

Determination of Internet and Digital Game Addiction Level of Students According to the Opinions of Parents, Teachers and Students

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Abstract: *Due to the effect of COVID-19 pandemic, the use of technology and internet has taken place widely in all areas of life of individuals and provided positive benefits to individuals in various fields. Although the use of internet and technology provides many benefits, spending excessive time on internet due to the pandemic conditions has detrimental effects such as internet addiction that has been wide-spreading in human life. In this context, in this study, it has been tried to determine the digital game addiction levels of the students, which has become prevalent with the internet and internet addiction. 66 parents, 207 teachers, and 978 students participated in this study in which a mixed research method was used. The results acquired through the research demonstrate that the students are addicted to internet and digital games. The majority of the participant parents state that their children spend 3 hours or more on the internet a day with the purpose of playing games. Parents state that they have concerns whether their children are aware of the internet safety risks and they feel discomfort with the time their children spend on internet. Similarly, the majority of teachers participating in the research believe that students are addicted to digital games. Another result obtained from the research is that the majority of the participant students spend 3 hours or more a day, especially for playing digital games. However, contrary to their teachers and parents, students do not consider themselves as internet and game addicts.*

Keywords: *Technology addiction; internet addiction; digital game addiction; cyber threats; adolescent students.*

How to cite: Hursen, C., Karaokçu, H., Hatipoğlu, T.T., Karasaliş, Ş., Suhanberdyeva, D., & Beyoğlu, D. (2023). Determination of Internet and Digital Game Addiction Level of Students According to the Opinions of Parents, Teachers and Students. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 14(4), 175-206. <https://doi.org/10.18662/brain/14.1/413>

1. Introduction

As an integral part of the 21st Century Information Age societies, technology not only makes lives of people easier but also responds to many needs such as communication, entertainment, education, trade and so on. Despite the numerous benefits of technology, the overuse of technology can be detrimental; different age groups have difficulty keeping up with technological change (Ertemel & Aydın, 2018; Sigerson et al., 2017). Drawing attention to significant harmful effects of the overuse of technology, Balcioğlu and Türk (2021) state that technology addiction leads psycho-social and physical issues. Uluçay and Kobak (2020) support other researchers and state that the increase in the use of smart devices has a negative impact on individuals' professional, private and social lives. Due to the technological innovations and developments, and the increase in social media tools, access to internet has become much easier; and the overuse of internet in all areas inevitably leads to addiction that has negative effects on individuals (Koçak, 2019; Soyöz-Semerci & Balcı, 2020; Su et al., 2020).

Spending increasing time on internet to the point where the individual loses control of the internet, and its negative effects on personal, professional and other life spaces can be defined as internet addiction (Aslan & Yazıcı, 2016). Internet addiction, of which negative effects occur at different levels in various areas of life, is defined as an impulse control disorder that negatively affects daily life (Prochazka et al., 2021). Internet addiction, which is defined as one of the significant social problems, is explained as the excessive use of internet that disturbs the lives of individuals (Huang & Shen, 2010; Peng et al., 2019). While Peng, Zhang and Li (2019) draw attention to the importance of not only determining the internet addiction tendency especially of students but also guiding them properly, Neverkovich et al. (2018) touch upon the necessity of designing programs to prevent the internet addiction of students and underline the significance of implementing these programs during the education period. Attention is drawn that technology addiction also starts especially in adolescence in line with the increase in the use of mobile technology; it is stated that the use of internet, which has become a irresistible need for individuals, creates a serious addiction in adolescents (Bağatarhan & Siyez, 2017; Jamira et al., 2019). The lack of maturity in the social relations of adolescent students is considered as an effective factor in the formation of the addiction to social networks (Neverkovich et al., 2018). Adolescents, who are addicted to the Internet, experience problems with their family and social environment and cannot have a healthy developmental period

(Gönültaş et al., 2020). Especially parents are uncomfortable with their children's excessive and problematic internet use, and cannot prevent their children from using the internet excessively (Hawi, 2012). Internet addiction, which is expressed as a psychological abnormality and a physiological disorder, has a negative impact on students' physical and mental health, as well as their social lives and their perspectives on the world and values (Shu & Xu, 2010). Internet addiction tendencies of students, who have problems such as addiction, shyness, depression and low self-esteem, are higher than other students (Yang & Tung, 2007). Similarly, Ayhan and Köseliören (2019) state that there are many factors in the occurrence of internet addiction and explain that especially digital games are effective in the formation of internet addiction. Drawing attention that digital games are different from traditional games, Ayhan and Köseliören (2009) state that a great number of participants play online games by connecting to the internet via a range of technological devices.

