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Opinions of Primary School Teachers and Students Regarding the Use of Educational Digital Games in Educational Activities

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Abstract

This study aims to determine the opinions of elementary school teachers and 3rd and 4th-grade students regarding the use of educational digital games in educational activities in the classroom. In today's world, where technology is constantly evolving and renewing, and digital media and materials take a larger share in our lives, instructional activities are also influenced by these advancements. The case study design, which is one of the qualitative research designs, was preferred in this study and semi-structured interview forms were used for the data collection process. Interviews were conducted with 30 elementary school teachers (18 female and 12 male) working in state schools in the Kavak district of Samsun province during the 2021-2022 academic year and 30 students in the 3rd and 4th grades (15 female and 15 male) studying in those state schools. The criterion sampling method, one of the purposeful sampling methods, was used in selecting the study group. In this context, attention was paid to select teachers, who use educational digital games in their classrooms and are willing to participate in the research. The data obtained in the research were analyzed using the content analysis method. The results achieved in this study indicate that educational digital games used in the classroom facilitate students' learning, increase their attention spans, and contribute to quick thinking and decision-making. Recommendations include the necessity for teachers to receive training on digital content and the importance of identifying games, which are suitable for learning objectives, before implementing in-class games.

Keywords: Educational digital game, elementary school, educational activities, life

1. Introduction

Game is an activity through which children express themselves happily and comfortably (Akandere, 2003), and it contributes to their development in various aspects (Adıgüzel, 2010). Moreover, game also has positive effects on children's physical, mental, behavioral, and cognitive development (Sel, 2000). Children learn about the creatures, life, and the world through games, and they also learn about the rules and tasks while playing (Dönmez, 1999). Playing games enhances children's cognitive abilities such as decision-making, interpretation, and assessment (Özer, Gürkan & Ramazanoğlu, 2006). Therefore, game is actually an important instrument for a child's development, thinking, and learning (Pehlivan, 2012), and it led to their integration into educational environments, specifically classrooms. Particularly, children at the age of elementary school find cannot focus on lessons by remaining still for long minutes in a

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classroom setting. In their nature, children want to move, run, walk, and speak. Their attention spans are shorter when compared to adults. Hence, it is essential to support and enrich the educational activities of elementary school children with materials that draw their interest and allow them to express themselves comfortably through various games (Özmen & Demir, 2012).

Games, which significantly contribute to a child's development, underwent changes nowadays. Influencing instruments, machines, and events, the evolving and digitizing technology also affected the games and the games played on stress have been replaced by digital games played on screens (Savaş & Topaloğlu, 2019). Such that, it became impossible to keep children away from the advancing technology and the digitalized games that this technology has created (Çankaya & Karamete, 2008) because children are opening their eyes to a world equipped with technology and distancing themselves from traditional things (Savaş, 2021). Although the transition from traditional games to digital games faced various criticisms in the beginning, digital games became the most preferred games for both children and adults nowadays (Binark, Bayraktutan-Sütcü & Fidaner, 2009).

While the initially created digital games were used mainly for entertainment purposes, they have then started to be used for educational purposes and this use has rapidly become popular to date. The use of games in education became a topic of discussion among educators in recent years, in parallel with the advancements in the game industry, the interest in educational digital games has increased, and the idea of using games in education became more popular among educators (Kukul, 2013). Digital games are now designed and produced not only for entertainment but also as educational tools that allow children to learn while having fun (Yiğit, 2007). Today's children, who are referred to as digital natives by Prensky (2001), experience issues such as attention deficit and inability to focus on lessons. The solution to these problems is to make learning materials interesting. Technology came to the fore as a way to access information in the learning process (Karamustafaoğlu & Kılıç, 2020). This trend also increased the significance of digital resources, as well as educational digital games, in the field of education (Akpınar, Aktamış & Ergin, 2005).

Educational digital games are defined as games produced with the contribution of various technological tools and aiming to provide students with cognitive, social, behavioral, and emotional achievements (Çetin, 2013). In other words, educational digital games are software that, by making use of the game format, facilitates the learning of topics in the curriculum or enhances students' problem-solving skills (Seferoğlu, 2014). Besides significantly contributing to children's learning, these games also offer many benefits such as quick decision-making, analyzing, problem-solving, and hand-eye coordination (Toran, Ulusoy, Aydın, Deveci & Akbulut, 2016). These games are often preferred for their significant contributions to children's development (Ayan, 2020). Moreover, they play very important roles in children's active engagement in lessons because the more materials used in the educational environment appeal to the senses, the easier learning becomes, and the retention of learned information increases (Durmuş, 2015). Therefore, this positively contributes to students' achievements. Although educational digital games can be used at all levels of education, they are more effective in children at younger ages (Ülker & Bülbül, 2018).

