Activities Conducted in Primary School through the Eyes of Fourth Graders

Alper YORULMAZ¹

Muğla Sıtkı Koçman University

Zeynep KILIÇ²

İstanbul Medipol University

Fatma Özge ÜNSAL³

Marmara University

Halil ÇOKÇALIŞKAN⁴

Muğla Sıtkı Koçman University

Abstract

It can be said that activities form the basis for active learning, but teachers determine which activity is effective for the development of students. One of the criteria in this determination is the student, which is the basic input of education. Therefore, the aim of the study is to determine the opinions of primary school students about the activities based on their observations. To this end, variables such as the scope, type, location and frequency of the activities, the feelings and thoughts of the children about these activities were determined. The study employed the case study design, one of the qualitative research designs. The study group was comprised of 20 fourth grade students attending primary education in the city of Muğla in the spring term of the 2017-2018 school year. The data were collected by using a semi-structured interview form developed by the researchers. In order for the children to remember the activity types, the activities were introduced to the children one by one before initiating the data collection process. In order to eliminate peer effect in the data collection process, the interviews were individually conducted with each participant and each one lasted 5-10 minutes. In the analysis, content analysis was used. As a result, it was found that the activities most liked by the children are game-based and writing-based activities. Moreover, the students stated that activities are generally conducted inside the class and that they would like to conduct more activities in out-of-class environments.

Keywords: Activity, Primary School, Student, 4th Grade

DOI: 10.29329/epasr.2020.251.21

¹Research Assist Dr., Faculty of Education Muğla Sıtkı Koçman University, Mugla, Turkey, ORCID: 0000-0003-2832-6793, Email: alperyorulmaz@mu.edu.tr

²Assist. Prof. Dr. Faculty of Education, İstanbul Medipol University, Istanbul, Turkey, ORCID: 0000-0001-6481-4765, Email: zeynep.kilic02@gmail.com

³Research Assist Dr. Atatürk Faculty of Education Marmara University, Istanbul, Turkey, ORCID: 0000-0002-4314-2450, Email: ozge.unsal@gmail.com

⁴Research Assist Dr., Faculty of Education Muğla Sıtkı Koçman University, Mugla, Turkey, ORCID: 0000-0002-3454-0801 **Correspondence**: hcokcaliskan@mu.edu.tr

Introduction

Due to the student-centred approach adopted in curriculums, it is generally accepted that the activities chosen for the accomplishment of a qualified education are important in the field of education. As curriculums hold students responsible for their own learning, they require the teaching to be planned in such a way that students will be active in the process of knowledge construction (Ministry of National Education [MoNE], 2008). Therefore, determining what the concept of activity means in teaching environments and creating a framework accordingly is necessary for the accomplishment of learning objectives.

The concept of activity has been defined as "the state of being active" by the Turkish Language Association (TDK) (TDK, 2018). In educational environments, rather than the term activity, the term educational activity is used and it is defined as "the activity organized inside or outside the school, having some characteristics educational in nature and closely concerning students and teachers or the activity performed outside the class hours and generally organized by the student association" (TDK, 2018). Aside from the dictionary definitions of the concept of activity, some approaches are affective in the determination of the concept of activity.

Burgess (1971) defines the concept of activity as works that are developed through educational activities and educational suggestions and that adults think are effective in learning. MacDonald (2008) defines the activity as the scope of the activities that learning is based on, that supports students' learning and generally increases the level of learning. As the number of educational activities complying with the constructivist approach has increased, the concept of activity can be seen as the "exploration stage" of the 5E model (Özmen, 2004). The exploration stage refers to a process that involves students' using inquiry methods to explore or observe the new situation, guessing with free thinking within the boundaries of the activity, establishing hypotheses and creating discussions on them (Bozkurt, 2012). At this stage, the student is in the most active role, the teacher is in the passive role, and the teacher encourages students to think and comment by asking questions. For these reasons, the exploration stage of the 5E model contains similarities with activity (Özmen, 2004).

Although the "task", which is at the centre of the concept of the activity, is translated into the Turkish as "görev", it is not an exact counterpart because besides including activities related to the problem, "task" should be related to social groups like teachers and students in the educational environment and the interactions between them (Herbst, 2008). Doyle (1988) focused on tasks used in academic settings and classrooms. Tasks include products, actions, resources and responsibilities, regardless of subject and teaching area. Seen from this perspective, tasks and accordingly activities are tools we use to achieve our objectives. Since activities are tools, the perspective of the teacher, the method he/she chooses and many factors affect their shaping in the process of using them for teaching

purposes. In this context, the activity is the activation of tasks in line with a pedagogical approach. Doyle (1988: 169) explained the prominent features of the concept of activity.

