

# Opinions of gifted and talented students about their digital game preferences and effects\*

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## Abstract

Digital games continue to increase in popularity today. Among young people, digital games are important for learning and socialisation. In our study, the opinions of gifted and talented students about their digital game preferences and what they would like to do if they wanted to design a digital game themselves were included. The qualitative research method was used in our study. Our study group consists of 11 students attending the 6th grade at the Science and Art Center. To get the opinions of the students, semi-structured interview questions prepared by the researcher were asked. According to the findings obtained as a result of the analysis of the research, children's interests, playing time, the reason for preference, game tool character selection interactive or individual game preference, participated values/feelings, Friendship-friendship relations, Benefits of educational games were examined, and students were expected to design games. When we look at the rates of the games they prefer in our study with gifted 6th-grade students, we see that they prefer adventure/strategy/creative games with 54%, while they are in second place with 45%. "Mine Craft" and "Brawl Stars" games are played. The results showed that gifted students like to play interactive games and socialize in this way. It was also shared that digital games impact foreign language learning. It is seen that games involving skills such as exploring, strategizing, and thinking make students happy. When the games designed by the students are analysed, it is seen that they are inspired by the games they play. They arouse interest on a game basis, but they are also sensitive about being easily accessible and free.

**Keywords:** Digital games, Digital game preferences, Gifted and talented.

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## INTRODUCTION

Gifted children can be defined as children whose intelligence, cognitive abilities, creativity, art, leadership, and motivation are determined by experts to be higher than their peers (Renzulli, 2005). Since gifted students are cognitively and artistically more advanced than their peers, they need enriched course content and environment. It is thought that gifted students with high learning motivation can exhibit their high-level skills in an enriched environment (Ataman, 2012). Digital games play an important role in enriching the environment of gifted children (Peebles, Mendaglio & McCowan, 2023). In a subject that is difficult to understand, enriched lesson plans can be created by integrating maze puzzles, mind games, and strategy games into lessons. Play also helps gifted children develop cognitively (Miller, Carr & Martin, 2022). Because of gifted children's unusually complex vocabulary, creativity, perfectionism, and leadership qualities, they often prefer to play alone or with older friends (Drigas et al, 2022). Gifted education is another area where the use of technology and computing is discussed. Since these students have special needs that require different types of technology to be integrated into their curriculum, the use of technology and computing in gifted education is recommended (Alshareef, Imbeau & Albiladi, 2022). The use of digital technologies represents many purposes, such as information, communication, and entertainment. One of the benefits of digital technology is playing online games to have fun and socialize without leaving the environment. Although playing games has an important place in the development of children and young people, today, games have moved to virtual environments (Karaca et al, 2020).

Digital games are divided into online and offline, and it is stated that the social interaction of online games causes the game to be played more frequently. According to Whitton (2014), playing with others online provides social interaction between players, either by cooperating with them or competing against them. The literature also suggests that digital games can be useful in increasing students' technology-related skills, and video games can be useful in increasing students' desire to work with technology (Yildiz Durak, Kidıman Demirhan & Cıtil, 2022). Playing digital games is not only used to pass the time but also for educational purposes. Since games are based on setting rules and goals and reaching the goal, it may be preferable to use digital games as a tool to achieve educational goals in education.

This study investigates which games gifted students play and what content they can produce when they design a game themselves. Gifted students comprehend complex and abstract information differently and quickly (Ataman, 2012). The main focus of this study is how these different and fast comprehension abilities of gifted students are reflected in their digital game skills and preferences, together with their creativity. Gifted students playing digital games contribute to their motivation by developing their sense of fantasy, curiosity, and challenge (Behnamnia et al, 2020; Gros, 2007), supports the view that digital games contribute to the development of students' higher-order thinking skills (Eow et al, 2010; Shin et al, 2012). Since "creativity", one of the higher-order thinking abilities, is a skill that can be both taught and learned, the development of digital games as teaching/learning tools can encourage students' motivation to learn (Bai et al, 2012; Esteves et al, 2011). Games and game-like environments can provide gifted students with opportunities for experiential, authentic learning. According to Gee (2013), games support meaning acquisition by placing knowledge in specific contexts and linking the language used in them to "real experiences, actions, functions, and problem-solving". Recent studies have shown that online game players have different play motivations that lead to various usage patterns and in-game behaviors (Yee, 2006). Achievement of virtual money, equipment, and techniques, as well as character level, increase so that they can better compete with other online players, which helps them achieve the satisfaction of winning. Avoidance: online players tend to play to avoid or escape from real life by exploring unknown virtual worlds and experiencing different characters. These three gaming motivations attempt to understand the differences in the use behavior of each motivation in online gaming behavior, especially in the choice of game character. In this study, students are expected to

determine what kind of games they like to play, how to complete the games they find incomplete, and how to design a game that will reveal their own tastes and creativity.

Gifted students have different cognitive characteristics and preferences compared to other students (Abdulla et al, 2023). For this reason, this study focuses on the digital game skills and preferences of gifted students who show a different development than students with normal development. As gifted students show different preferences and abilities in different areas of interest, they may also show changes in their digital game preferences and skills. Thus, this study examines the digital gaming skills of gifted students in a study sample.

- **Sub-questions of the research**

- Which types of digital games do students like?
- What are the effects of preferred digital games on students?
- Can they design a creative game?

## **METHOD**

In this part of the study, the study group, the data collection tool used in the study, data collection, and analysis are given. The qualitative research method was preferred to examine students' feelings, thoughts, and preferences in depth and to explain them from a holistic perspective (Creswell, 2012). Qualitative research is based on reaching deep knowledge about events or phenomena to understand students' potential and determine their position in the social structure and system (L. Morgan, 1997). Descriptive analysis was used in the qualitative research method. In the study, participants' opinions about the research topic were obtained through a semi-structured interview technique. Qualitative studies have an important place in research studies as they deal with the entire research process (Yıldırım, 2010). Semi-structured interviews are beyond the limitations of multiple-choice or graded scales. They are preferred because they allow the participant to explain his/her views in depth and provide flexibility in the interview (Creswell, 2014).