Moreover, children fulfill their tasks with a sense of confidence since educational digital games provide students with the opportunity to correct their mistakes in the classroom when they make a mistake. It increases students' motivation and allows them to develop a positive attitude toward lessons (Annetta, 2008; Çiftçi, 2013; Ocak, 2013). Using educational digital games in the classroom not only contributes positively to students' development and learning from

various perspectives but also holds significant importance in enriching educational activities and instruction.

Using games in education by considering their effect on students yielded an increase in demand for games and the emergence of various game genres. Educational digital games have different types. Considering their different characteristics and gameplay features, these games can be classified based on the theme and the number of players (Eni, 2017). Considering the gameplay characteristics, they can be classified as computer games, online games, and console games, whereas they can be classified as adventure, combat, puzzle, racing, action, role-playing, simulation, logic, intelligence, entertainment, and sports games according to thematic and technological characteristics and as single-player or multiplayer games according to the number of players (Demir & Şahin, 2019). Digital games can be played online or offline, with the player either competing against artificial intelligence or engaging in online multiplayer modes. Samur (2016) classified digital games into platform games, simulation games, action games, adventure games, combat games, first and third-person shooter games, racing games, sports games, strategy games, rhythm (dance, music) games, role-playing games, multiplayer online games, puzzle games, and board and card games. Considering the classification made by OECD (2005: 9), digital games can be grouped into classic card games, computer or console games, multiplayer games, and other interactive games. As can be seen in the literature, there are different classifications. Although any sort of digital game is included in classifications, teachers and parents should carefully examine these games to prefer those with educational qualities. It is important for both teachers and parents to be cautious about games that lack educational value and may potentially harm children.

The Ministry of National Education (MEB) introduced the "Increasing Opportunities and Developing Technology Movement (FATİH)" project and provided smart boards, internet connections, and tablets to classrooms. The integration of smart boards into educational environments has significantly facilitated students' and teachers' access to activities related to learning outcomes. Activities, applications, and games accessed through smart boards have concretized abstract concepts and created interactive environments, particularly benefiting children for whom certain topics may be challenging to grasp (Babacan & Şaşmaz Ören, 2017). Furthermore, the Ministry of National Education developed the "Educational Informatics Network" (EBA), which is a digital platform enabling the sharing of content. This platform ensures easy access to educational digital content and games for students and teachers in the classroom. These initiatives resulted in visible changes in the quality of learning and teaching (Sezgin, Bozkurt, Yılmaz & Linden, 2018).

A review of the literature on this subject revealed significant contributions of educational digital games to the cognitive development of preschool students in science education (Yıldız & Zengin, 2021). Positive effects were also noted when these games were used appropriately for students at this level, taking into account their age and developmental levels (Altınışık, 2021). In life science classes at the elementary school level, these games were found to enhance academic achievement and foster positive attitudes toward the subject (Kaynar, 2020). At the 6^{th}-grade level, they were reported to increase the retention of knowledge learned in science classes, positively influencing students' academic achievements and attitudes (Ağırgöl, Kara & Akgül, 2022). Furthermore, they were found to be effective in learning topics in Turkish language classes (Aşçı, 2019), fostering positive attitudes toward mathematics in 7^{th} grade (Çankaya & Karamete, 2008), and making significant contributions to English learning for 8^{th}-grade students (Çokyaman & Şimşek, 2022). Moreover, it was observed that 1^{st}-grade teachers prefer digital content in initial reading and writing activities and it led to positive contributions to students' learning (Aytan & Başal, 2015; Başaran & Kılınçarslan, 2021).