Stating that digital games increase the effect of addiction in adolescents and adults, Soyöz-Semerci and Balcı (2020) underline that it alienates the adolescents from the real life. Digital game addiction is defined as playing games for hours, associating the game with real life, preferring gaming instead of engaging in different activities, and failing to fulfill his/her responsibilities because of playing games for long hours (Bas & Kabak, 2020). The biggest risks in digital game addiction are expressed as deficiencies in social life, low self-esteem and distraction (Kneer et al., 2014). The factor of violence also normalizes in adolescents who have become introverted due to digital games. Irmak and Erdoğan (2016) also draws attention to the digital game addiction of adolescents and state that many problems are encountered in line with the increase in time spent playing digital games. Emphasizing the role of family factor in addiction to digital games, researchers point to the crucial role of family environment in helping adolescents socialize and acquire positive behaviors (Irmak & Erdoğan, 2016). In their study (Günlü & Ceyhan, 2017) conclude that one out of every four adolescents use the internet for 5 or more hours per day and underline that the outcome is significant in terms of the time spent on internet. Referring to the need for raising awareness in adolescents on proper internet use, researchers suggest that digital games with educational content should be created for adolescents with higher rates of playing digital games, and a special focus should be attached to social activities at schools (Günlü & Ceyhan, 2017). Drawing attention to the cognitive, affective, social, physical, and academic developmental disorders in young people with problematic and irresistible urge for internet and technology use, Kandemir et al. (2022)

state that individuals with internet and technology addiction experience anger when there is no internet, problems with individuals and in school life, and conflict with family members. With a different point of view, Savcı and Aysan (2017) point out that addictions such as digital game addiction, smartphone addiction, and social media addiction are associated with internet addiction and explain that internet addiction also causes other addiction associated with the use of internet.

The increase in the use of internet during the COVID-19 process inevitably poses a risk for internet addiction, and this risk for students, who spend more time on the internet for online learning is greater than other age groups; and along with internet addiction problems such as digital game addiction, technology addiction, and cyber threats are becoming prevalent. First of all parents and teachers need to have a high level of awareness in order to assist their children and students protect themselves from cyber threats and internet addiction. In this study, it has been aimed to determine the internet and digital game addiction level of students. In this context, answers were sought for the following questions:

1. What are the views of parents on their children's technology and internet usage levels?
Their children;
 - 1.1. How do they use the internet?
 - 1.2. What is the frequency of using of internet?
 - 1.3. What is the purpose of using the internet?
 - 1.4. Which technological devices do they prefer to use to connect to internet?
 - 1.5. What are their tendencies for connecting to the internet via their own devices?
 - 1.6. What place do they prefer to use the internet?
 - 1.7. Do they use internet safely?
 - 1.8. Do parents have a need for training on safe internet use?
2. What is the internet addiction level of their children according to the views of their parents?
3. What are the teachers' views on digital game addiction level of their students?
4. What is the awareness level of students for digital game addiction?
5. According to the students' opinions;
 - 5.1. How do they use the internet?
 - 5.2. What is the frequency of using the Internet?
 - 5.3. What are their preferred setting(s) while using the Internet?

- 5.4. What are their views on their knowledge/consciousness about internet use?
- 5.5. What are the views of their parents on their attitudes and behaviors while using the Internet?

2. Method

In this study, the mixed method using qualitative and quantitative data has been preferred.

2.1. Participants

Consisting of 3 different stages, the research was carried out with final year students studying at secondary and high schools, parents and teachers. The research, which was carried out in 5 different regions in the North of Cyprus, was primarily carried out with fathers and mothers. A total of 66 persons consisting of fathers and mothers participated in the first stage of study, which was carried out to determine not only the internet and digital game addiction levels of the children according to the views of the parents but also the awareness level of families on cyber threats. Table 1 presents the demographics of the fathers and mothers in detail.

Table 1. Demographics of fathers and mothers

<i>Gender</i>	<i>N</i>	<i>Age</i>	<i>N</i>	<i>Occupation</i>	<i>N</i>	<i>Region</i>	<i>N</i>
<i>Female</i>	55	<i>30-40</i>	38	<i>Self-employed</i>	11	<i>Nicosia</i>	14
<i>Male</i>	8	<i>41-50</i>	28	<i>Clerk</i>	10	<i>Kyrenia</i>	25
		<i>51-60</i>	2	<i>Teacher</i>	19	<i>Beyarmudu/Akdoğan</i>	17
				<i>Housewife</i>	5	<i>Gönyeli</i>	3
				<i>Psychologist</i>	3	<i>İskele</i>	4
				<i>Veterinarian</i>	1		
				<i>Press member</i>	1		
				<i>Interior Designer</i>	1		

Source: Author's own conception

As seen in Table 1, only 63 of the 66 participant stated their gender. 38 of them are between the ages of 30 and 40, 28 of them are 41-50 years of age and 2 of them are 51 years old and over. 11 of participants are self-employed, 10 of them are civil servants, 19 of them are teachers, 3 of them are psychologists, 5 of them are housewives, 1 of them is a veterinarian, 1 of them is a member of the press, and 1 of them is an interior designer. 14 of the participants are from Nicosia, 25 of them are from Kyrenia, 17 of them are from Beyarmudu/Akdoğan, 3 of them are from Gönyeli and 4 of them are from İskele. 31 fathers and mothers have 2 children, 17 of them have 1

child, and 7 of them have 3 or more children. Besides, 47 fathers-mothers are married while 9 of them are divorced.

The second stage of the research was carried out with the teachers. 207 teachers working in public schools in the northern part of Cyprus expressed their opinions on the internet and digital game addiction levels of their students. Demographic characteristics of teachers are given in Table 2.

