel olarak marjinalleşmiş grupların değerlerini susturduğu veya yanlış temsil ettiği durumlarda karşılaşılan sosyal adaletsizlikler bir tanıma siyaseti gerektirmektedir. Bu tanınma siyaseti, yanlış tanınan grupların düşük statülerini tersine çevirmeye ve önceden küçümsenen kimliklerinin değerini doğrulamaya çalıştığı olumlama stratejilerini içerebilir. Diğer yandan bu tanınma siyaseti gruplar arasındaki statü ayrımlarını destekleyen ve yanlış tanımayı yaratan kategorileri yapıbozuma uğratmayı da kapsayabilir. Sonuç olarak nasıl ekonomik kaynakların yanlış dağılımı bir yeniden dağıtım stratejisi gerektiriyorsa, kültürel anlamda yanlış tanıma gibi kültürel adaletsizlikler de bir yeniden tanıma siyasetini zorunlu kılmaktadır.
- Siyasi adaletsizlikler, ekonomik ve kültürel adaletsizliklerle de yakından bağlantılıdır. Yanlış dağıtım ve yanlış tanıma kaçınılmaz olarak insanların her türlü sivil ve siyasi faaliyete katılma fırsatlarını sınırlayacaktır. Dolayısıyla sosyal adaletin siyasi boyutu bireylerin her türlü sivil ve siyasi faaliyette bulunma kapasitesinden bahsetmektedir. Siyasi adaletsizlikler, bireylerin veya grupların sosyal etkileşimlerde ve karar alma süreçlerinde eşitlikten yoksun bırakılmasıyla ortaya çıkar. Bu tür adaletsizlik sadece geleneksel siyasi alanlarla sınırlı değildir. Aslında sosyal adaletin siyasi boyutu demokratik katılımı içermektedir. Yani toplumdaki her bireyin kendini belirleme ve ifade etme özgürlüğüne yön veren politikalara eşit olarak katılımının sağlanması gerekmektedir. Eğitim ve eğitim politikaları demokratik katılımcılığın gerçekleştirilebilmesi için öğrencilerin kendini ifade etmelerine ve geliştirmelerine yönelik tüm imkanları sağlamalıdır.

Sosyal adaletsizliğin bu farklı boyutlarını ele almak önem arz etmektedir. Çünkü her biri ile mücadele etmek farklı stratejilerin işe koşulması demektir. Örneğin ekonomik adaletsizliklerle mücadele etmek için bir yeniden dağıtım siyaseti gerekebilir. Kültürel adaletsizliklerle mücadele etmek için bir tanıma siyaseti, siyasi adaletsizliklerle mücadele için de bir temsil siyaseti oluşturmak (Power & Taylor, 2013) söz konusu olabilir. Bu üç boyut, sosyal adaletin etkin olarak desteklenmesi için temel araçlar olduğundan sosyal adalete yeniden dağıtım, tanıma ve temsil bakımından odaklanmak önemlidir. Zira bu kavramlar birbirleriyle oldukça ilişkilidir ve ortak yönlere sahiptir.

Sosyal adalet genel olarak şu hedeflere ulaşmalıdır (Sainz vd., 2016):

- Yeteneklerin geliştirilmesi ve eşitsizliklerin üstesinden gelinerek insan onurunun elde edilmesi ve bu yeteneklerin geliştirilmesi yoluyla tüm insanların onurlu ve anlamlı bir yaşama ulaşmasıdır.
- Bireysel ve toplumsal refahın sağlanmasına ulaşmak ki refaha ulaşmanın yolu karşılıklı yardımlaşma, iş birliği ve adil bir demokraside tüm insanların katılımıyla sağlanabilir.

- Eşitsizlikleri ve adaletsizliği teşvik eden sosyal, politik ve ekonomik yapılar içinde özerk, aktif ve eleştirel insanlar olup değişimin aracı olarak hareket eden sosyal adalet odaklı vatandaşlar haline gelmektir.