In the academic literature, it was determined that studies generally focused on preschool and middle school teachers. Studies investigating the contributions of educational digital games to instructional activities for elementary school students are relatively scarce (Çalışkan, 2023; Divrik, 2023; Dolunay & Karamustafaoğlu, 2021; Kaynar, 2020; Kendüzer, 2023; Öztürk & Gökdaş, 2020). This study is expected to provide a broader perspective on the issue due to its inclusion of teacher and student opinions since it sheds light on the understanding and resolution of the problem. The insights of teachers and students, who are at the center of the issue, are expected to contribute to comprehending and resolving the problem. In this context, the present study aims to identify the opinions of elementary school teachers and their students in the 3rd and 4th grades regarding the effects of educational digital games used in the classroom on the teaching and learning process.

To achieve this goal, the following questions were addressed:

- What educational digital games are preferred in educational activities?
- What contributions does the use of educational digital games make to the classroom in educational activities?
- What challenges are encountered in the use of digital games in educational activities?

2. Method

This section provides information on the research model, the participants, and the data collection and analysis in the study.

2.1. Study Model

This study is a qualitative study aiming to determine the perspectives of elementary school teachers and students on how educational digital games affect the teaching and learning process. Qualitative studies are known for exploring phenomena, events, and situations in natural settings to allow a realistic and holistic understanding (Creswell, 2023; Yıldırım & Şimşek, 2021). The case study method, which is one of the qualitative research methods, was employed in this study. A case study involves a detailed examination of one or more cases, with all factors believed to affect the particular case being comprehensively analyzed. The results obtained from the examined case are not generalized, but they might serve as examples for similar situations (Tasci, Wei & Milman, 2020; Yıldırım & Şimşek, 2021). Questions such as “How?”, “Why?”, “When?”, or “Who?” are addressed concerning the case examined in a case study (Cohen, Manion & Morrison, 2007). This study was structured as a case study focusing on examining the opinions of elementary school teachers and their 3rd- and 4th-grade students regarding the use of digital games in education.

2.2. Study Group

The participants in the present study were determined by using criterion sampling, which is one of the purposeful sampling methods. Purposeful sampling involves selecting rich information cases to conduct in-depth research. In criterion sampling, individuals, events, and situations with specific observational characteristics are included in the study (Büyüköztürk, Kılıç, Çakmak, Akgün, Karadeniz & Demirel, 2008). Teachers included in the study group were selected based on criteria such as “using educational digital games in their classrooms,” “working in public schools,” “volunteering to participate in the study,” and “easy accessibility.” The study group consists of 30 classroom teachers teaching 3rd and 4th grades and 30 students from their classes.

The study group was chosen from Ladik and Kavak districts of Samsun province to facilitate the researcher's close proximity and easier conduct of the study.

Demographic information about the participating teachers is provided in Table 1.

Table 1

Demographic Data of Participating Teachers

Demographic Characteristics of Participants		Female 18	Male 12	Total 30
Educational Level	Undergraduate	5	4	9
	Postgraduate	13	8	21
Years in Service	1-5 Years	2	1	3
	6-10 Years	2	1	3
	11-15 Years	7	5	12
	16-20 Years	3	3	6
	21 Years and longer	4	2	6
Grade of Class They Teach	3rd grade	9	7	16
	4th grade	5	9	14

It can be seen in Table 1 that there were 18 female and 12 male participants. Based on their graduation status, 5 of the females and 4 of the males had undergraduate degree, whereas 13 females and 8 males had postgraduate degree. In terms of years in service, 2 females and 1 male had 1-5 years, 2 females and 1 male had 6-10 years, 7 females and 5 males had 11-15 years, and 3 females and 3 males had 16-20 years of service. Additionally, 4 females and 2 males had more than 21 years of service. Examining the levels of classes taught by the participants, it is noted that 9 females and 7 males taught 3rd-grade classes, while 5 females and 9 males taught 4th-grade classes.

Information about the participating students is presented in Table 2.

Tablo 2

Information on Participating Students

Grade	Girls	Boys	Total
3rd grade	6	4	10
4th grade	9	11	20
Total	15	15	30

As can be seen in Table 2, there were 15 female students and 15 male students. Among the female students, six were in the 3rd grade, and nine were in the 4th grade. Of the male students, four were in the 3rd grade, and eleven were in the 4th grade.