- ✓ Activity requires students to actively participate in by taking responsibility,
- ✓ Activity involves a set of activities performed by using some tools and resources,
- ✓ Activity aims to yield a product complying with the designated objectives,
- ✓ Activity should include interesting and important educational works.

Teachers assume an important role in determining what students' responsibilities will be in carrying out activities, the way they use the tools, equipments or resources, instructions and the resulting product (Koç, 2006, Riedler & Eryaman, 2016). However, since the student is a practitioner in the implementation of activities, the teacher and the student cannot be considered separately for an effective process. It is important to determine students' observations about the activities implemented in and out of the classroom in terms of the quality of the resulting product. If students' opinions about the activities are determined, it will be easier to determine the type of activities that will be chosen to achieve the objective in the educational environment. Thus, it will be easier for the student to achieve the objective and the quality of education will increase. The application of the types of activities determined to be good and effective for the target audience is important as it will increase the motivation of students towards the lesson and create an entertaining environment especially for primary school students. In this regard, the purpose of the current study is to determine primary school fourth graders' opinions about the activities based on their observations. To this end, answers to the following questions were sought:

- 1. What are the opinions of the primary school fourth grade students about the activities they like the most?
- 2. According to the primary school fourth graders, where are the activities are performed and which place do they prefer to perform activities?
- 3. What are the activities most frequently done by the primary school fourth graders in the educational settings?
- 4. How do the primary school fourth grade students feel while doing activities?
- 5. What are the activities that the primary school fourth grade students would prefer to do instead of the activities they are normally engaged in?
- 6. What are the activities that the primary school fourth graders do not like?
- 7. Who would the primary school fourth graders like to do the activities with?

Method

Research Model

The current study aiming to determine the primary school fourth graders' opinions about the activities they do employed the case study design, one of the qualitative research designs. The case study design is used in studies aiming to elicit in-depth information about the subject of research and to understand the case in all respects (Merriam, 1998). Moreover, the case study is defined as the investigation of the questions focusing on how and why the event or phenomenon under investigation occurs (Yin, 1984). As the current study focused on the activities implemented in classes where the education process of primary school fourth graders was conducted, the holistic single case design was used.

Study Group

The study group of the current research aiming to determine the primary school fourth graders' opinions about the activities is comprised of 37 primary school students. The participating students were attending the fourth grade classes of two state primary schools located in the Aegean Region of Turkey in the spring term of the 2017-2018 school year. In the selection of the participants, the maximum variation sampling method was used. The purpose in maximum variation sampling is to maximize the diversity of individuals in the sample determined in accordance with the subject of the research (Yıldırım and Şimşek, 2016). Accordingly, while determining the participants of the current study, attention was paid to the academic achievement of the participants, their gender and their being taught by different teachers, as well as their voluntary participation. Thus, it would be possible to determine the opinions of the students taught by different teachers about the activities. Of the participating students, 19 are boys and 18 are girls and they have been taught by six different teachers. When the grade point averages of the participants are examined, it is seen that the grade point averages of 12 students are 80 or under 80, those of 13 students are in the range of 81-90 and those of the remaining 12 students are 90 or over. After the participants were selected, consent forms were gathered from the students, their parents and teachers.

Data Collection

The data in the current study were collected by using the semi-structured interview form developed by the researchers. The interview method was preferred as it is a strong method to elicit individuals' experiences, feelings and perceptions. While developing the interview form, first the related literature was reviewed by using the key words "activity, "activity in primary school", "activity in education" and "activity in instruction" and on the basis of the information obtained from this literature review, a semi-structured interview form was developed. This semi-structured interview form was submitted to the review of two experts having works on educational and instructional

activities and two primary school teachers and required changed were made on the basis of the feedbacks given by them. The interview form was piloted on three fourth graders who would not participate in the actual study and the incomprehensible items were corrected. The interviews were conducted with the primary school fourth graders individually in April in the spring term of the 2017-2018 school year by the researcher and they were tape-recorded. The interviews were conducted in a setting quite enough not to distract the students' attention. The mean duration of the interviews was found to be 6 minutes 40 seconds. The items in the interview form are given below:

- 1. What is the activity you like doing the most? Why do you like this activity?
- 2. Do you do the activity you like doing the most in the class or in the garden?
 - ✓ Where would you like to do this activity? Can you explain why?
- 3. What is the activity you do the most at school? Can you explain it?
 - ✓ How do you feel while doing this activity?
 - ✓ Would you like to do another activity in the day at school? (If yes, "Which activity would you like to do? Why would you like to do this activity?)
- 4. What is the activity that you dislike doing the most? Why do you dislike this activity?
- 5. Which one would you prefer while doing an activity; to be alone or to be with your peers? Can you explain why?