Bu araştırmada bahsedilen sosyal adalet boyutları öğretmen adaylarının eğitim sürecinde hangi tür sosyal adaletsizlik davranışlarına maruz kalmış olduklarını sınıflandırmada kolaylık sağlaması bakımından ele alınmıştır. Diğer yandan Türkiye'deki sosyal adalet deneyimlerini incelerken sosyal adalet olgusunun Türkiye Cumhuriyeti Anayasası'ndaki izdüşümlerine de bakmakta fayda bulunmaktadır.

Türk Eğitiminde Sosyal Adalet

Türkiye Cumhuriyeti Anayasası'nda yer alan 1739 sayılı Milli Eğitim Temel Kanunu ülkedeki eğitim sisteminin yapısını belirleyen bir yasa olarak sosyal adalet olgusu ile ilgili maddeler içermektedir. 1973 tarihinde yayınlanan bu kanunun 4. Maddesi genellik ve eşitlik, 7. Maddesi eğitim hakkı, 8. Maddesi fırsat ve imkân eşitliği, 11. Madde demokrasi eğitimi ile ilgili düzenlenmiştir. Genellik ve eşitlik maddesinde eğitim kurumlarının herhangi bir ayrım gözetilmeksizin herkese açık olduğu kimseye ayrıcalık tanınmayacağı ifade edilmektedir. Eğitim hakkı ile ilgili maddede ilköğretime gitmenin bütün Türk vatandaşlarının hakkı olduğunu, sonraki öğretim düzeylerinden ise vatandaşları ilgileri, eğilimleri ve yetenekleri doğrultusunda faydalanabileceklerini bildirmektedir. Fırsat ve imkân eşitliği maddesinde ise eğitimde herkese fırsat ve imkân eşitliği sağlanacağı ve bunu sağlamak için de maddi imkanı olmayan öğrencilere parasız yatılılık, burs, kredi ve diğer yollarla yardım edileceğini belirtmektedir. Bunun yanı sıra özel eğitime ihtiyacı olan çocukların eğitimi için de buna yönelik özel tedbirler alınacağını vurgulamaktadır. Demokrasi eğitimi ile ilgili maddede ise hür ve demokratik bir toplumun inşa edilmesi için gerekli demokrasi bilinci, sorumluluk duygusu, manevi değerlere saygı gibi unsurlar öğrencilere kazandırılmaya çalışılacağından bahsedilmektedir. Genel olarak bu maddelere bakıldığında Türk eğitiminin temelini yapılandıran bu kanunda sosyal adalet olgusu ile ilgili olarak eşitlik, ayrımcılığa karşı olma, herkese eğitim hakkı, fırsat eşitliği, dezavantajlı öğrencilere yardım ve destek sağlama, demokrasi kavramlarından söz edildiği görülmektedir (Milli Eğitim Temel Kanunu, 1973).

Kısaca, sosyal adalet bilincini oluşturmada eğitim kurumlarının özellikle de Sosyal Bilgiler eğitiminin/eğitimcilerinin önemli rolü olduğu düşünülmektedir. Yukarıda sosyal adalet kavramının tanımına, eğitimin sosyal adaletin oluşmasındaki yerine, sosyal adaletin boyutlarına ve sosyal adalet olgusunun Türk eğitim sistemindeki hukuki yansımalarına değinerek araştırmanın arka planını oluşturma yoluna gidilmiştir. Dolayısıyla araştırmanın temel sorusu "Sosyal Bilgiler öğretmen adaylarının sosyal adalet olgusu ile ilgili deneyimleri nasıldır?" şeklinde yapılandırılmıştır.