2.3. Data Collection

In qualitative studies, data collection is generally performed using methods such as document analysis, observation, and interviews. Interviewing is a data collection method that is based on oral communication. A semi-structured interview form was used in this study. The use of a semi-structured interview technique allows flexibility for researchers and participants, as the questions are prepared in advance (Creswell, 2023; Yıldırım & Şimşek, 2021). Before preparing the interview form, candidate questions were developed through a literature review. The interview form consists of two parts. The first part includes the demographic characteristics of

the study groups, while the second part contains four main questions about the impact of digital games used in the classroom on student achievement, along with 10 probing questions to elaborate on the main questions.

To ensure the quality of the questions, the opinions of three experts, one from the field of education sciences and two from the field of elementary school teaching, were obtained. Necessary corrections were made considering the experts' feedback. Before applying the revised questions to the study group, a pilot implementation was conducted on 13 March 2023 with two teachers and two students. After the pilot implementation, the interview form was revised by making changes to a few words that were not clear. The data from the pilot study were not included in the research data to maintain reliability and validity.

Before starting the study, ethical approval was obtained from Ondokuz Mayıs University's Social Sciences Ethics Committee (Decision No: 2023-1281, Date: 27.01.2023). The interviews were conducted by the researcher in person. Before the interviews, participants were informed about the purpose of this study and the confidentiality of the data, and necessary explanations were provided. Interviews with students were conducted face-to-face, whereas 24 interviews with teachers were face-to-face, and 6 interviews with teachers were conducted over the phone. A voice recorder was used in face-to-face interviews, while the researcher took notes during phone interviews.

2.4. Data Analysis

The data obtained in this study were analyzed by using the content analysis method. Content analysis aims to gather and explain data containing similar topics in an understandable manner and to determine concepts and relationships (Creswell, 2023). All data obtained in this study were transcribed, and separate Word documents were prepared for each teacher and student interviewed. The names of teachers and students were not used in this study by following the ethical rules. While teachers were coded as T1, T2, T3, T4..., students are coded as S1, S2, S3, S4..., and the data were analyzed accordingly. During the data analysis, questions were examined separately, and codes, representing meaningful sections based on the similarities and differences of responses, were identified. These codes were named and grouped and categories were formed. The analyses were initially conducted individually by researchers, and later, differences arising from the analyses conducted together were merged through mutual agreement. These categories are tabularized and presented in the results section.

2.5. Reliability and Validity

Necessary explanations were provided to the participants before starting the interviews in order to ensure the validity and reliability of the study. The interviews were initiated after ensuring that the questions were understood adequately. Sufficient time was allocated for the interviews, and efforts were made to deepen the research with additional questions. The responses of the participants to the questions were transcribed as they were, sent to the participants for confirmation, and confirmation was obtained from most of the participants (26 teachers). Despite attempts to obtain confirmation from some (4 teachers), it was not received. In the preparation of the interview form and the analysis of the data, expert opinions were sought, and necessary modifications were carried out based on the suggestions of the experts. The comments made were supported by directly quoting participants' opinions.

2.6. Ethics Committee Approval

In this study, all the rules specified in the Scientific Research and Publication Ethics Directive for Higher Education Institutions were adhered to. The ethical approval for this study was obtained from Ondokuz Mayıs University's Ethics Committee for Social and Humanities Research (01.27.2023/2023-1281).

3. Results

The results achieved in this study are presented under three main topics: 1) Educational Digital Games Preferred in Teaching Activities, 2) Contributions of Using Educational Digital Games in Teaching Activities, and 3) Challenges Encountered in the Use of Digital Games in Teaching Activities.

3.1. Educational Digital Games Preferred in Teaching Activities

The results regarding educational digital games preferred by teachers in teaching activities are provided in Table 3.

Table 3

Educational Digital Games Preferred in Teaching Activities

Categories	Codes	f
Educational Digital Games Incorporating Physical Activity	Musical games	11
	Puppet games	6
Interactive Educational Digital Games	Crossword	28
	Wordwall	25
	Syllable and word games	24
	Reading bingo	23
	Concept Map	17
	Memory games	16
	Matching games	15
	Sorting games	13
	Wheel game	12
	True-False Game	12
	Origami game	9
	Box opening	8
	Finding the correct one from the choices	7
	Sound identification	4

Table 3 displays the games and their frequencies in each category. Educational digital games preferred by teachers for instructional activities are categorized into two groups: educational digital games involving physical movement and interactive educational digital games. According to the preference for game selection, it is evident that interactive educational digital games are predominantly favored. Among these games, crossword (28), word wall (25), syllable and word games (24), and reading bingo (33) are the most frequently played. Direct quotations from teachers are provided below.