### **Data Collection**

The study used a semi-structured interview form as a data collection tool. The interview form included questions about "the duration of digital game use, the reason for preference, whether the family allows the use of digital games, whether the digital game is interactive or individual, from which platforms digital games can be accessed, whether they are interactive with their friends about digital games, the benefits of digital games and whether educational digital games are played, designing a game using their creativity." The interview questions developed by the researcher were aimed to be easy to understand, to have more than one dimension, and to ask questions that allow the participant to explain his/her ideas without giving one-word answers and without directing his/her ideas (Lichtman, 2023). To determine the appropriateness of the interview form for the study, its applicability, and its easy comprehensibility by the participants, expert opinion was taken, and rearrangements were made. Expert opinion and the duration of the participant interviews were kept reasonable to ensure internal validity. The internal consistency of the findings obtained from the collected data was checked, and the analysis process was started. For the external validity of the research, the research process and the procedures carried out in the process were described in detail.

To increase the internal validity of this research, "expert opinions" and "appropriate and sufficient participation in the data collection process" were taken as the basis. During the implementation, the participant was given enough time, and a suitable environment was provided for the students to express their thoughts originally.

More than one person read the questions prepared within the scope of the external validity research, and the application was carried out by having preliminary knowledge about how they were understood and interpreted. The documents were examined in detail.

### Study Sample

The study data were collected in an environment where the 6th-grade students with gifted intelligence attending Tokat Science and Art Center in Turkey, who voluntarily participated in the study, could express themselves comfortably and in the time period desired by the participants. The study was conducted with three female and eight male students. The interview questions were asked to the students with the same tone and words to avoid any difference in meaning. During the interview, voice recording and note-taking techniques were used together to collect data.

### Ethical Considerations

This research was carried out with the approval of Tokat Gaziosmanpaşa University's Ethics Committee for Researches on Social Sciences and Humanities, with the decision numbered "302423" in the session dated 12.07.2023.

### Data Analysis

Content analysis was used to analyze the research data. In content analysis, there are four stages: processing the data obtained as a result of the interview, coding, finding themes, organizing codes and themes, and defining and interpreting the results (Baltacı, 2019). In order to ensure coding reliability, the data were coded by one of the two researchers. The results obtained from the two researchers were compatible with each other, did not differ much, and were not stated separately because they showed insignificant numerical differences (Cheung and Tai, 2023). Since the number of students reached in the study did not allow the use of some new research, frequencies, and percentages were not used. In this study, coding was made according to the analysis of the interviews conducted in the first stage, and various themes were reached in this context. The findings obtained from these themes are interpreted.

**Table 1.** Demographic Characteristics of the Participating Middle School Students

<b>1. Digital game use</b>
Playing time
Family permission
Reason for preference
Game tool
Character selection
Preference for interactive or individual play
<b>2. Effects of digital games on children</b>
The values it adds / how it makes you feel
Friendship relationships
Benefits of educational games
<b>3. Game drawing in relation to creativity</b>

As seen in Table 1, in the process of creating sub-themes according to the data obtained from the study, the researcher created sub-themes independently of each other as a result of a detailed examination of the documents. In this context, three main themes were identified: digital game use, the effects of digital games on children, and game drawing in relation to creativity. Under the first main theme, "digital game use" six sub-themes were formed: Playing time, Family Permission, Reason for preference, Game Tool Character selection, interactive, or individual game preference. Under the second main theme, "the effects of digital games on children" three sub-themes were identified: the values they add, friendship relations, and the benefits of educational games. The third main theme is game drawing in relation to creativity.

## FINDINGS

### Digital Game Usage

As a result of the analysis of the answers given to the research questions, six sub-themes were formed under the main theme of "Digital Game Use" which is one of the themes that emerged as a result of the analysis of the answers given to the research questions, including playing time, whether it is under the supervision of the family, the reason for preference, game tool, character selection, interactive or individual game preference. When the concepts that make up these sub-themes are examined, the most emphasized point is that all children play digital games, the duration of digital games varies depending on the wishes of the family, and the games they play are similar to each other. It is seen that their desire to play games is generally adventure, time evaluation, adding excitement and curiosity. They stated that they made friends internationally by playing interactive games.

**Table 2.** Games Prepared for the Expressions of Gifted Children and Their Contents

Number of students playing the game	Game type	Interactive and online or individually	Name of the game
6	Adventure, strategy, creative	Single or multiplayer-online	Mine craft
5	Aiming, combat, team building, strategy	Multiplayer online	Brawl stars
3	Coding, design, effect	Single or multiplayer	Roblox
2	Sports, action, adventure	Single-player	Subway Surf
2	Sports strategy action	Multiplayer	PES
1	Map mission completion strategy	Online single player	Paper io
1	Survival war strategy	Multiplayer	Fire fire
1	Racing sport adventure	Multiplayer	Run race
1	Survival, adventure, excitement	Individual -online	Fortnite

Table 2 shows that gifted and talented students generally like and play war, adventure, and strategy-style games. Gifted and talented students generally prefer interactive games. They usually use their tablets to play gifted and talented games. When the games were analyzed, students reported that they chose the strongest character while playing war games and that they like characters similar to their own physical characteristics. They learn about the games from YouTube, news, and friends. Their families determine students' playing time. The rate of playing games with features such as Minecraft, Brawl Stars, Roblox, adventure action strategy, game building, and design is the highest. When we look at the content of the games, adventure, strategy, sports, racing, and survival genres are preferred. When we look at the games played by the students and their characteristics, we see that they are compatible. Among the characteristics of gifted and talented students, basic characteristics such as deep thinking, solving complex problems, and curiosity stand out.

**Table 3.** Game Playing Time of Gifted and Talented Students Measures

Number of students	Weekday playtime	Weekend playtime
1. Student	1 hour after doing homework one day	One hour a day on the weekend
2. Student	Does not play during the week	2 hours after the weekend, homework is finished
3. Student	One hour every day	Saturday, Sunday 1 hour
4. Student	One hour every day after doing your homework	Saturday, Sunday 1 hour
5. Student	Half an hour every day after doing your homework	Sunday one hour
6. Student	Two days, 3 hours	3 hours every day
7. Student	1.5 hours every day on average	2 hours every day
8. Student	Only Friday 1 hour before class	Half an hour every day at the weekend
9. Student	1 hour every day after class	Two hours on the weekend
10. Student	2 hours on Fridays	Two days at the weekend for a total of 4.5 hours
11. Student	One hour every day	A total of 3 hours over two days

When Table 3 is analyzed, it is observed that gifted students play games in moderation, and all of them are under parental control. They also reported that they usually play games after doing homework and after coming home from school in order not to disrupt their studies. It can be said that they are under supervision to prevent game addiction and that they allocate time to technological devices, partially aware of this.