Yöntem

Öğretmen yetiştirme alanında öğretmen adaylarının başkalarının deneyimlerinden öğrenmelerine yardımcı olmak ve eğitim sistemindeki sosyal adalet ile ilgili sorunları keşfetmek için güçlü bir araştırma yöntemi olan fenomenoloji bu araştırmanın yöntemi olarak belirlenmiştir. Fenomenoloji, bir fenomenin özünü, onu deneyimleyenlerin bakış açısıyla keşfederek açıklamaya çalışmak olarak tanımlanabilir. Fenomenolojinin amacı, bu deneyimin anlamını hem

deneyimleyen hem de nasıl deneyimlediği açısından tanımlamaktır. Farklı fenomenoloji türleri bulunmaktadır. Bu araştırmada hermeneutik fenomenoloji kullanılmıştır. İnsan deneyimine ve bunun nasıl gerçekleştiğine odaklanan hermeneutik fenomenoloji, bireylerin gerçekliklerinin içinde yaşadıkları dünyadan değişmez bir şekilde etkilendiğini ileri sürmektedir. Dolayısıyla hermeneutik fenomenoloji betimleyici yaklaşımın ötesine geçerek bireyin yaşam dünyası aracılığıyla deneyimleri yorumlamaya girişmektedir (Neubauer, Witkop & Varpio, 2019). Zira fenomenoloji kişinin, çevresini kendine has bir biçimde algılamasında dayanır. Fenomenolojide bir olayın, durumun, nesnenin, ya da herhangi bir şeyin taşıdığı anlam değil, kişinin fenomenle ilgili taşıdığı öznel anlam önemlidir (Zahavi, 2018). Bu öznel anlam da kişilerin o fenomenle ilgili deneyimleri vasıtasıyla oluşan algılama ile gerçekleşmektedir. İnsanın odak noktası olduğu konuları anlamak için, onun hayatında neyin anlamlı olduğu, neyi gerçekleştirmeye çalıştığı dikkate alınmalıdır. Hermeneutik fenomenoloji ise bu anlamın yorumu aracılığıyla tanımlanmasına dayanır.

Hermeneutik fenomenoloji bir metot olarak deneyimi ve bilinci araştırmacının kültürel ve tarihi köklerinden ayırmayı reddeder. Heidegger'e göre insan hayatındaki her türlü dini, ahlaki, sosyal, estetik, psikolojik yaşantıları doğru biçimde anlamlandırabilmesi, analiz edip tasvir ve yorumlama yapması esastır. Bu tasvir ve yorumlamalar özneldir ve olgulara ilişkin kurallar ortaya koyma gibi bir anlayışı yoktur (Yıldırım & Şimşek, 2011). Yaşantıları algılama, anlama ve yorumlamada kişinin "anlam haritası" ve yaşantının geçtiği koşullar son derece önemlidir (Sofuoğlu, 2009). İnsanlar dışlarında cereyan eden olayları duyu organlarıyla alır, kendi iç dünyalarına göre algılar ve anlamlandırır, dolayısıyla yeniden yaratır (Slattery, 2012). Her birey, eylemlere ve nesnelere yüklediği anlamlarla hayatını inşa etmektedir. Fenomen, dışarıda olan gerçek şey değil, bilincin onu anlama ve yorumlamasıdır. Araştırmacı ise bizzat fenomenin içine girip durumu içerden anlamaya çalışır (Çiftçi, 1999).

Sosyal adalet bilincinin de bireyin tarihsel ve kültürel olarak yaşadığı deneyimlerin bir ürünü olduğu düşünüldüğünde, hermeneutik fenomonolojinin bu araştırma için ayırıcı ve derinlemesine veriler sağlayacağı düşünülmektedir