Data Analysis

In the analysis of the collected data, content analysis was used. Content analysis was preferred as concepts and relationships between these concepts were used (Yıldırım and Şimşek, 2016) and the basic meanings were expressed as themes (Patton, 2014). In the current study, the basic meanings and the relationships between them were taken into consideration in the construction of the themes. Before the data analysis, the recorded data were transcribed. These transcribed data were read by two researchers separately, draft themes in light of the interview items were determined and the students' responses were coded. By using the formula proposed by Miles and Huberman (1994) "Agreement / (Agreement + Disagreement) x 100", the inter-coder reliability was calculated to be 83%. An agreement value over 70% is considered to be an acceptable value (Miles and Huberman, 1994). The codes on which there were disagreements, discussions were held and then agreement was reached and thus the final form of the codes was given. The themes found in connection with the sub-problems of the study are presented in tables and within the text, codes are included. The derived themes and codes are supported with the quotations taken from the primary school fourth grade students' responses. Through the frequent presentation of raw data, the reader confirmation is ensured.

Results

In this section, the primary school fourth grade students' opinions about the activities they like doing the most, the place where the activity is performed, the activities most frequently done within the day, the activities they dislike doing the most and who they are with while doing the activity are presented in the form of frequencies in tables and the reasons for these findings are explained in detail.

Table 1 Frequency Distribution of the Activities the Primary School Fourth Grade Students like Doing the Most

Type of the activity most liked	f
Game	10
Painting	7
Experiment	5
Quiz	4
Problem solving	3
Acting out	2
Writing	2
Manual activities	2
Project work	1
Asking riddles	1
Total	37

As can be seen in Table 1, the activity most liked by the primary school fourth grade students is "game" (10). The students stated that they like the game activity as it is fun (8), as it is easy to develop through the game activity (1) and as the game activity contributes to both learning and having fun (1). In this connection, Ö1 stated ".... I can improve myself better when I play game ...". Moreover, primary school fourth grade students stated that they like "painting" activity (7) as it allows them to use their imagination (3), as they like drawing and colouring (2), as it improves their manual skills (1) and as it is relaxing (1). In this connection, Ö5 stated ".... I feel good as I can use my imagination while painting ...", Ö12 ".... I like drawing something ...". Primary school fourth grade students stated that they like doing "experiment" (5) as it is enjoyable (4) and as they can learn new things (1). In this connection, Ö19 stated ".... While conducting experiment, I like exploring living things with microscope in science classes ...". Primary school fourth grade students like the "quiz" activity (4) as they can learn new things (2), as it increases their desire to learn (1) and as it is enjoyable (1). In this connection, Ö12 stated ".... Knowledge makes me happy; it is wonderful to learn new things ...". Primary school fourth grade students stated that they like the "problem solving" activity (3) as it is enjoyable (2) and relaxing (1). Primary school students stated that they like the "acting out" activity (2), as it is like a game (1) and enjoyable (1). Primary school fourth grade students stated that they like the "writing" activity (2), as they like the Turkish course (1) and as it is easy (1). Other activities liked by students include "manual activities" (2), "project work" (1) and "asking riddles" (1). Primary school fourth grade students like the project work activity as it is enjoyable and the asking riddles activity as they can learn new things.