Table 2. Demographics of teachers

	Groups	N	%
<i>Gender</i>	Female	161	77.8
	Male	46	22.2
<i>Age</i>	23-25	5	2.4
	26-30	14	6.8
	31-35	35	16.9
	36-40	38	18.4
	41-45	67	32.4
	46 and over	48	23.2
<i>Professional seniority</i>	1-5	11	5.3
	6-10	26	12.6
	11-15	45	21.7
	16 and over	125	60.4
	Total	207	100

Source: Author's own conception

A total of 207 teachers consisting of 161 female teachers (77.8%) and 46 male teachers (22.2%) participated in the study. 67 (32.4%) of the teachers are 41-45 years of age, 48 (23.2%) of them are 46 years of age or over, 35 (16.9%) of them are 31-35 years of age, 14 (6.8%) are 26-30 years of age, and 5 (2.4%) of them are 23-25 years of age. Most of the teachers (n=125, 60.4%) have 16 years or over professional seniority.

A total of 978 students participated in the last stage of the study designed to collect data and determine the internet and digital game addiction levels of students. Table 3 presents the demographics of the students participated in the study.

Table 3. Demographics of students

	Groups	N	%
<i>Gender</i>	Female	549	56.1
	Male	429	43.9
<i>Age Range</i>	14-15	545	55.7
	17-18	433	44.3

<i>Educational Level</i>	Secondary school	545	55.7
	High school	433	44.3
	Total	978	100

Source: Author's own conception

A total of 978 students consisting of 549 (56.1%) girls and 429 (43.9%) boys participated in the study. 545 (55.7%) students are 14-15 years of age while 433 (44.3%) of students are 17-18 years old. 545 (55.7%) students are final year students studying at secondary schools and 433 (44.3%) of them are final year students studying at high schools.

2.2. Data Collection Tools

In the first stage of this study, which was carried out in 3 stages, it was aimed to determine the views of the parents on the internet use and internet and digital game addiction levels of their children. Besides, it was also aimed to determine the needs for training fathers and mothers on cyber threats and prevention measures to be taken. Within the scope of the study, the "Parent-Child Internet Addiction Test, PCIAT20", which was adapted into Turkish by Eşgi in 2014, and the "interview form for determining children's internet usage levels" that was prepared by the researchers were employed in this study to collect data to determine both the internet and digital game addiction levels of children according to the views of their parents, and the problems that the parents experienced with their children in this regard. The "Parent-Child Internet Addiction Test" that employed in this study to evaluate parents' views on their children's internet addiction, is a scale consisting of 20 items and 4 sub-dimensions. The 1st dimension "Social Isolation" consists of 5 items in itself, the 2nd sub-dimension "Dysfunction" consists of 5 items in itself, the 3rd dimension "Deprivation" consists of 4 items and the last sub-dimension "Control difficulty" consists of 6 items in itself. The reliability coefficient (Cronbach's alpha) value for the data obtained through the scale was calculated as 0.91. Besides, a "semi-structured interview form to determine the internet usage levels of children" was prepared by the researchers and employed with the purpose of determining the views of parents concerning the issue. The semi-structured interview form was designed to evaluate the parents' views and determine the child's addiction level by considering how often the child uses internet, his/her purposes for using internet, the parents' information level on cyber threats, the measures taken by parents to protect their children cyber threats on internet. To determine the digital game addiction and awareness level of students, the "Digital Game Addiction Awareness Scale" that was developed

by Demir and Cicioğlu was employed to collect the views of the teachers participated in the study voluntarily. Consisting of 12 items, the scale has 2 sub-dimensions: "internal awareness" and "external awareness". Items such as "Digital game addiction leads to depression", "Digital game addiction makes the individual aggressive" are examples for internal awareness, and items such as "Digital game addiction is one of the causes of sedentary life" and "Digital game addiction isolates people from society" are examples for the external awareness dimension. The Cronbach's Alpha reliability coefficient of the scale used for evaluating the views of teachers was calculated as 0.94. In addition, with an open-ended question created by the researchers, the problems that teachers experience with their students who are addicted to digital games in the classroom environment have also been questioned.

In the last stage of the study, "Computer Game Addiction Scale for Children" that was developed by Horzum, Ayas, and Çakır-Balta (2008) to determine the digital game addiction level of final year students studying in the secondary and high schools across North Cyprus was applied to 978 students. The Cronbach's Alpha reliability coefficient of the data obtained from the scale was calculated as 0.91. Having been developed to measure the computer game addiction level of students, the scale consists of 21 items and 4 sub-dimensions. The four sub-dimensions of the scale are respectively as follows: 1. "Not being able to give up playing games on the computer, and feeling annoyed when restricted"; 2. "Conjuring computer game up in his/her mind and associating it with real life"; 3. "Neglecting duties in order to play computer games"; and 4. "Preferring to play computer games rather than doing other activities". The internet usage frequency of the students participating in the research was tried to be determined with the "Internet usage frequency interview form" prepared by the researchers.

2.3. Data Collection and Data Analysis

In this study, which includes parents, teachers and students, qualitative and quantitative data were collected and analyzed. During the data collection phase, application permissions were primarily obtained from the relevant persons and units for the scales to be applied. After all permissions were obtained from the respective places, the importance of the study was explained to 66 parents, 207 teachers, and 978 students, who participated in the research voluntarily, and data collection tools were introduced. The application process in which scales were employed to obtain quantitative data lasted approximately 15-20 minutes. The application

process in which face-to-face interview forms were employed to collect qualitative data lasted approximately 30-40 minutes for each participant.