### Effects of Digital Games on Children

The main theme of "The Effects of Digital Games on Children" which is one of the themes that emerged as a result of the analysis of the data of the research, was formed within the framework of three sub-themes: the values they add / what they feel, friendship relations, and the benefits of educational games. When the concepts that make up these sub-themes are examined when the opinions of gifted students are examined, it is frequently stated that digital games affect friendship relations positively, but they prevent them from going out and doing activities. One of the students (S1) said, "I am excited and happy while playing games. I develop strategies to pass the levels." (S2), "I am happy while playing games, and I have the opportunity to chat with my friends when I play interactively." (S3) "Playing games helps me develop my creativity." (S4) "Playing games makes me popular among friends. Because when we play the same game, it makes me happy to see that I am ahead in terms of level." (S5) "Among educational games, I like playing chess the most because thinking makes me happy." (S6) "Among educational games, I like playing word games because it makes me love reading books."

When examined within the framework of three sub-themes: Values added by gifted students / what they feel, Friendship relations, and Benefits of educational games, it is seen that while they contribute positively to students' creativity and strategic thinking, they socialize in the virtual world, but they do not like to go out and spend time. They express their opinions that educational games help them develop strategies and make them like reading books. When we look at the content of the educational games played, there are chess, word games, and interactive games that can create a chat environment. The effect of the games on students' social-emotional states is that discovering the unknown and thinking while developing strategies make students happy. Playing word games is parallel to reading books and has a positive effect on each other.

This study discusses the games designed by gifted students according to the study sample and their preferences. Gifted students are asked to design a creative game, which games they like, and why they prefer them. Thus, the views of gifted students' digital gaming skills and preferences were shared. The digital game skills designed by gifted students based on the games they play and the interactions around them are analyzed. These analyses are presented in Figures 1-10.

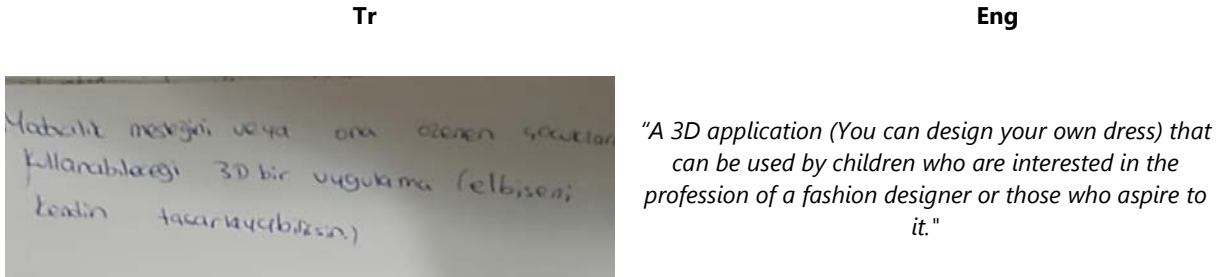
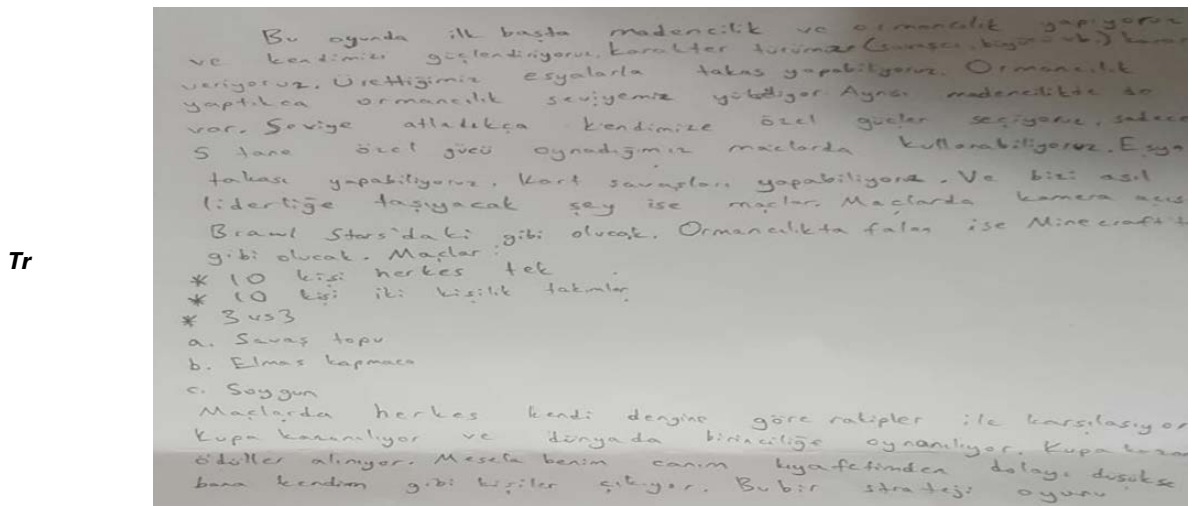


Figure 1. (S1) The Game Designed by the First Student

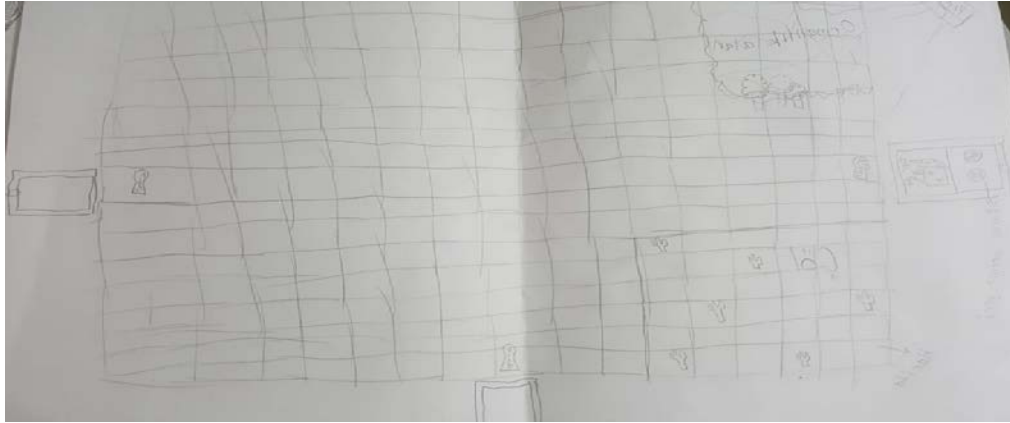


"At the beginning of this game, we start by mining and forestry, strengthening ourselves, and deciding on the type of character (warrior, mage, etc.). We can trade with the items we produce. As we do forestry, our forestry level increases. The same happens in mining. As the level increases, we choose special powers for ourselves. We can only use five special powers in the amount we play. We can exchange items. We can have card battles. In addition, what will take it to the real leadership is the matches. The camera angle in the matches will be like "Brawl Starts." In forestry, it will be like "Minecraft".