Table 2 Frequency Distribution of the Places Where the Activities Are Done By the Primary School Fourth Grade Students and of Their Preferences for the Place Of Activity

Place where the activity is done	f
Class	37
Student preference	f
Garden	31
Class	4
Both garden and class	2
Total	37

As can be seen in Table 2, all of the participating students stated that they do activities in the "class". On the other, the students would like to do activities in the "garden 31", "class (4)" and in the "both garden and class (2)". The students stated that they would like to do activities in the garden as air is clean (10), activity is done more comfortably (5), it is more enjoyable (4), the classroom is hot (2), games played outdoor are liked more (2), it is closer to real life (1) and there are more children in the garden (1). In this connection, some students expressed their opinions as follows: Ö26 ".... We get more oxygen in the garden...", Ö19 "....as there are more children, I like activities done in the garden more ...". Some students stated that they prefer doing activities in the class as it is more enjoyable (2) and they feel better in the classroom (1). In this connection, Ö21 stated "....I find activities done in the class more enjoyable...". On the other hand, some students prefer both the classroom and the garden as they are successful in both environments. This is stated by Ö28 as follows: "....I like doing activities no matter where they are done...".

Table 3. Frequency Distribution of the Activities Most Done By the Primary School Fourth Grade Students

Activities most done	f
Reading	16
Writing	13
Solving problem	7
Painting	4
Game	3
Acting out	2
Experiment	1
Manual activities	1
Total	47

As can be seen in Table 3, the activity most frequently done by the primary school fourth graders is "reading (16)", followed by "writing (13)", "problem solving (7)", "painting (4)", "game (3)", "acting out (2)", "experiment (1)" and "manual activities (1)".

Table 4. Frequency Distribution of the Feelings of the Primary School Fourth Grade Students While Doing Activities

Feelings while doing activities	f
Нарру	15
Excited	8
Good	8
Bored	2
Scared	2
Tired	1
Unhappy	1
Joyful	1
Total	31

As can be seen in Table 4, while doing activities the primary school fourth grade students felt "happy (15), "excited (8)", "good (8)", "bored (2)", "scared (2)", "tired (1)", "unhappy (1)" and "joyful (1)". The reasons for students' feeling happy are curiosity (8), liking reading very much (4), learning easily (1), doing correctly (1) and liking (1). In this connection, some students expressed their opinions as follows; Ö17 "....I feel happy as I am doing something good...", Ö25 "....I feel happy as long as I can do...". The reasons for students' feeling excited are the sense of uncertainty about whether they can do the activity (5), learning new information (1) and the sense of uncertainty about whether they will have difficulty or not (1). In this connection, some students expressed their opinions as follows; Ö7, "....I get very excited...", Ö20 "....when it is my turn, I feel very excited...". The reasons stated by the primary school fourth grade students for their feeling good include learning new information (2), getting distanced from negative feelings (1), learning by having fun (1), liking doing activities (1) and developing oneself (1). As the reasons for their feeling bored, they stated the following: writing is difficult (1) and we need to work hard (1). In this connection, one student expressed his/her opinion as follows; Ö2, "....I feel bored with writing...". As the students are afraid of making mistake, they feel scared (2) and in this regard Ö14 stated, "...when I cannot finish the activity, I think that I will be unsuccessful as I have made some mistakes...". Moreover, a student feels unhappy as he/he does not like writing (1).

Table 5. Frequency Distribution of the Activities That the Primary School Fourth Grade Students Would Like to Do Instead of the Activities They Are Doing

Activity they would like to do	f
I do not want to do any other activity	12
I would like to play	8
I would like to paint	4
Quiz	3
Experiment	3
Asking riddles	2
Doing research	2
Writing	1
Group activities	1
Manual activities	1
Total	37

When the activities that the primary school fourth grade students would like to do most instead of the activities they are doing are examined in Table 5, it is seen that "they do not want to do any other activities (12)", "they would like to play games (8)", "they would like to paint (4)", "they would like quizzes (3)", "they would like to conduct experiments (3)", "they would like to ask riddles (2)", "they would like to do research (1)", "they would like to write (1)", "they would like to do group work (1)" and "they would like to do manual works (1)". The main reason for the students' not wanting to do any other activities is that they find the activities they do good (8). In this connection, some students expressed their opinions as follows; Ö12, "....I like these activities ...", Ö23 "....My teacher finds nice and enjoyable activities; therefore, I do not want any other...". They would like to do game activities as they like games (4) and they are enjoyable (1). In this connection, Ö25 stated "....when it is game, it is full of fun and I learn better; therefore, I would like game activities...". Students would like to do painting activities as they are enjoyable (1); they want more quizzes as they like them (2) and learn better with them (1). In relation to painting activities, Ö4 stated "....I have more fun when I do painting activities...". The reasons stated by students for their preference for experiment activities are that their curiosity is aroused by these activities (1) and they learn new information (1); the reason for their liking riddle activities is that they like them (2). In addition, the reason for their preference for research activities is their learning new information (1) and the reason for their preference for manual activities is investing effort (1).