Qualitative data obtained from the research have been analyzed by using content analysis method, while quantitative data have been calculated by using frequency, percentage, mean and standard deviation analysis techniques. The reliability of the quantitative data obtained from the research has been determined by the Cronbach's Alpha reliability coefficient.

3. Results

The acquired findings based on the goal and sub-goals of the study and interpretations are presented in this part.

3.1. Views of Parents on Technology and Internet Usage Levels of Their Children

A “semi-structured interview form for determining the internet usage levels of children” was employed to evaluate the views of parents participated in the study, and determine the internet usage levels of their children. Table 4 presents findings obtained from the research.

Table 4. Internet usage status of their children according to the views of parents

<i>Internet usage status of their children</i>	<i>N</i>
Yes	55
Partially	10
No	0
<i>Internet usage frequency of children</i>	<i>N</i>
1 hour a day	12
2 hours a day	12
3hours or over a day	38
<i>Children's purposes for using internet</i>	<i>N</i>
Academic study	44
Communicating	33
Playing games	50
Making new friends	6
Listening to music	37
Using of social media	26
Watching films, videos, documentaries, etc.	45
Trading	0
<i>Device used to connect to the internet</i>	<i>N</i>
Smart phone	48
Tablet	26
Computer	13

Laptop	21
<i>Connecting to internet via his/ her own device</i>	<i>N</i>
Yes	48
No	4
Via mother's-father's device	20
<i>The place where they use computer/ internet</i>	<i>N</i>
In his/her room	33
Any room at home	58
At internet-café	0
At school	3
At his/her friend's house	6
<i>Safe internet usage</i>	<i>N</i>
Yes	12
Partially	40
No	12
<i>Parent's need for training for safe internet use</i>	<i>N</i>
Yes	35
Partially	20
None	8

Source: Author's own conception

Considering the views of parents, the majority of the children use internet (n=55). When we examine how often the children use internet, it is seen that 38 children spend 3 hours or more a day on internet, 12 children use internet an hour a day while 12 children spend 2 hours a day on internet. In the literature, it is stated that the weekly internet usage time of a non-addicted user is around 5 hours on average, excluding the homework preparation time of the children. Internet use exceeding 8-10 hours per week indicates that individuals are at risk. In order to prevent internet addiction in individuals, it is recommended to use the internet for 30 minutes a day in preschool age groups, 45 minutes a day in the first 4 years of primary education, 1 hour a day in the second 4 years of primary education, and 2 hours a day in high school age groups (Department of Information Technologies and Communication Authority Internet, 2018, p. 142). The results obtained from this study show that especially the children of 38 parents use the Internet for 21 hours or more per week. Determining the reasons leading the children to spend more time on internet is extremely important to take measures to prevent the risk of internet addiction. Excluding the academic activities of children such as homework preparation and academic study on internet, the high frequency of internet use is considered a major threat for children in terms of internet addiction and problems resultant from such an addiction. As seen in Table 4, it has been determined that children use the internet for different purposes. When Table

4 is examined, it is obvious that the majority of children use the Internet for game purposes ($n=50$). However, the children of 44 parents use the internet for doing homework, conducting educational research and watching educational videos. According to the views of parents as presented in table 4, 33 children use the internet with the purpose of communicating with their teachers, families and friends, 45 children use internet to watch movies, documentaries and similar videos, while 6 children use internet to make new friends. According to the views of parents, children use various devices to connect to the internet and as seen in the table, the majority of the children prefer to connect to the internet via their own devices. Another finding obtained from the study is that the majority of parents ($n=40$) are tentative whether their children use the internet safely or not. While 12 parents believe that their children use the Internet safely, 12 mothers and fathers state that their children do not use the Internet safely. The fact that the majority of parents ($n=40$) are tentative about their children's use of the internet in a safe way reveals that there are deficiencies and problems regarding safe internet use. Similarly, the findings of the study reveal that parents also need training on safe internet use. Most of the parents ($n=49$) state that they experience problems with their children regarding their internet use. Experiencing problems with their children, parents ($n=24$) state that they employ punishment methods to solve their children's problematic behaviors.

3.2. Internet Addiction Level of Their Children According to the Views of Parents

Parent-Child Internet Addiction Test, PCIAT20 was employed to collect parents' views and determine the internet addiction level of their children. Table 5 presents the findings regarding the internet addiction levels of children according to the views of their parents.

Table 5. Distribution of the findings obtained from the family-child internet addiction scale

Internet addiction level of their children according to the views of parents	Always	Very often	Usually	Occasionally	Rarely	Never
	%	%	%	%	%	%
<i>Social Isolation</i>						
How often does your child prefer to spend time online rather than with the rest of your family?	5.8	23.1	55.8	5.8	1	9.6
How often does your child make new friendships with fellow online users?	-	-	3.8	26.9	50	19.2
How often does your child spend time alone in his/her room playing games on the computer?	44.2	23.1	9.6	11.5	3.8	7.7
How often does your child choose to spend time online rather than doing once enjoyed hobbies and/or outside interests?	30.8	32.7	17.3	3.8	11.5	3.8
How often does your child choose to spend time online rather than going out with friends?	38.5	25	26.9	1.9	5.8	1.9
<i>Dysfunction</i>						
How often does your child neglect daily household chores to spend time online?	7.7	28.8	44.2	7.7	3.8	7.7
How often do you complain about the amount of time your child spends online?	7.7	17.3	51.9	7.7	9.6	5.8
How often do your child's grades suffer because of the amount of time he/she spends online?	5.8	26.9	17.3	42.3	5.8	1.9
How often does your child seem withdrawn from other people since discovering the internet?	28.8	30.8	13.5	21.2	1.9	3.8
How often does your child receive phone calls from new online friends?	11.5	9.6	7.7	3.8	67.3	-
<i>Deprivation</i>						
How often does your child become defensive or secretive when asked what he/she does online?	7.7	7.7	9.6	36.5	25	13.5
How often does your child seem more tired and fatigued than he or she did before	3.8	1.9	5.8	44.2	25	19.2