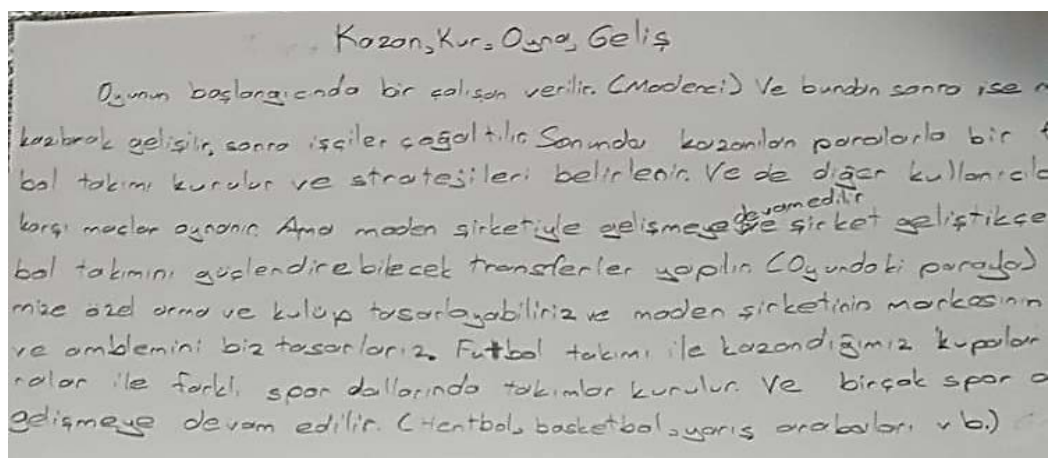
<b>Eng</b>	<p>Matches: - 10 people and every single (individual) - Teams of 10 people and two people - 3 vs 3 a-) War cannon b-) Diamond Grabbing c-) Robbery</p>
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In the matches, everyone faces their opponents according to their own balance. Cups can be won, and the world's first place can be played. The trophy winner can get prizes. For example, if my health is low because of my outfit, I can be matched with opponents like me. It's a strategy game."

Figure 2. (S2) Game Designed by the Second Student



**Figure 3.** (S3) The Game Designed by the Third Student



Tr

"Win, Build, Play, Develop

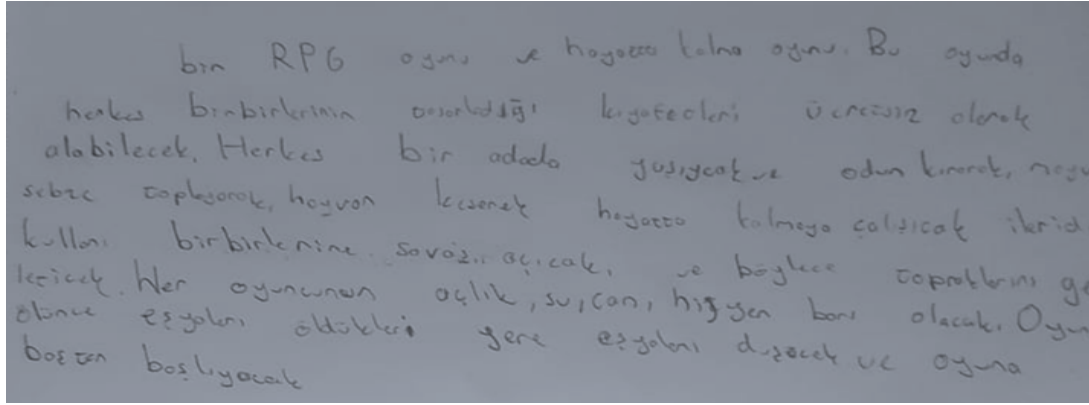
Eng

At the beginning of the game, one worker is given (the miner), and after that, an arrow develops against n.... Then, the workers are multiplied. Finally, a soccer team is formed with the earned coins, and their strategy is determined. Matches are played against other users. However, the mining company continues to develop, and as the company develops, transfers are made to strengthen the soccer team. With the money in the game, we can design our own crest and club, and we can design the brand and emblem of the mining company. With the trophies and money we win with the soccer team, teams in different sports can be established. Continue to develop in many sports (handball, basketball, racing cars, etc.)."