Table 6. Frequency Distribution of the Activities Disliked By the Primary School Fourth Graders

Activity disliked	f
Writing	15
Painting	7
There is no activity I dislike	6
Problem solving	4
Game	2
Reading	1
Singing activities	1
Numerical activities	1
Total	37

As can be seen in Table 6, the activities disliked by the primary school fourth grade students are "writing (15)", "painting (7)", "problem solving (4)", "game (2)", "reading (1)", "singing activities (1)" and "numerical activities (1)". Moreover, six of the participants stated that there is no activity they do not like. In this connection, Ö9 stated "....I like the activities we do; it does not matter for me, I do all the activities ...". It was found that students do not want to do writing activities, as they find them exhausting (9), boring (5) and difficult (1). As the reason for not writing activities, Ö22 stated "....I get tired as I constantly use my hand while writing; therefore, I do not want to do it...". Some students do not like painting activities as they are bad at painting (2), as they are bad at drawing and colouring (1) and as they do not like painting (1). In this connection, Ö3 stated "....I do not enjoy

painting and colouring; I do not feel like doing it ...". Students stated that they do not like doing problem solving activities as they get bored (1), they are afraid of making mistake (1) and these activities are not enjoyable (1). Ö15 stated that following as the reason for not liking problem solving activities; "....I am afraid of making mistake; therefore, I avoid doing them...". Students stated that they do not like game activities as they cause chaos in the class (1); reading activities as they are not enjoyable (1) and numerical activities as they are exhausting their cognitive capacity (1).

Table 7. Frequency Distribution of the Persons with Whom the Primary School Fourth Grade Students Would Like To Do Activities

With whom		f
Peer		30
Individually		7
	Total	37

As can be seen in Table 7, 30 of the primary school fourth grade students would like to do activities with their peers while 7 of them would like to do them individually. Students stated that they would like to do activities as they are introduced to different ideas (11), have more fun (6), support each other (6), get bored when alone (5) and feel concerned when alone (2). In this connection, some of the students expressed their opinions as follows; Ö18 "...I feel bored when I am alone and do not enjoy doing the activity but when I am with my friends, I also learn their opinions and thus, it becomes more enjoyable..."; Ö5 "....being with friends is more enjoyable ..." and Ö11 "....I ask for my friends' opinions; sharing ideas with them is better...". On the other hand, some students stated that they would like to do activities individually as they can think more effectively (3), as they can concentrate better (2), as they obtain better outcomes (1) and as they can do as they wish (1). In this connection, some students expressed their opinions as follows Ö7, "....I like thinking on my own ..." and Ö12, "....I can concentrate better when I am alone. When I am with my friends, I get distracted...".

Discussion, Conclusion and Recommendations

As a result of the current study, it was concluded that the activity most liked by the primary school fourth graders is game-based activities. As known, game is not only enjoyable but also can have significant impact on learning (Seyrek and Sun, 1991, cited in Çağlak-Sarı, 2011) and as stated by Piaget and Vygotsky, it is an intense mental activity involving exploration, inquiry and trial (Piaget, 1992, cited in Çağlak-Sarı, 2011; Nicolopoulou, 1993). Therefore, structuring the learning process on the basis of games allows students to be subjected to interesting learning experience (Lester et al., 2014). Thus, it seems to be an expected result for the current study that the activities based on games were liked by the primary school students. Moreover, in the literature, there are many studies arguing that when game is used as an instructional method, it can support all the developmental areas of individuals and contribute to their learning (Aksoy, Tozduman-Yaralı, 2017; Biriktir, 2008;

Coşkun, Akarsu and Kariper, 2012; Gözalan, 2013; Özaslan, 2006; Tural, 2005; Uğurel and Moralı, 2008). Parallel to these findings in the literature, the students participating in the current study stated that they like games as they are enjoyable but also they can learn better and more easily with games. Similarly, Aslan-Akın and Atıcı (2015) investigated the effect of game-based learning environments on students' achievement and opinions and found that the students think that game is an effective method facilitating their learning. It should not be forgotten that it is important for children to express their views about the game in their own words as it means collecting data from people directly experiencing the incidence about their experience.