T5: "… students play games found on educational websites, such as opening boxes and spinning wheels, with excitement."
T14: "… we play games like matching and sorting to reinforce the topics during the repetition of the subject matter."

T15: "... I use various games, such as memory, box opening, and finding the correct answer, available on schoolistic and EBA."
T12: "... on the Wordwall platform, I can both play existing games and create my own games related to the subject."
T20: "... I make use of games like memory, matching, salt shaker, and puppet games."
T25: "... reading bingo, sound identification, and syllable and word games are very effective for Turkish lessons."
T29: "... we play sorting games and musical games."

3.2. Contributions of Using Educational Digital Games in Teaching Activities

The findings regarding the contributions of using educational digital games in educational activities to the classroom according to the opinions of teachers and students are presented in Table 4.

Table 4

Contributions of Using Educational Digital Games in Educational Activities to Courses

Category	Codes	f
Learning	Increasing the motivation to succeed	30
	Drawing attention/interest	30
	Facilitating the learning	30
	Allowing for learning while having fun	29
	Achieving reinforcement	22
	Acquiring new information	22
	Ensuring the permanence of learned information	16
	Achieving fast thinking	15
	Memorization	13
	Encouraging repetition	13
	Concretizing the subject	12
	Achieving latent learning	5
Classroom management	Ensuring/improving participation in the course	30
	Ensuring efficient use of time	29
	Developing a positive attitude toward the lesson	25
	Increasing the level/duration of attention	22
	Ease of implementation	18
	Facilitating/accelerating decision-making	10
	Creating a positive classroom environment	8
	Facilitating collaboration	4
	Promoting in-class interaction	3

Table 4 provides an exploration of the experiences of teachers and students regarding the contributions of educational digital games to the learning and classroom management aspects, categorized under two dimensions. From a learning perspective, the emphasis lies on enhancing achievement motivation (30), capturing interest/attention (30), facilitating learning (30), ensuring enjoyable learning experiences (29), and reinforcement and acquisition of new knowledge (22). From a classroom management standpoint, the focus is on fostering active student participation (30), promoting efficient use of time (29), developing a positive attitude towards the class (25), and increasing attention span (22). Direct quotations from teachers and students are presented below.

T1: " ... students actively participated in the class, moving from a passive state during the game."
T2: "... since educational gaming fosters a positive attitude towards the class, it automatically positively affects the success in these students."
T4: "... elementary school students tend to lose focus quickly during class; I can keep their attention alive with these games."
T6: "... since the class is enjoyable, they learn more easily, and what they learn becomes permanent, leading to an increase in success."
T8: "... students develop a positive attitude towards the class because they enjoy it; they love the class, and it positively affects their success."
T9: "... especially group games contribute to the development of collaboration among students."
T10: "... digital games enhance students' ability to think quickly and make fast decisions."
T12: "... digital games are entertaining, and these games are interesting for students since children enjoy having fun."
T20: "... students sometimes unconsciously, sometimes consciously, learn topics more easily during the game as they do not carry the fear of failure."
S3: "... even at home, I play educational games while reviewing the subjects. By playing games, I both enjoy and refresh my knowledge; I do not get bored when I support my studies with educational games."
S16: "... after discovering educational games, it doesn't feel like studying to me. I play these games not only to reinforce what I have learned but also to acquire new information alongside my regular studies."
S20: "... especially in verbally oriented subjects, memorizing some concepts is necessary. Thanks to games, I memorize them more easily, and they stay in my mind better."
S14: "... I'm not afraid of making mistakes while playing games; I can make decisions faster and more boldly. In fact, even if I make mistakes while playing, I learn from them."

3.3. Challenges Encountered in the Use of Digital Games in Teaching Activities

The results regarding the challenges experienced by teachers in utilizing educational digital games in educational activities are presented in Table 5.