the internet came along?						
How often does your child throw tantrums with your interference about how long he/she spends online?	9.6	9.6	25	50	-	5.8
How often does your child feel unhappy, sad or nervous when he/she is off-line and get relieved when he/she is online?	11.5	28.8	38.5	7.7	9.6	3.8
<i>Control Difficulty</i>						
How often does your child disobey time limits you set for online use?	17.3	28.8	25	19.2	3.8	3.8
How often does your child check his/her e-mail before doing something else?	55.8	13.5	15.4	7.7	3.8	3.8
How often do you catch your child sneaking online in spite of being told not to do so?	7.7	23.1	21.2	3.8	38.5	5.8
How often does your child lose his control, yell, or act annoyed if he/she is interrupted while online?	9.6	7.7	15.4	44.2	19.2	3.8
How often does your child seem preoccupied with being back online when off-line?	3.8	1.9	15.4	17.3	61.5	-
How often does your child become angry or belligerent when time limit is placed on time he/she spends online?	51.9	26.9	1.9	3.8	11.5	3.8

Source: Author's own conception

The majority of parents (55.8%), who answered questions on the scale by taking into account the behavior of their children regarding internet usage, stated that their children preferred to spend time on the Internet rather than with the family members. Similarly, 44.2 percent of parents state that the child spends time alone in his/her room playing games on the computer, 30.8 percent of parents state that the child spend time online rather than doing activities outside, and 38.5 percent of parents state that the child prefer to spend time online instead of going out with friends. The findings reveal that the majority of children isolate themselves from social environments with the purpose of playing games on the Internet.

As seen in the table, most of the parents (44.2%) consider that their children neglect their daily household chores to spend more time online. While 51.9 percent of mothers complain about the amount of time their children spend online, 30.8% of them state that their children have withdrawn from other people since discovering the Internet; 67.3 percent of

parents state that their children rarely receive phone calls from new online friends. Parents also state that their children occasionally get angry with they interfere about the time they spend online. 36.5% of parents state that their children become defensive when asked what they do online. Another significant finding is that children become angry or belligerent when time limit is placed on time they spend online (51.9%). Research findings reveal that the majority of children spend a great deal of time online and consequently experience conflicts with their parents because of the frequency of Internet use. Parent awareness programs should be developed, and parents need to be provided with necessary training to enable them to communicate effectively with their children and to cope with their children's negative and problematic behaviors. Similarly, the children with problematic internet use and behaviors should be provided with necessary support and guided properly.

3.3. Digital Game Addiction Status of Students According to Teachers' Views

In this stage of study, while the "Digital Game Addiction Awareness Scale" was employed to determine the awareness levels of teachers about digital game addiction, the opinions of teachers about their students' digital game addiction levels were tried to be determined through face-to-face interviews. First of all, it has been questioned whether teachers participated in any training on digital game addiction, have collaboration with parents. Their views on the digital game addiction level of their students have also been questioned. The results obtained are presented in Table 6.

Table 6. Teachers' views on digital game addiction in terms of various variables

Teacher's;	Groups	<i>f</i>	%
<i>participation in seminars about technology, internet and game addiction</i>	Yes	152	73.4
	No	53	25.6
<i>Views considering their students addicted to digital games</i>	Yes	128	61.8
	No	4	1.9
	Partially	72	34.8
<i>Collaboration with parents of students with digital game addiction</i>	Yes	95	45.9
	No	26	12.6
	Partially	75	36.2
	Total	207	100

Source: Author's own conception

In the study, teachers' participation in any training or seminar on digital game addiction has been questioned. The findings reveal that the vast majority of teachers (73.4%) have participated in seminars, trainings, and similar activities held on the issue. This demonstrates that vast majority of the teachers participated voluntarily in the study have awareness on technology, internet, and game addiction. When asked what they think about the digital game addiction level of their students, 61.8 percent of teachers stated that they considered their students as addicted. While only 4 teachers (1.9%) stated that their students were not addicted, 72 teachers (34.8%) stated that their students were partly addicted to digital games. The findings reveal that teachers generally think that their students are addicted to games.

As seen in the table 6, 95 teachers corresponding to 45.9% of teachers participated in the study are in collaboration with the parents of their game-addicted students, while 26 teachers (12.6%) do not have collaboration with parents on the issue. 75 teachers (36.2%) state that they are partially in collaboration with parents. Considering the detrimental effects of game addiction on students, teachers and parents should be in more collaboration on the issue. The views of teachers on the effects of digital game addiction on students are given in Table 7.