**Figure 4.** (S4) The Game Designed by the Fourth Student



Tr

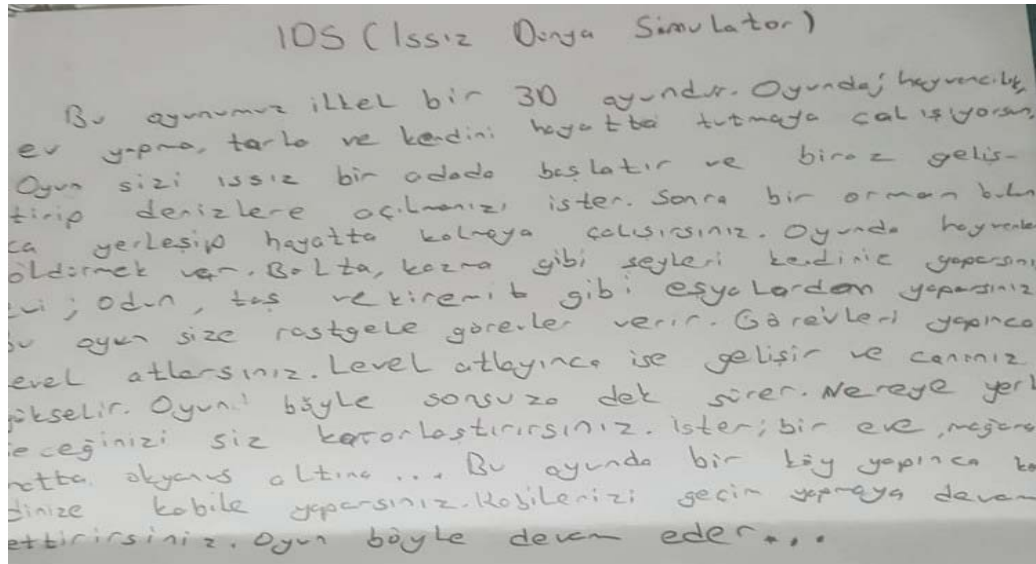


Eng

"It's an RPG game and a survival game. In this game, everyone will be able to get clothes designed by each other for free. Everyone will live on an island and try to survive by chopping wood, collecting fruits and vegetables, hunting animals, etc. In the future, users will be able to wage war against each other and thus expand their territory. Each player will have a hunger, water, and hygiene bar. When a player dies, their items and rewards will fall to the ground, and the game will start over."

Figure 5. (S5) The Game Designed by the Fifth Student

Tr



Eng

**"UWS (Uninhabited World Simulator)**

This is a primitive 3D game. In the game, you raise livestock, build houses and farm fields, and try to keep yourself alive. The game starts you on a deserted island and asks you to develop a bit and sail the seas. Then you find a forest and try to settle down. There is animal hunting in the game. You can make things like axes and pickaxes yourself. You can build a house out of things like wood, stone, and tiles. You can level up. As you level up, you improve, and your health increases. The game goes on like this forever. You decide where you settle. Whether it's a house, a cave, or even under the ocean, in this game, once you build a village, you can make a tribe. You can continue to make a living in your tribe. That's how the game goes on."

Figure 6. (S6) The Game Designed by the Sixth Student

Tr

Bir tane zorlu platform da oyuncular olacak. Bu oyuncu istediğimiz şekilde şekillendirebileceğiz. Mesela oyuncuya kıyafet giydirmek istiyoruz ama istediğimiz şekilde kıyafet yok tene çizip oyuncuya giydirebileceğiz.

Bu zorlu platformda bir yarış olacak. Bu platformda ki yerleri bölümlere göre seçebileceğiz. Mesela ormanda ve şehi.

Mesela ormanda tarçımıza vahşi hayvanlar çıkıp bizim bir çizgisine ulaşmamızı engellemeye çalışacak. Bu arada platforma geçmeye çalışıyoruz. O hayvanları sadece bir kez kullanabileceğimiz silahlara öldürmeye çalışıyoruz. Bu arada benzeri beraber yarışan farklı kişilerde var. Hayvanları öldürdüğümüzde puan kazanıyoruz. İlk giden kazanıyor ve diğer bölüme geçiyor. En çok puan kazanan ise para topluyorlar karakterimizi geliştirebiliyoruz.

*"There will be players on one challenging platform. We will be able to shape this player the way we want. For example, if we want to dress the player in clothes, but there are no clothes the way I want, we will be able to draw and dress the player ourselves.*

Eng

*There will be a race on this challenging platform. We will be able to choose the places on this platform according to the chapters, for example, in the forest or in the city. For example, in the forest, wild animals will appear and try to prevent us from reaching the finish line with us. Meanwhile, we're trying to cross the platform on foot. We're trying to kill those animals with weapons that we can only use once. By the way, there are different people competing with me. When we kill the animals, we get points. The first one to go wins and moves on to the next level. The one who earns the most points collects money. With this money, we can improve our character."*

**Figure 7.** (S7) The Game Designed by the Seventh Student

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Ben eğer bir oyun yapardım hem savaş hem hayatta kalma hem yaratıcılık olan bir oyun tasarlardım.

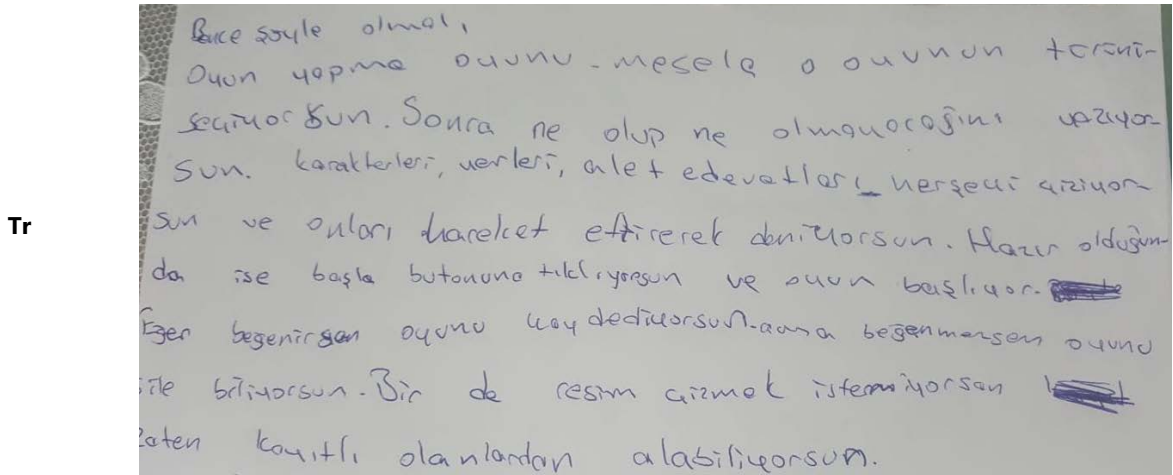
Arkadaşlarla sohbet edilebilir oynanabilen bir oyun ve ücretsiz olurdu. Silah sayısını az yapardım ve yaratıcılık modunda ise yaratabileceğimiz şeyleri fazla yapardım.

Oyunda karakter almak için paraya gerek kalmazdı. Ücretsiz görev yaparak o şeyi alabilirdin.