Fenomenolojinin altında yatan temel ilke insanların fenomenleri veya gerçekliğin yönlerini deneyimlediği niteliksel anlamda farklı yolların varlığının nispeten sınırlı sayıda olması nedeniyle araştırılan fenomenin küçük bir grupla keşfedilmesinin sağlanmasıdır (Burke, O'Neill & Loveridge, 2018). Dolayısıyla araştırmanın hedefine uygun olarak katılımcıları belirlemek için amaçlı örnekleme seçilmiştir. Yani araştırılacak fenomen olan sosyal adalet ile ilgili deneyimleri olan kişiler aranmıştır. Bu amaçla 40 kişilik öğretmen adayı grubuna açık uçlu soru formu uygulanmıştır. Fenomenle ilgili deneyimleri olduğu tespit edilen 15 öğretmen adayı ile odak yansıtıcı yazma çalışması ve derinlemesine görüşme yapılmıştır. Bu sürece başlamadan önce araştırmanın yapılacağı üniversitenin etik kurulundan etik onayı alınmış ve araştırmaya katılanlara bilgilendirilmiş onay formu sunularak imzalamaları istenmiştir. Araştırmanın temel verileri 15 öğretmen adayı ile yapılan derinlemesine görüşmelerden elde edilen verilerden oluşm

Araştırmanın verileri 2021-2022 eğitim öğretim yılında İstanbul'da bir devlet üniversitesinde Sosyal Bilgiler öğretmenliği bölümüne devam etmekte olan 15 öğretmen adayı ile yapılan yarı yapılandırılmış görüşmelerle toplanmıştır. Önceden hazırlanmış açık uçlu sorularla görüşmenin odak konusunun dağılmasını önleyen bir doğaya sahip olan yarı yapılandırılmış

görüşmeler her görüşmeci için ortalama 120 dakika sürmüştür. Her görüşme katılımcının geçmişteki sosyal adalet deneyimleri üzerine düşünmelerini sağlayan yazılı bir çalışma ile başlamıştır. Katılımcılardan "eğitim hayatı boyunca karşılaştıkları sosyal adalet/adaletsizlik deneyimlerini ve bu deneyimler yaşanırken hissettiklerini yazmaları" istenmiştir. Katılımcıların deneyimlerini yazabilmeleri için onlara 40 dakika süre verilmiştir. Katılımcıların yazıları okunduktan sonra bireysel olarak yarı yapılandırılmış görüşme yapılmıştır. Böylece veri üçgenlemesine gidilerek iki farklı bilgi toplama aracından veri toplanmış, verileri karşılaştırarak verilerin doğrulanması sağlanmıştır. Bulgular bölümünde görüşmecilerin yazılarından doğrudan alıntılar yapılarak yer verilmiştir. Elde edilen veriler fenomenolojik analiz basamaklarına dayalı olarak analiz edilmiştir.

Bulgular

Sosyal Bilgiler öğretmen adaylarının sosyal adalet ya da adaletsizlik olgusu ile ilgili deneyimlerini açıklayan 11 tema ortaya çıkmıştır. Araştırmanın ana temaları sosyal adaletin ekonomik, kültürel ve siyasi boyutu olarak belirlense de Fraser'ın (2008) belirttiği gibi bu boyutlar her zaman kesin çizgilerle ayrılamayacağı için doğrudan alt temalar halinde sunulmuştur. Araştırmadan elde edilen verilerin fenomenolojik analizi sonucunda okula maddi destekte bulunma, okul kurslarına devam etme, maddi geliri yetersiz aile çocukları, okulların genel donanımı, cinsiyet ayrımcılığı, etnik unsurlar, siyasi ayrımcılık, öğrencileri kategorize etme, dezavantajlı çocuklar, kayırmacılık, olumlu görüşler olarak temalar belirlenmiştir. Her tema katılımcıların doğrudan ifadeleri ile desteklenerek sunulmuştur.

Sonuç ve Tartışma

Eğitim sisteminin fırsatlara ve sonuçlara erişimde adaleti sağlaması beklentisinden dolayı "sosyal adalet" kavramının eğitim alanında sıklıkla gündeme geldiği görülmektedir. Şüphesiz çoğu ülkede yoksul, işçi, göçmen ve benzeri ailelerin çocuklarına hizmet veren okulların eğitim sonuçları daha avantajlı ailelerin çocuklarının gittiği okullara göre daha kötü olduğu bilinmektedir (Levin, Cornelisz & Hanish-Cerda, 2013). Bu çalışmada katılımcıların farklı sosyo-ekonomik düzeydeki devlet okullarına devam ettikleri ancak özel okula gitmiş olan bir katılımcının olmadığını belirtmek gerekir. Araştırma sadece devlet okullarında eğitim görmüş katılımcılar ile yapılmıştır. Bu bakımdan katılımcılar tarafından ifade edilen sosyal adalet/adaletsizlik deneyimleri sadece devlet okullarındadır.