Table 7. Views of teachers regarding the effects of digital game addiction on students

		Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree		Mean	Sd
		F	%	f	%	f	%	f	%	f	%		
<i>Internal Awareness</i>	Digital game addiction leads to depression	15	7.2	11	5.3	21	10.1	73	35.3	70	33.8	3.91	1.191
	Digital game addiction increases the stress of the individual due to the actions in the games.	14	6.8	5	2.4	7	3.4	91	44.0	73	35.3	4.07	1.091
	Digital game addiction leads irritability	14	6.8	5	2.4	6	2.9	81	39.1	84	40.6	4.14	1.109

	Digital game addiction makes the individual aggressive	14	6.8	4	1.9	15	7.2	75	36.2	82	39.6	4.09	1.121
	Digital game addicts suddenly get upset when they remember the game levels they couldn't accomplish during the day	12	5.8	8	3.9	16	7.7	91	44.0	63	30.4	3.97	1.076
<i>External Awareness</i>	Digital game addiction isolates the individual from society	14	6.8	3	1.4	5	2.4	78	37.7	90	43.5	4.19	1.093
	Digital game addiction reduces communication with the environment including the family, friends, etc.	11	5.3	6	2.9	2	1.0	79	38.2	92	44.4	4.24	1.045
	Digital game addiction isolates	14	6.8	4	1.9	10	4.8	83	40.1	79	38.2	4.10	1.101
	Digital game addicts cannot spare time for those around them because they cannot stop playing digital games.	12	5.8	6	2.9	6	2.9	77	37.2	89	43.0	4.18	1.080
	Digital game addiction is one of the causes of sedentary life	12	5.8	9	4.3	8	3.9	61	29.5	100	48.3	4.20	1.137

*Uncontrolled digital gaming cannot be called "addiction"	89	43.0	44	21.3	23	11.1	18	8.7	16	7.7	2.09	1.314
Digital game addiction causes problems in school or business life	11	5.3	9	4.3	6	2.9	77	37.2	87	42.0	4.16	1.087

*Contains negative statement.

Source: Author's own conception

Both internal and external awareness levels of teachers regarding digital game addiction have been determined high. As seen in Table 7, teachers remark "agree" especially on the expressions "Digital game addiction increases the stress of the individual due to the actions in the games" (M=4.07, Sd=1.09), "Digital game addiction leads irritability" (M=4.14, Sd=1.10), "Digital game addiction makes the individual aggressive" (M=4.09, Sd=1.12). The findings reveal that teachers have high levels of internal awareness. Teachers remark "strongly agree" on the expressions "Digital game addiction reduces communication with the environment including the family, friends, etc." (M=4.24, Sd=1.04), and "Digital game addiction is one of the causes of sedentary life" (M=4.20, Sd=1.13). Similarly, remarking "agree" on the expressions "Digital game addiction causes problems in school or business life" (M=4.16, Sd=1.08), "Digital game addicts cannot spare time for those around them because they cannot stop playing digital games" (M=4.18, Sd=1.08), and remarking "disagree" on the expression "Uncontrolled digital gaming cannot be called "addiction" (M=2.09, Sd=1.31), teachers reveal that they have a high level external awareness. Having been prepared by the researchers, an open-ended question has also been employed to determine the problems that the teachers experience with their students in the classroom setting. Table 8 presents the findings obtained from the views of teachers.

Table 8. Problems that teachers experience with their students in the classroom setting

Dimensions	Problematic Student Behaviours	N
<i>Miscommunication</i>	Having problem in communicating with peers	35
	Being maladaptive in the classroom	27

<i>Physical discomfort</i>	Distraction	25
	Sleep deprivation	17
	Absentmindedness	5
	Fatigue	1
<i>Psychological disturbance</i>	Exhibiting irritable and ill-tempered attitudes	5
	Impatience	4
<i>Teacher support</i>	Collaborating with the family	90
	Directing the student to psychological counselling and guidance services	74
	Setting time limits on internet use	19

Source: Author's own conception

As a result of the interviews with the teachers, the problems they experience in the classroom with their students, whom they believe to be addicted to digital games, have been determined as 4 sub-dimensions. When the miscommunication dimension is examined, it is seen that the students experience problems in communicating with their peers (n=35) and are maladaptive in the classroom (n=27). When the solution suggestions of the teachers (n=5), who consider the irritable and quick-tempered behaviors exhibited by their game-addicted students as psychological disturbances, have been questioned, it has been determined that the teachers mostly prefer to cooperate with parents (n=90). It is also among the results that teachers (n=74) prefer receiving support from the Psychological Counseling and Guidance Services Unit of the school, and set time limits on the internet usage (n=19).

3.4. Awareness Levels of Students Regarding Digital Game Addiction

In the study, it has also been aimed to determine the students' internet usage and their awareness levels about digital game addiction. In this context, the last year secondary and high school students (n=978) have been questioned about their internet usage, how often they use the internet, the place they prefer to use internet, their information on internet usage, and their parents' attitudes towards them. Besides, the Computer Game Addiction Scale for Children was employed to determine the awareness level of students regarding computer game addiction. Students' views on their internet usage are given in Table 9.