All the students participating in the current study stated that they do activities in their classrooms. However, out-of-class learning environments are important for active learning, learning by doing and learning by relating to real life (Saraç, 2017). Moreover, it should not be forgotten that out-of-class learning environments, especially natural environments, will make children more active and the movement will support learning in this context. In their study with preadolescents, Hillman et al. (2009) determined that 20-minute walks that children undergo prior to the learning activity make children more cognitively active and facilitate learning. Out-of-class natural learning environments positively affect all areas of development in children, but they also provide implicit learning opportunities (Louv, 2008/2010; Shamsuddin, Bahauddin and Aziz, 2012), and efforts should be made to do all the activities done in the classroom in out-of-class environments as well. In his study with Finnish students, Kangas (2010) took the opinions of children about the ideal school and learning environment, and according to the results of the study, the children defined the ideal school environment as open spaces where they can play more and have more fun. Parallel to these findings in the literature, the students stated that they would like to do activities in the garden as it would be more efficient to work in clean air and more enjoyable in the garden.

In addition, it was found that the activities most frequently done by the primary school fourth grade students are reading, writing and problem solving. In the existing research, it has been reported that the lesson delivery method most preferred by teachers is lecturing (Akçay, Akçay and Kurt, 2016; Saracaloğlu and Altın, 2020; Ütkür, 2016). The activity types found to be most common ones in the current study seem to be in compliance with this preference of teachers. Moreover, in the current study, it was found that while the students were doing activities, the feeling most experienced by them was happiness and the reason for this was found to be curiosity. In addition, the large majority of the students stated that they would not like to do any activities other than the ones they were already doing. The majority of the students who would like to do other activities on the other hand stated that they would like to do game-based activities.

As a result of the current study, it was concluded that the students most disliked the writing and painting activities. The act of writing, defined as a difficult and complex skill (Pytash and Li,

2014), is a manipulative motor skill in which small muscles are active, and visual perception is also active in the writing process (Clark, 2010; Seo, 2018). Given that children use fine motor skills less and rather than writing with a pencil they write more with keyboards as a result of technological developments, it seems to be understandable that the students stated writing and painting activities as the most disliked activities and this might be because their hand and finger muscles are not developed well, they can get tired easily. Moreover, six of the students participating in the current study stated that there was no activity they did not like.

When the primary school fourth grade students' opinions about with whom they would like to do activities were examined, it was found that 30 of them would like to do with their peers while 7 of them would like to do them individually. The reason why most of the students want to do the activities with their friends can be thought that they enjoy doing activities with their peers. Peer education is a student-centred approach that enables students to collaborate and perform activities related to classes (Deshpande and Ahmed, 2019). When the literature is reviewed, it is seen that peer support at different levels is effective in terms of attitude towards various classes, learning and academic achievement (Mazlum, 2015; Özcan, 2017; Töman, 2018; Töman and Yarımkaya, 2018; Yaşar, 2016; Yayla, 2017). The students stated that they would like to do activities together with their peers as they could get to know different ideas, have more fun and support each other. Thus, it can be stated that it is important to prefer group activities while selecting activities to be carried out because students doing activities together can see different perspectives, have more fun and develop stronger solidarity.

In line with these results, teachers can be suggested to include games and game-based activities more in the activities they will conduct in the class. Planning the activities to be carried out as out-of-class and even out-of-school activities will make students more active in the learning process. In addition, it is among the suggestions to minimize the negative perception of writing, which is one of the basic language skills, through game activities and the activities to be conducted outside the classroom. Future research can evaluate the activities specific to a course or a subject. Moreover, the opinions of students from different grade levels about activities can be investigated.

References

- Akçay N. O., Akçay A. ve Kurt M. (2016). Investigation of the secondary school teachers' view and competency to teaching methods and techniques. *Journal of Research in Education and Teaching*, 5(1), 333-342.
- Aksoy, A. B. ve Tozduman-Yaralı, K. (2017). Çocukların öz düzenleme becerileri ile oyun becerilerinin cinsiyete göre incelenmesi. *Trakya Üniversitesi Eğitim Fakültesi Dergisi*, 7(2), 442-455. doi: 10.24315/trkefd.304124
- Aslan-Akın, F. Ve Atıcı, B. (2015). Oyun tabanlı öğrenme ortamlarının öğrenci başarısına ve görüşlerine etkisi. *Turkish Journal of Educational Studies*, 2(2), 75-102.