Eng

*"If I were to make a game, I would design a game that is both war, survival, and creativity. It would be a game where friends could be played and chatted with friends, and it would be free. I would make the number of weapons less, and in the creativity mode, I would make more things that we can create. You wouldn't need money to buy a character in the game. You can get that thing by doing a free mission."*

**Figure 8.** (T8) The Game Designed by the Ninth Student

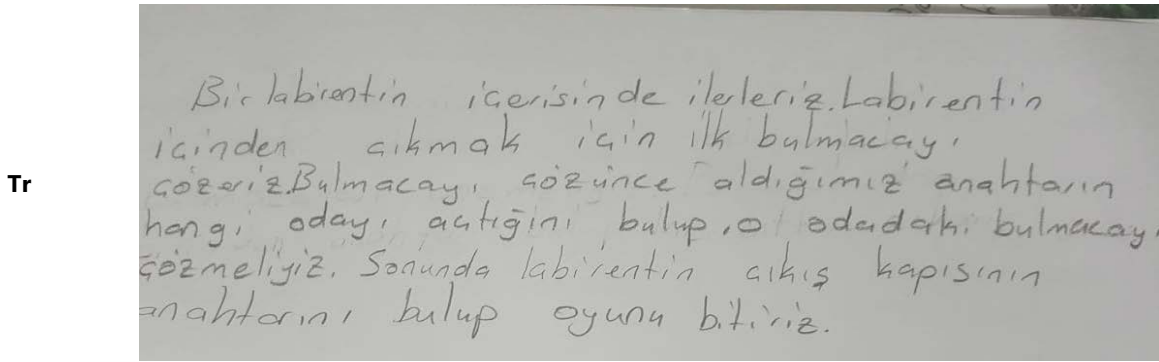


Tr

Eng

"I think it should be like this, a game of making a game. For example, you choose that game. Then, you write down what will happen and what won't happen, and you try it out by moving them around. When it's ready, you click the start button, and the game starts. If you like it, you save the game. But if you don't like it, you can delete the game. And if you don't want to draw a picture, you can buy the ones that are already saved."

Figure 9. (S9) The Game Designed by the Tenth Student



Tr

Eng

"We move through a maze. We solve the first puzzle to get out of the maze. When we solve the puzzle, we have to find out which room the key opens and solve the puzzle in that room. Finally, we find the key to the exit door of the maze and finish the game."

Figure 10. (S10) The Game Designed by the Eleventh Student

When the figures with the drawings and writings of the students that we examined under the theme related to creativity are examined, it is seen that female students are influenced by the games they play, while female students design games such as designing, designing clothes, and dressing up in different clothes, while male students design games with war content. When we look at the content of the games, there are features such as being reward-based and free of charge and allowing more than one person to play simultaneously. There were two students who preferred to design games by drawing. It can be inferred that gifted students generally want to design games that include words such as reward, patience, perseverance, and determination.

When the games designed by gifted students were analyzed, themes were extracted. Students think the games they design should include creativity, discovery, strategizing, skill, patience, imagination, responsibility, and curiosity. Gifted and talented students answered this question as a reflection of their personal characteristics. In the game they designed, except for one student, they preferred to write in the form of text, while the student who drew thought that he could express himself more easily by drawing a picture. While a female student made a drawing about fashion, male students generally designed war and strategy games. Interactive games are generally preferred.

## DISCUSSION

In our study, the responses of gifted and talented students were analyzed under three main themes: the use of digital games, the effects of digital games, and drawing games in relation to creativity. Under the first main theme, "digital game use" sub-themes such as playing time, whether they play games under parental supervision, the reason for preference, character choice, interactive or individual game preference was created. When analyzed under these sub-themes, the average daily playing time is around 1.5 hours and 1.5 hours per day, usually under family supervision. The reasons for preferring games include excitement, curiosity, and the desire to overcome difficulties (Chen, Yun Dai & Zhou, 2013). Gifted students see gaming not only as a way to kill time but also as a way to improve themselves. For example, in an interactive game with mutual voting, students choose a foreigner as their opponent to improve their foreign language. Under the second main theme, "the effects of digital games on children," three sub-themes were identified: the values that the preferred game adds to the student, friendship relations, and the benefits of educational games. The third main theme, game drawings, is related to creativity. When the students' drawings are analyzed, it can be said that the content of the games is generally war strategy and design games. It can be inferred from the answers that gifted students like difficulty, are curious, and think multidimensionality. The games played by students have the highest rate of playing games such as Minecraft, Brawl Stars, and Roblox, which have features such as adventure, action, strategy, game building, and design.

Kontostavlou and Driga (2023) stated in their study that the use of digital games, as observed in this study, can provide gifted students with opportunities to reveal different talents and facilitate the learning process. In addition, unlike this study, the researchers emphasize that creativity, along with critical thinking, supports learning and curiosity about different subjects. In another study (Rudenko et al, 2021), in parallel with this study, it was emphasized that playing digital games by gifted students led to the development of their creativity, increased research skills, and orientation towards theoretical and practical areas. Similarly, Brinkley (2018) stated that critical thinking and problem-solving skills are reinforced through digital games and lead them to explore complex concepts.

Today, digital games are considered a type of entertainment that is increasingly being played and used for leisure time evaluation. The main theme of "Digital Game Use" which is one of the themes that emerged as a result of the questions asked in the study, has six sub-themes: Playing time, Family permission, Reason for preference, Game tool, Character choice, interactive or individual game preference. When the concepts that make up these sub-themes are examined, the most emphasized point is that all children play digital games, the duration of digital games varies depending on the wishes of the family, and the games they play are similar to each other. It is seen that their desire to play games is generally adventure, time evaluation, and adding excitement and curiosity (Ioanna, Agathi & Driga, 2023). They stated that they gained international friends by playing interactive games. As a game tool, they usually play on tablets. Because their families do not allow the use of cell phones. One of the questions asked the students was how they accessed the games, and they generally stated that they learned about them through YouTube, news, and the information they received from their friends. Some students preferred the games because their mother or sister played them. Digital games are one of the main topics of conversation in the social relations of gifted children in study with their friends (Periathiruvadi and Rinn, 2012). This is because they prefer to play digital games to spend their free time. In games, they choose their characters according to their appearance the most. Boys state that they choose strong characters whose physical characteristics are most similar to themselves. Girls, on the other hand, generally state that character is not very important. The gifted and talented students who participated in the research generally prefer interactive and group games with more than one participant, and the reason for this is that they are happy to make international friends and speak English. However, the general opinion of parents is that they should not play interactive and conversational games (Eriksson, 2012).