Table 9. Frequency and percentage distributions of students' internet usage

	Groups	<i>f</i>	%
<i>Use of Internet</i>	Yes	919	94
	Partially	56	5.7
	No	3	.3
<i>Daily time spent on internet</i>	1 hour	84	8.6
	2 hours	192	19.6
	3 hour and over	702	71.8
<i>Purpose of using internet (multiple optional)</i>	Doing homework	720	73.6
	Conducting education-oriented research	621	63.5
	Watching educational videos	336	34.4
	Communicating with the teacher	551	56.3
	Communicating with friends	703	71.9
	Communicating with the family	476	48.7
	Playing games	502	51.3
	Making new friends	141	14.4
	Listening to music	602	61.6
	Using social-media	552	56.4
	Watching videos such as movies, documentaries, etc.	577	59
	Trading	41	4.2
<i>Device used to connect to the Internet (Multiple optional)</i>	Smart phone	883	90.3
	Tablet	156	16
	Computer (PC)	227	23.2
	Laptop	257	26.3
<i>The owner of the device he/she uses to connect to the Internet (multiple optional)</i>	Student's own device (yes)	904	92.4
	Student's own device (no)	34	3.5
	Mother's/father's device	62	6.3
	Friend's, etc. device	6	0.6

Source: Author's own conception

As seen in Table 9, the majority of the students participated in the research (n=919) use the internet actively, 56 students use the internet partially, while 3 students do not use the internet at all. When time that

students spend online a day questioned, it has been determined that the majority of students (n=702, 71.8%) use the internet for 3 and more hours a day, 8.6% of them (n=84) use the internet 1 hour a day, while 192 of them (19.6%) spend 2 hours online a day. The findings obtained are similar to the findings obtained from the parents. A great majority of parents also state that their children use the Internet more than 3 hours a day (see Table 4). When students' purpose of using internet daily questioned, it is seen that most of the students use the internet to do homework, communicate with friends, listen to music, and for similar activities. However, 51.3% of the students (n=502) state their purpose of using the internet for 3 hours or more a day as playing games. The fact that 502 of 919 students, who use internet actively, spend 3 or more hours on the internet for playing games is accepted as an indicator of game addiction. This finding supports the findings obtained from the parents. 50 of the 63 mothers and fathers participating in the study state that their children play games on the internet for 3 hours or more a day (see Table 4). This situation can not only negatively affect the students' academic accomplishments, communication skills, and carrying out other social activities, etc., but can cause conflicts between family members as well. 904 students stated that they connect to the internet with their own devices. This is a factor that makes it difficult for parents to control their children in order to protect them from cyber security threats. The distribution of the settings preferred by the students to use the internet is given in Table 10.

Table 10. Environments where students use the internet

	Groups	<i>f</i>	%
<i>The place where he/she uses the internet (multiple optional)</i>	his/her room	654	66.9
	Any room in the house	741	75.8
	Internet Café	21	2
	School	67	6.9
	Friend's home	125	12.8
<i>The environment in which he/she uses the Internet (single and multiple environments)</i>	Only in his/her room	227	23.2
	Just any room in the house	301	30.8
	Only in Internet Café	1	0.1
	Only at his/her friend's	2	0.2
	His/her room, home, and at his/her friend	54	5.5
	His/her room, at home, friend's and at school	34	3.5
	His/her room, at home-school	10	1.0
	Everywhere	12	1.2
	His/her room,, at home, internet	4	0.4

café, and friend's		
Any room at home, internet café, and friend's	1	0.1
His/her room, at home, and internet	1	0.1
Café		
His/her room, at home (any room)	305	31.2
Any room at home, school, and friend's	4	0.4
Any room at home, at friend's	9	0.9
Any room at home, and internet cafe	2	0.2
Any room at home, and at school	4	0.4
His/her room, and at friend's	4	0.4
His/her room, and at school	2	0.2
His/her room, at school and friend's	1	0.1

Source: Author's own conception

The students' views whether they believe that they use the internet safely and whether they need support on the issue are given in Table 11.

Table 11. Students' views on their knowledge and awareness levels regarding the use of internet

	Groups	<i>f</i>	%
<i>Do you think that you use the internet safely?</i>	Yes	786	80.4
	No	15	1.5
	Partially	177	18.1
<i>Do you need support to be guided about using the internet properly?</i>	Yes	78	8.0
	No	732	74.8
	Partially	168	17.2
Are you aware of the cyber threats on the Internet?	Yes	805	82.3
	No	47	4.8
	Partially	126	12.9
	Total	978	100

Source: Author's own conception

As seen in Table 11, the majority of students believe that they use the internet safely (n=786, 80.4%). However, Table 9 shows that the majority of the students play games on the Internet for 3 hours or more per day, and this gives rise thought that the majority of students do not have sufficient knowledge, skills or awareness about using the internet safely.

While 177 of the students participated in the research state that they use the internet partially safely, only 15 students state that they do not think that they use the internet safely. When asked whether they need support for using the internet safely, the majority of students (n=732) state that they do not need such support. While 168 students state that they partially need such support, 78 of students participated in the study state that they need proper guidance. Especially the reluctance of the majority of students (n=805) for supportive trainings on safe internet use is considered an unpleasant negative situation. While only 126 students are partially aware of cyber threats, 47 students state that they know nothing about cyber security threats on internet. It is a very thought-provoking finding that the majority of the students participated in the study state that they are aware of the cyber threats on the internet. Conducting research studies that will reveal the knowledge and skill levels of students on cyber threats is considered a significant step in this context.