- Biriktir, A. (2008). İlköğretim 5. Sınıf matematik dersi geometri konularının verilmesinde oyun yönteminin erişiye etkisi. Yayımlanmamış yüksek lisans tezi. Selçuk Üniversitesi, Sosyal Bilimler Enstitüsü, Konya.
- Bozkurt, A. (2012). Mathematics teachers' perceptions of mathematical activities. *Education and Science*, 37(166), 101-115.
- Burgess, P.(1971) Reasons for adult participation in group educational activities. *Adult Education*, 22(1), 3-29. doi: 10.1177/074171367102200101
- Clark, G. J. (2010). The relationship between handwriting, reading, fine motor and visual-motor skills in kindergarteners. Unpublished doctoral dissertation. Iowa State University, USA.
- Coşkun, H.; Akarsu, B. ve Kariper, İ. A. (2012). Bilim öyküleri içeren eğitsel oyunların fen ve teknoloji dersindeki öğrencilerin akademik başarılarına etkisi. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi (KEFAD)*, 13(1), 93-109.
- Çağlak-Sarı, S. (2011). Çocuk oyun ve öğrenme. Eğitime Bakış, 20, 21-25.
- Deshpande, P., ve Ahmed, I. (2019). Evaluation of Peer Instruction for Cybersecurity Education. In Proceeding of the 50th ACM Technical Symposium on Computer Science Education (SIGCSE'19).
- Doyle, W. (1988). Work in mathematics classes: The context of students' thinking during instruction. *Educational psychologist*, 23(2), 167-180. doi: 10.1207/s15326985ep2302 6
- Gözalan, E. (2013). Oyun temelli dikkat eğitim programının 5-6 yaş çocuklarının dikkat ve dil becerilerine etkisinin incelenmesi. Yayımlanmamış yüksek lisans tezi. Selçuk Üniversitesi, Sosyal Bilimler Enstitüsü, Konya.
- Herbst, P. (2008). The teacher and the task. In *Proceedings of the 32nd Conference of the International Group for the Psychology of Mathematics Education* (Vol. 1, pp. 125-131).
- Hillman, C., Pontifex, M.B., Raine, L.B., Castelli, D.M., Hall, E. E. & Kramer A.F. (2009). The effect of acute treadmill walking on cognitive control and academic achievement in preadolescent children. *Neuroscience*, *159*(3), 1044–1054. doi: 10.1016/j.neuroscience.2009.01.057
- Kangas, M. (2010). Creative and playful learning: learning through game co-creation andgames in a playful learning environment. *Think Skills Creativity*, 5(1), 1–15. doi: 10.1016/j.tsc.2009.11.001
- Koç, G. (2006). Teacher-learner roles and interaction systems in constructivist classrooms, *Education and Science*, 32(142), 56-64.
- Lester, J. C., Spires, H. A., Nietfeld, J. L., Minogue, J., Mott, B. W., & Lobene, E. V. (2014). Designing gamebased learning environments for elementary science education: A narrative-centered learning perspective. *Information Sciences*, 264, 4-18

- Louv, R. (2010). Doğadaki son çocuk çocuklarımızdaki doğa yoksunluğu ve doğanın sağaltıcı gücü. Temürcü, C. (Çev.). Ankara: TÜBİTAK Popüler Bilim Kitapları. (Orijinal yayının baskısı 2008)
- Mazlum, E. (2015). *Işık konusundaki kavram bilgisi göstergelerinin akran öğretimi uygulamalarıyla incelenmesi*, Yayımlanmamış yüksek lisans tezi, Karadeniz Teknik Üniversitesi Eğitim Bilimleri Enstitüsü, Trabzon.
- MacDonald, J. (2008). Blended learning and online tutoring: Planning learner support and activity design. Gower Publishing, Ltd..
- Merriam, S. B. (1998). Qualitative Research and Case Study Applications in Education. Revised and Expanded from" Case Study Research in Education.". Jossey-Bass Publishers, 350 Sansome St, San Francisco, CA 94104.
- Miles, M. B., & Huberman, A. M. (1994). Qualitative data analysis: An expanded sourcebook. SAGE.
- Ministry of National Education (2008). İlköğretim matematik dersi 6-8. Sınıflar öğretim programı kitabı, Talim Terbiye Kurulu Başkanlığı, Ankara.
- Nicolopoulou, A. (1993). Play, cognitive development and the social Word: Piaget, Vygotsky, and beyond. *Human Development*, 36(1), 1-23.
- Özaslan, A. (2006). Kelime oyunları ile kelime dağarcığının geliştirilmesinin okuduğunu anlama düzeyine etkisi. Yayımlanmamış yüksek lisans tezi. Selçuk Üniversitesi, Sosyal Bilimler Enstitüsü, Konya.
- Özcan, O. (2017). Akran öğretimi yöntemiyle asitler ve bazlar konusunun 12.sınıflarda öğretimi: Bir eylem araştırması, Yayımlanmamış doktora tezi, Atatürk Üniversitesi Eğitim Bilimleri Enstitüsü, Erzurum
- Özmen, H. (2004). Fen öğretiminde öğrenme teorileri ve teknoloji destekli yapılandırmacı (constructivist) öğrenme. *The Turkish Online Journal of Educational Technology*, *3*(1), 100-111.
- Patton, M. Q. (2014). Qualitative research & evaluation methods: Integrating theory and practice. Sage publications.
- Pytash, K. E., & Li, J. (2014). The writing dispositions of youth in a juvenile detention center. *Journal of Correctional Education*, 65(3), p. 24-42.
- Riedler, M. & Eryaman M.Y. (2016). Complexity, Diversity and Ambiguity in Teaching and Teacher Education: Practical Wisdom, Pedagogical Fitness and Tact of Teaching. *International Journal of Progressive Education*. 12(3): 172-186
- Saracaloğlu, A. S. ve Altın, M. (2020). Teachers' opinions on instructional strategies, methods and techniques. *The Journal of Educational Reflections*, 4(1), 1-24.