Research shows that children's social environment has positive and negative effects on their digital game playing, and their preference for digital games changes (Mesman, Kuo, Carroll & Ward, 2013). In this study, it is seen that the desire of gifted and talented students to play games in the virtual environment is related to their environment. Students stated that they choose which digital game to play based on their circle of friends, that they make friends by playing games that are considered popular among themselves, and that they can chat with each other through common games. It is seen that children prefer digital games more for having fun and spending time. With the curiosity, excitement, and adventure provided by the virtual environment, the students stated that they did not realize how time passed and that they were happy to realize the social environment and sharing they could have in daily life in the virtual environment. When analyzed within the framework of the three sub-themes of the values added by gifted students / what they feel, friendship relations, and the benefits of educational games, it is seen that while the students contribute positively to their creativity and strategic thinking, they socialize in the virtual world, but they do not like to go out and spend time. They express their opinions that educational games help them develop strategies and make them like reading books. (Taylan, Kara & Durğun, 2017) found that the digital game preferences of middle and high school students differed according to their types.

In this study, when the digital game preferences and the games designed by gifted and talented students are analyzed, it is seen that they create a new and different game design over the existing current games in game design. It is seen that both genders focus on their interests in digital game preferences. In addition, it is revealed that they make their digital game preferences by being influenced by their social circles, such as their friends and YouTube channels that they access via the internet. It is seen that the game designs based on these interactions are in a different style from the existing game designs and that they only benefit from their cognitive abilities.

## **CONCLUSIONS**

In this study, the digital game preferences of gifted students and their views on the effects of games are discussed. In the study, by applying descriptive and content analysis, gifted students' game playing times, digital game preferences, character choices used in individual game preferences, interactive games, and friendship relationships were examined. Among the remarkable results of the study, when the game preferences of gifted students are analysed, it is seen that 54% of them prefer adventure/strategy/creative games, and 45% of them play "Mine Craft" and "Brawl Stars" games with aiming/war/team building/strategy game content. Thus, the main contribution of this study is to investigate the digital game preferences of gifted students in today's digital age and what they can do when they are asked to design a game based on these games.

Chaidi and Drigas (2022), digital games that appeal to the creativity of gifted students have features that encourage students' discovery and mental development. According to the results obtained in the study, gifted students generally preferred games that helped them developmentally. It was observed that they felt happy and successful when they succeeded in these games. Some students stated that the opinions of their families also contributed to their preference for games. It was observed that the games designed by gifted students were generally strategy, war, or design-oriented games. They stated that they play to start and continue conversations with their friends rather than the content of popular games. In addition, it has been observed that games are also important for specially gifted students to communicate with their peers around them, to start a conversation, and to meet them on their desire and preference to play digital games.

According to the results obtained, studies on gifted children and digital games and technology are noteworthy issues. Studies in the field are increasing. Digital games can be added to the course programs and activities prepared for gifted students. As an output of the study, parents can contribute to the

design stage with their opinions on the in-class or extracurricular activities designed for gifted and talented students since the game times are determined under the supervision of the students. The main limitation of the study is the small sample size. It is thought that a larger sample size will increase reliability. Students in different classes can also participate in the study to form a group for comparison.

### Statement of Researchers

**Researchers' contribution rate statement:** The researchers equally contributed to the study.

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## REFERENCES

- Abdulla Alabbasi, A. M., Sultan, Z. M., Karwowski, M., Cross, T. L., & Ayoub, A. E. A. (2023). Self-efficacy in gifted and non-gifted students: A multilevel meta-analysis. *Personality and Individual Differences*, 210, 112244. <https://doi.org/10.1016/j.paid.2023.112244>
- Alshareef, K. K., Imbeau, M. B., & Albiladi, W. S. (2022). Exploring the use of technology to differentiate instruction among teachers of gifted and talented students in Saudi Arabia. *Gifted and Talented International*, 37(1), 64–82. <https://doi.org/10.1080/15332276.2022.2041507>
- Ataman, A. (2012). Üstün yetenekli çocuk kimdir? *Geleceğin mimarları üstün yetenekliler sempozyumu*, 4–15, Tekirdağ. [https://cocukuniversitesi.aydin.edu.tr/tez/gelecegin\\_mimarlar.pdf](https://cocukuniversitesi.aydin.edu.tr/tez/gelecegin_mimarlar.pdf)
- Bai, H., Pan, W., Hirumi, A., & Kebritchi, M. (2012). Assessing the effectiveness of a 3-D instructional game on improving mathematics achievement and motivation of middle school students. *British Journal of Educational Technology*, 43(6), 993–1003. <https://doi.org/10.1111/j.1467-8535.2011.01269.x>
- Baltacı, A. (2019). Nitel araştırma süreci: Nitel bir araştırma nasıl yapılır? *Ahi evran üniversitesi sosyal bilimler enstitüsü dergisi*, 5(2), 368–388. <https://doi.org/10.31592/aeusbed.598299>
- Behnamnia, N., Kamsin, A., Ismail, M. A. B., & Hayati, A. (2020). The effective components of creativity in digital game-based learning among young children: A case study. *Children and Youth Services Review*, 116, 105227. <https://doi.org/10.1016/j.childyouth.2020.105227>
- Brinkley, T. (2018). Technology for gifted students in mixed- ability classrooms. *Curriculum Development for Gifted Education Programs*, 100–134, IGI Global. <https://doi.org/10.4018/978-1-5225-3041-1.ch005>
- Chaidi, I., & Drigas, A. (2022). Digital games & special education. *Technium Social Sciences Journal*, 34, 214–236. <https://doi.org/10.47577/tssj.v34i1.7054>
- Chen, J., Yun Dai, D., & Zhou, Y. (2013). Enable, Enhance, and Transform: How Technology Use Can Improve Gifted Education. *Roeper Review*, 35(3), 166–176. <https://doi.org/10.1080/02783193.2013.794892>
- Cheung, K. K. C., & Tai, K. W. H. (2023). The use of intercoder reliability in qualitative interview data analysis in science education. *Research in Science & Technological Education*, 41(3), 1155–1175. <https://doi.org/10.1080/02635143.2021.1993179>
- Creswell, J. W. (2012). *Educational Research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Boston, MA: Pearson.
- Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, California, SAGE Publications.
- Drigas, A., Kontopoulou, M.-T., Gougoudi, A., Kantzavelou, K., & Mertzioti, L. (2022). Assessing and Recognizing Gifted Children using ICTs. *Technium Education and Humanities*, 2(3), 78–96. Retrieved from <https://www.techniumscience.com/index.php/education/article/view/7391>