Bu çalışmada, öğretmen adaylarının sosyal adalet deneyimleri ve onlar üzerindeki etkileri tanımlanmaya çalışılmıştır. Katılımcıların sosyal adaleti Fraser (2008) tarafından bahsedilen ekonomik, kültürel ve siyasi boyutlar (Power & Taylor, 2013) çerçevesinde deneyimlemiş oldukları görülmüştür.

Ekonomik boyutta; okula maddi destekte bulunma, okul kurslarına devam etme, maddi geliri yetersiz aile çocukları olma, okulların genel donanımı, kayırmacılık gibi temalarda deneyimlerini ifade eden öğretmen adayları en çok öğretmenlerin okul kurslarına devam eden öğrencilere pozitif ayrımcılık yapmalarından rahatsız olduklarını belirttiler. Öğretmenlerin sınıf ortamında belli özelliklerinden (öğrencinin sosyo-ekonomik düzeyi, ebeveynin mesleği, ebeveyn ile arkadaşlık vb.) dolayı bazı öğrencileri gözetmesi, ayrı veya üstün tutması her bakımdan ayrımcılık olarak ifade edilebilir. Öğretmenlerin uyguladığı bu ayrımcılık ise diğer öğrencilerde

öğretmeni sevmeme, dersten soğuma, arkadaşlarını kıskanma, öğrenme şevkinin kırılması gibi olumsuz duygu ve düşüncelere yol açmaktadır (Pehlivan, Köseoğlu & Şen, 2018). Bu araştırmada da katılımcılar ekonomik boyutta sosyal adaletsizlik olarak algıladıkları benzer ayrımcı davranışlardan bahsetmişlerdir.

Kültürel boyutta; cinsiyet ayrımcılığı, etnik unsurlar, öğrencileri kategorize etme, dezavantajlı çocuklar temalarında deneyimlerini aktaran katılımcılar en çok cinsiyet ayrımcılığı hususunda sosyal adaletsiz davranılmasından üzgün olduklarını, kendilerini görünmez hissettiklerini ifade etmişlerdir. Kendi ulusal bağlamımızda cinsiyet ve sosyo-ekonomik geçmiş ile ilgili olarak eğitim deneyimleri ve sonuçlarındaki eşitsizliklerin güçlü bir şekilde ortaya çıktığı görülmektedir. Connell (2012)'in "okullar ve kolejler sadece kültür üretmezler, çevremizde ortaya çıkan yeni toplumu şekillendirirler" ifadesi (Robertson & Dale, 2013) eğitimde sosyal adaletin sadece fırsat eşitliğine odaklanmadığını, tanınma eşitliğinin de gerekli olduğunu ifade etmektedir. Zira, ataerkil kapitalizmin yeniden üretimi için gerekli toplumsal ilişkiler için uygun kimlikler ve öznellikler okullarda biçimlenmektedir. Bu biçimlendirmenin önemli bir boyutu, cinsiyetlendirilmiş (kadınlıkla ve erkeklikle ilgili) öznelliklerin inşasıyla ilgilidir. Eğitim sistemleri gerek okulda sunulan bilgi süreçleri aracılığıyla gerekse okulun sunduğu kültürel iklim içinde, cinsiyetçi kalıp yargıların ve değerlerin yeniden üretiminde kilit rol oynamaktadır (Sayılan, 2014). Diğer yandan, Türkiye, tarihi geçmişinin bir yansıması olarak, farklı kültürleri ve etnik grupları bünyesinde barındıran, kültürel çeşitliliğe sahip ülkelerden biridir. Türkiye'ye komşu ülkelerde yaşanan huzursuzluklar, iç savaşlar ve çeşitli nedenlerle çok sayıda göçmene ev sahipliği yapması Türk toplumunun çokkültürlü yapısını daha da genişletmiştir. Bu bağlamda öğretmen yetiştirme programlarına sosyal adalet eğitimi eklemlenerek farkındalık temelli bir sosyal adalet eğitimi yaklaşımı benimsenmeli ve etnik grupların karmaşık özellikleri, ırk, etnik yapı, dil ve sosyal sınıfın öğrenci davranışını nasıl etkilediği konusunda öğretmen adaylarına bilgi ve deneyim kazandırmalıdır (Şimşek vd. 2019).