- Saraç, H. (2017). Türkiye'de okul dışı öğrenme ortamlarına ilişkin yapılan araştırmalar: İçerik analizi çalışması. *Eğitim, Kuram ve Uygulama Araştırmaları Dergisi, 3*(2), s. 60-81.
- Seo, S.M. (2018). The effect of fine motor skills on handwriting legibility in preschool age children. *The Journal of Physical Therapy Science*, *30*, 324-327. doi: 10.1589/jpts.30.324
- Shamsuddin, S., Bhauddin, H. & Aziz, N. A. (2012). Relationship between the outdoor physical environment and students' social behaviour in urban secondary school. *Procedia Social and Behavioral Sciences*, *50*, 148-160.
- Türk Dil Kurumu (2018). Güncel Türkçe sözlük. Erişim adresi: https://sozluk.gov.tr/
- Töman, U. (2018). Akran öğretimi tekniğinin 6. sınıf öğrencilerinin vücudumuzdaki sistemler ünitesine yönelik başarı düzeylerine etkisi. *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 22(3), 1727-1740.
- Töman, U. ve Yarımkaya, D. (2018). 7. sınıf ışık konusunun öğretiminde akran öğretimi tekniği kullanımının öğrencilerin başarı düzeyleri üzerindeki etkisi, *Hitit Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 1*(1), 499-514.
- Tural, H. (2005). İlköğretim matematik öğretiminde oyun ve etkinliklerle öğretimin erişi ve tutuma etkisi. Yayımlanmamış yüksek lisans tezi. Dokuz Eylül Üniversitesi Eğitim Bilimleri Enstitüsü, İzmir.
- Uğurel, I. ve Moralı, S. (2008). Matematik ve oyun etkileşimi. GÜ, Gazi Eğitim Fakültesi Dergisi, 28(3), 75-98.
- Ütkür, N. (2016). Öğretmenlerin kullandıkları yöntem ve teknik farklılıkları: Hayat bilgisi dersi örneği. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 16*(USBES Özel Sayı II), 1631-1651.
- Yaşar, A. (2016). Akran öğretim yönteminin ortaöğretim öğrencilerinin elektrik ve manyetizma konularındaki kavramsal anlama ve tutumlarına etkisi, Yayımlanmamış yüksek lisans tezi, Balıkesir Üniversitesi Fen Bilimleri Enstitüsü, Balıkesir.
- Yayla, K. (2017). Mıknatıslar ve akımın manyetik etkisi konusunun öğrenilmesinde akran öğretimi yönteminin etkililiğinin incelenmesi, Yayımlanmamış doktora tezi, Atatürk Üniversitesi Eğitim Bilimleri Enstitüsü, Erzurum.
- Yıldırım, A., & Şimşek, H. (2016). Sosyal bilimlerde nitel araştırma yöntemleri (10. bs.). Ankara: Seçkin Yayıncılık.
- Yin, R. (1984). Case study research. Beverly Hills.