Table 5

Challenges Encountered in the Use of Digital Games in Teaching Activities

Category	Codes	f
Use of Game	There may be noise and commotion	30
	Every student may not have the opportunity to participate in crowded classrooms	28
	Time might not be enough	21
	There may be problems originating from the Internet	12
	There may be problems originating from digital resources	4
Effects on Students	Deterioration in friendships	18
	It may not be interesting for some students	17
	Difficulty in focusing on the lesson	17
	Students may feel sorry when losing in a game	15
	Students may have difficulty in games	14
	Distraction	14
Fitness to the Purpose	Game may not fully represent the achievements in the course	25

Table 5 addresses the challenges encountered while playing educational digital games in educational activities, and they are categorized into three aspects: physical environment, digital

environment, and game content. Regarding the physical environment, the most common issues include noise (30), unequal turn-taking (28), and insufficient class time (21). In the digital environment, challenges are predominantly related to disruptions in peer relationships (18), lack of interest from some students (17), difficulty in maintaining focus during the lesson (17), and the emotional effects on students who lose the game (15). Regarding game content, a significant majority of participants (25) expressed that games may not fully reflect the learning outcomes of the lesson. Several direct quotes from teachers are provided below:

T1: "... When planning games, the interests and needs of students may not be taken into account."
T5: "... Honestly, I face time constraints the most. I pay attention to the time and ensure that each student gets a turn."
T8: "... Perhaps due to internet infrastructure or density, we sometimes experience internet disruptions in class. It disrupts the flow and causes a further distraction of students' attention during the game."
T10: "... If the game does not align with the learning objectives, if it does not accurately reflect the topic, it becomes nothing more than a waste of time. Therefore, it is very important to carefully plan the lesson since the content of the games may not have been checked in advance."
T12: "... especially in group games, the motivation of the losing group is affected. I pay attention to ensuring that students, who lose the game, do not get upset."
T14:''... Elementary school children have difficulty controlling their excitement and emotions during the game. This excitement contributes to excessive noise in the classroom."
T25: "... Our classrooms are quite crowded, and even if I plan well, I struggle to complete the lesson within the allotted time."
S5: "Naturally, we get excited and make noise during the game, and I can't focus in the noise."
S14: "Even though I know it's just a game, I get upset when I make a mistake or lose."

4. Discussion and Conclusion

In this study, it was determined that teachers utilize educational content digital games available on educational websites in their instructional activities. These include activities such as word wall, wheel game, memory games, unboxing, reading bingo, syllable and word games, puzzles, concept map completion, puppet games, musical games, origami games, sound-identification games, sorting games, true-false games, and finding the correct option from choices. Özer (2020) found in his study that elementary school students prefer entertainment games such as car racing, dress-up, Minecraft, war-weapons, Tom, soccer, and Subway Surfers. These games may not be categorized as educational digital games since they are often considered to have violent content. The present study did not examine whether students play these types of games outside of school because these games may be played without the control of teachers, and their results may not align with the results achieved in this study. Tamirci (2020) determined, in a research study, that EBA (Education Information Network) is the education platform with the highest awareness and usage among teachers, which makes it one of the preferred digital platforms. As can be seen in the literature, the Ministry of National Education (MEB) provides educational digital games that can be beneficial for students through the EBA software. Teachers make efforts to make educational games with educational value available to students, both on EBA and other internet sources. However, there also are concerns about the games that students play outside of the teachers' control and whether these games have any educational value.

It was found in this study that educational digital games used in the classroom environment facilitate learning, make learning enjoyable for students, create a positive classroom atmosphere, enable students to think and decide more quickly, efficiently use class time, concretize achievements, and foster a positive attitude towards lessons, resulting in increased academic success. A review of relevant literature similarly suggests that educational digital games captivate students' interest, leading to a longer focus on lessons, facilitating learning, making learning both enjoyable and tangible, and providing an opportunity for enjoyable learning while acquiring or reinforcing knowledge. Altunay (2004) asserted that the learning process supported by educational games is more efficient. Noraddin and Kian (2015) emphasized the need to digitalize educational games in parallel with the rapidly advancing technology and gaming addiction in our era and integrate them into the educational process. Another study highlighted the importance of not keeping children away from technology, stating that these games would draw the interest of most children and help them concentrate more easily. Hazar, Tekkurşun, and Dalkıran (2017) expressed the positive effect of educational digital games on acquiring skills such as fast and accurate decision-making, problem-solving, and planned thinking. Sabırlı (2018) emphasized that educational digital games can be used wherever technological resources are available, contribute to cognitive development, and reinforce what is learned. As reported by Öztürk and Gökdaş (2020), teachers increasingly prefer using digital materials in the classroom for evaluation and reinforcement purposes. It was argued that play is life itself and the most important learning tool for children. Play improves children's creativity, imagination, and cognitive development, and it should be an integral part of education (Özer et al., 2006). As specified by Çetin (2013), students actively engaging in the educational teaching and learning process through experimentation and play grasp the subjects more easily, which leads to increased success and fostering learning awareness. Given these results, it can be stated that the literature on this topic supports the results achieved in this study.