Okul ya da sınıf kültüründe de öğrencilerin başarı ya da diğer ölçütler doğrultusunda kategorize edilmesi genellikle eleştirilmektedir. Zira bu gruplamaların başarıyı artırmadığı ve bireylerin kendi potansiyellerine ilişkin algılamalarında birtakım sorunlar oluşturduğu araştırmalarda görülmekte ve bunun kaldırılması önerilmektedir (Good & Brophy, 2000). Araştırmadaki katılımcılar da özellikle başarı seviyesine göre kategorize edildiklerini ve bu nedenle kendilerini başarısız olarak algıladıklarını ifade etmişlerdir.

Siyasi boyutta öğretmen adaylarından sadece iki katılımcı deneyimlerini aktarmış, öğretmenlerinin ideolojik bakımdan farklı düşünceye sahip olmaları nedeniyle kendilerine adaletsiz davrandıklarını, bu sebeple de o derslere ilgilerinin kalmadığını dile getirmişlerdir. Öğrencilerin siyasi ayrımcılığa maruz kalması ile ilgili alan yazında çalışmaya rastlanmamış, bu konuda daha çok öğretmenlerin kurumsal olarak yaşadıkları siyasi ayrımcılık araştırılmıştır. Bu araştırmada da siyasi ayrımcılık boyutunda öğrencilerin adaletsiz davranışlara hedef olmaları ile ilgili pek fazla görüş bildirilmemesine rağmen incelenmesi gereken bir alan olduğu düşünülmektedir.

Katılımcılar, ifadelerinde de görüldüğü gibi sosyal adaletsizlik deneyimleri yanında adil tecrübeler de yaşamışlardır. Etnik ya da kültürel köken çeşitliliği, öğrenme düzeylerinin farklılığı gibi unsurları daha iyi yöneten öğretmenlerin de var olduğu sevindiricidir. Bu örnekler eğitim

sayesinde özellikle de insan hakları ve demokrasi eğitimini, vatandaşlık eğitimini ve değerler eğitimini kapsayan Sosyal Bilgiler eğitimi sayesinde daha da yaygınlaşması mümkündür. Bu yaygınlaşmanın temeli de Sosyal Bilgiler dersine sosyal adalet bilincini eklemlemek ile gerçekleşebilir. Sosyal Bilgiler dersi doğası gereği sosyal adalet bilinci geliştirmek için uygun bir zemine sahip bulunmaktadır.

Sonuç olarak Türkiye'de İstanbul ilinde yapılan bu araştırmada öğretmen adaylarının eğitim süreçleri boyunca daha çok ekonomik ve kültürel boyutta sosyal adaletsizlik örnekleri ile karşı karşıya kaldıkları görülmüştür. Farklı demografik özelliklere sahip katılımcılarla farklı sonuçlar elde edilebilir. Ancak okullarda ya da sınıflarda öğrencilerin ekonomik, kültürel ya da siyasi boyutlarda adaletsiz davranışların hedefi olmamaları için öğretmen yetiştirmede sosyal adalet eğitiminin elzem olduğu sonucuna varılmıştır.