- Eow, Y. L., Ali, W. Z. bte W., Mahmud, R. bt, & Baki, R. (2010). Computer games development and appreciative learning approach in enhancing students' creative perception. *Computers and Education*, 54(1), 146–161. <https://doi.org/10.1016/j.compedu.2009.07.019>
- Eriksson, G. (2012). Virtually there – transforming gifted education through new technologies, trends and practices in learning, international communication and global education. *Gifted Education International*, 28(1), 7-18. <https://doi.org/10.1177/0261429411424381>
- Esteves, M., Fonseca, B., Morgado, L., & Martins, P. (2011). Improving teaching and learning of computer programming through the use of the Second Life virtual world. *British Journal of Educational Technology*, 42(4), 624–637. <https://doi.org/10.1111/j.1467-8535.2010.01056.x>
- Gee, J. P. (2013). Games for Learning. *Educational Horizons*, 91(4), 16-20. <https://doi.org/10.1177/0013175X1309100406>
- Gros, B. (2007). Digital Games in Education, *Journal of Research on Technology in Education*, 40(1), 23-38, <https://doi.org/10.1080/15391523.2007.10782494>
- Ioanna, L. P. –, Agathi, S., & Driga, A. M. (2023). Special Education Teachers' Gifted Guidance and the role of Digital Technologies. *TechHub Journal*, 6, 16–27. Retrieved from <https://techhubresearch.com/index.php/journal/article/view/95>
- Karaca, S., Karakoc, A., Can Gurkan, O., Onan, N., & Unsal Barlas, G. (2020). Investigation of the Online Game Addiction Level, Sociodemographic Characteristics and Social Anxiety as Risk Factors for Online Game Addiction in Middle School Students. *Community Mental Health Journal*, 56(5), 830–838. <https://doi.org/10.1007/S10597-019-00544-Z>
- Kontostavlou, E. Z., & Driga, A. M. (2023). Digital technologies for Gifted Students' Education. *Global Journal of Engineering and Technology Advances*, 15(3), 191-204. <https://doi.org/10.5281/zenodo.8285353>
- Morgan, D. L. (1997). Focus groups as qualitative research. *SAGE Publications, Inc.*, <https://doi.org/10.4135/9781412984287>
- Lichtman, M. (2023). *Qualitative Research in Education: A User's Guide* (4th ed.). *Routledge*. <https://doi.org/10.4324/9781003281917>
- Mesman, G. R., Kuo, D. Z., Carroll, J. L., & Ward, W. L. (2013). The Impact of Technology Dependence on Children and Their Families. *Journal of Pediatric Health Care*, 27(6), 451–459. <https://doi.org/10.1016/j.pedhc.2012.05.003>
- Miller, E. M., Carr, J. M., & Martin, J. M. (2022). Development of Children With Superior Cognitive Abilities. Roberts, J.L., Inman, T.F., & Robins, J.H. (Eds.). *Introduction to Gifted Education*, 97–112. <https://doi.org/10.4324/9781003235866>
- Peebles, J. L., Mendaglio, S., & McCowan, M. (2023). The Experience of Parenting Gifted Children: A Thematic Analysis of Interviews With Parents of Elementary-Age Children. *Gifted Child Quarterly*, 67(1), 18-27. <https://doi.org/10.1177/00169862221120418>
- Periathiruvadi, S., & Rinn, A. N. (2012). Technology in Gifted Education, *Journal of Research on Technology in Education*, 45:2, 153-169. <https://doi.org/10.1080/15391523.2012.10782601>
- Renzulli, J. S. (2005). The Three-Ring Conception of Giftedness: A Developmental Model for Promoting Creative Productivity. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of Giftedness* (2nd ed., pp. 246–279). chapter, Cambridge: Cambridge University Press. <http://doi.org/10.1017/CBO9780511610455.015>

- Rudenko, I. V., Bystrova, N. V., Smirnova, Z. V., Vaganova, O. I., & Kutepov, M. M. (2021). Modern technologies in working with gifted students, *Propósitos Y Representaciones. Journal of Educational Psychology*, 9(SPE1), e818–e818. <https://doi.org/10.20511/pyr2021.v9nSPE1.818>
- Shin, N., Sutherland, L. M., Norris, C. A., & Soloway, E. (2012). Effects of game technology on elementary student learning in mathematics. *British Journal of Educational Technology*, 43(4), 540–560. <https://doi.org/10.1111/j.1467-8535.2011.01197.x>
- Taylan, H. H., Kara, H. Z., & Durğun, A. (2017). Ortaokul ve lise öğrencilerinin bilgisayar oyunu oynama alışkanlıkları ve oyun tercihleri üzerine bir araştırma [A study on middle and high school students' computer game playing habits and game preferences]. *PESA Uluslararası Sosyal Araştırmalar Dergisi*, 3(1), 78–87. <https://dergipark.org.tr/tr/pub/pesausad/issue/36303/410194>
- Whitton, N. (2014). Digital games and learning: research and theory. *Routledge(Taylor&Francis Group)*. Retrieved from <https://www.routledge.com/Digital-Games-and-Learning-Research-and-Theory/Whitton/p/book/9780415629393>
- Yee, N. (2006). The demographics, motivations, and derived experiences of users of massively multi-user online graphical environments. *Presence: Teleoperators and Virtual Environments*, 15(3), 309–329 <https://doi.org/10.1162/pres.15.3.309>
- Yıldız Durak, H., Kırıman Demirhan, E., & Cıtil, M. (2022). Examining various risk factors as the predictors of gifted and non-gifted high school students' online game addiction. *Computers & Education*, 177, 104378. <https://doi.org/10.1016/j.compedu.2021.104378>
- Yıldırım, K. (2010). Nitel araştırmalarda niteliği artırma [Improving the quality of qualitative research]. *İlköğretim Online*, 9(1), 79–92. <https://dergipark.org.tr/tr/pub/ilkonline/issue/8596/106955>

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