Together with the advancing technology, even though the appearance, structure, and form of games may change, the purpose, effect, contribution, and benefit of these games for children will remain constant. Educational digital games appeal to a greater number of sensory organs in the classroom environment; the active engagement of sensory organs in the learning process will make learning more enduring. As in any other type of game that children play, digital educational games are considered important in terms of students' active participation in class, developing a positive attitude towards the course, and enhancing the permanence of knowledge (Annetta, 2008; Bozkurt & Akalın, 2010; Karataş, 2014). In this context, there are many studies in the literature indicating that the use of educational digital games for educational purposes positively affects student achievements (Byun & Joung, 2018; Chiu, Kao & Reynolds, 2012). On the other hand, some studies (Akpınar, 1999; Kılıç, Tunç Pekkan, & Karatoprak, 2013; Yıldız Durak & Karaoğlan Yılmaz, 2019) highlighted the changing expectations of students, who are referred to as digital natives in today's context, from schools and teachers, emphasizing that educational digital games can provide significant advantages in education. Considering previous studies on this subject, it can be emphasized that the studies in the literature support the results achieved in this study and suggest that teachers are making efforts to move away from traditional methods and adapt to the era together with the advancements in technology.

It was determined in this study that educational digital games have both positive aspects that are beneficial and facilitate instruction and negative aspects and challenges encountered during implementation in educational activities. Therefore, teachers pay attention to issues such as the use of internet-based, digital resource-based tools during gameplay, the delay in using these tools in crowded classrooms, noise, the game not fully reflecting the course content, and running out of time. Furthermore, concerns about students feeling upset when losing a game, struggling in the game, the game not drawing the interest of some students, and disrupting peer

relationships are highlighted. Similar concerns about educational digital games isolating students from the social environment, causing adjustment problems among students, and potential issues of digital game addiction were also mentioned in the literature (Gürcan, Özhan & Uslu, 2008; Kerckaert, Vanderlinde & van Braak, 2015; Toran et al., 2016). However, Kukul (2013) and Lieberman, Fisk, and Biely (2009) stated that educational digital games can appeal to different sensory organs and facilitate students' fun learning experiences when planned and controlled. Similarly, Torun, Akçay, and Çoklar (2013) also emphasized in their studies that a significant amount of latent learning occurs in the school environment, and educational digital games can contribute to latent learning when well-planned and prepared, allowing children to learn willingly while having fun.

Upon examining the entirety of the study, it can be stated that the experiences of teachers and students regarding the subject examined here mutually support each other. As emphasized in some studies in the literature, the current era being a technological age, the digitization of activities, materials, and games, the constant integration of technology into the lives of today's children, their ability to adapt to technology and the innovations it brings, the appeal of these innovations to children, all contribute to an increased preference for educational computer games in the educational environment (Akbaş, Usta & Çakır, 2009; Akın & Atıcı, 2015).

Based on the results achieved in the present study, the following recommendations can be made:

- Thorough planning and organization should be carried out before implementing educational digital games in the classroom environment.
- Educational digital games can be played in groups in crowded classrooms.
- Not every game may draw the interest of every student; therefore, teachers should select educational games by considering the interests and preferences of students.
- During the implementation of educational digital games, internet interruptions can lead to students disengaging from the lesson and their attention being diverted. Therefore, the potential problems should be checked in advance, and necessary measures should be taken.
- This study revealed that very few teachers use educational digital games in their lessons. Teachers should be encouraged by relevant authorities to incorporate educational digital games into their lessons, and if necessary, seminars on this topic should be organized for teachers.

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Ethics Committee Approval

In this study, all the rules specified in the Scientific Research and Publication Ethics Directive for Higher Education Institutions were adhered to. The ethical approval for this study was obtained from Ondokuz Mayıs University's Ethics Committee for Social and Humanities Research (01.27.2023/2023-1281).