Table 12. Views on parental attitudes and behaviors towards the internet use

	Groups	<i>f</i>	%
<i>Do you have conflicts with your father/ mother because of internet use?</i>	Yes	132	13.5
	No	591	60.4
	Partially	255	26.1
<i>Does your mother or father set time limit on your internet use</i>	Yes	199	20.3
	No	490	50.1
	Partially	289	29.6
	Total	978	100

Source: Author's own conception

While 13.5 percent of students (n=132) state that they have conflict with their father and/or mother on the internet use, 60.4% of them state that they have no conflict with parents regarding the issue. However, 51.9% of the mothers and fathers participating in the study state that they have conflicts with their children about internet use (see Table 5). 26.1% (n=255) of the students participated in the research state that they partially experience problems with their parents about internet use. When asked whether their parents place any time limit on the internet use, 50.1 percent of students (n=490) state that their parents do not impose any restriction. It is considered as a necessity to place time limit on the internet use especially for children who spend 3 hours or more on the internet for gaming

purposes. The findings regarding the awareness levels of students for computer game addiction are given in Table 13.

Table 13. Awareness levels of students for computer game addiction

<i>Awareness levels of students for computer game addiction</i>	Never		Rarely		Occasionally		Very often		Always			
	<i>f</i>	%	<i>F</i>	%	<i>F</i>	%	<i>f</i>	%	<i>F</i>	%	Mean	Sd
I delay eating to finish the game I play on the computer	594	60.7	210	21.5	123	12.6	29	3.0	22	2.2	1.65	.964
if someone bothers me while gaming online, I become irritated	478	48.9	221	22.6	173	17.7	63	6.4	43	4.4	1.95	1.148
I look forward to the time to play computer games	533	54.5	171	17.5	172	17.6	55	5.6	47	4.8	1.89	1.169
Although I want to stop playing computer games most of the time, I can't give up.	617	63.1	163	16.7	120	12.3	54	5.5	24	2.5	1.68	1.04
When I start playing computer games, I play longer time than the time allocated for me.	536	54.8	179	18.3	148	15.1	62	6.3	53	5.4	1.89	1.196
I can't get enough of playing computer games	575	58.8	166	17.0	123	12.6	59	6.0	55	5.6	1.83	1.197
When I loss a computer game, I have an irresistible need to play the game again to win it.	421	43.0	202	20.7	168	17.2	103	10.5	84	8.6	2.21	1.325
I get angry with my parents for not letting me play games on the computer	726	74.2	133	13.6	77	7.9	28	2.9	14	1.4	1.44	.865
I don't feel lonely when I play computer games	494	50.5	127	13.0	123	12.6	94	9.6	140	14.3	2.24	1.499
While playing computer games, I often find myself saying something to myself.	504	51.5	162	16.6	153	15.6	93	9.5	66	6.7	2.03	1.288
To make my friends accept me, I play the computer games that they play	746	76.3	115	11.8	74	7.6	21	2.1	22	2.2	1.42	.892
I dream of being back online to play games when off-line	702	71.8	149	15.2	86	8.8	22	2.2	19	1.9	1.47	.891

After the computer game is over, I think about the mistakes I made while gaming	571	58.4	171	17.5	125	12.8	66	6.7	45	4.6	1.82	1.168
I demonstrate the characteristics of my computer game characters in real life.	759	77.6	104	10.6	75	7.7	17	1.7	23	2.4	1.41	.884
I skip my homework to play games on the computer	668	68.3	178	18.2	88	9.0	24	2.5	20	2.0	1.52	.907
I am late for school because of playing games on the computer	911	93.1	31	3.2	24	2.5	8	.8	4	.4	1.12	.504
I spent most of my out of school time by playing computer games	577	59.0	188	19.2	125	12.8	54	5.5	34	3.5	1.75	1.092
I prefer playing games on the computer to spending time outside.	556	56.9	156	16.0	142	14.5	55	5.6	69	7.1	1.90	1.251
Playing games on the computer is more fun than being with friends	721	73.7	103	10.5	83	8.5	33	3.4	38	3.9	1.53	1.043
I misinform about the amount of time I play computer games	654	66.9	186	19.0	96	9.8	22	2.2	20	2.0	1.54	.909
I prefer playing games on the computer to other activities (doing sports, watching TV, etc.)	576	58.9	161	16.5	121	12.4	54	5.5	66	6.7	1.85	1.233

Source: Author's own conception

As seen in Table 13, the students participated in the study have a high level of awareness regarding computer game addiction. However, it has been determined that they daily spend 3 hours or over on the internet with the purpose of playing games (see Table 9). This finding reveals that particularly the students, who are addicted to digital gaming, do not acknowledge that they are addicts.

4. Discussion and Conclusion

In this study, which has been carried out to determine the internet and digital game addiction levels of students, the views of mothers and fathers, teachers and students have been asked and evaluated. During the first stage of the research, it has been aimed to determine the parents' views on their children's internet usage status and how often they use the internet and play

digital games. Most of the mothers and fathers participating in the study state that their children use the Internet for 3 hours or over per day. Similarly, the majority of parents also state that their children use the internet to play games. Some of the children prefer to use the internet actively for academic studies, while some of them use the internet 3 hours or over a day to communicate, listen to music and watch videos such as movies, documentaries, etc. The study conducted by Cahyo, Al Fariz and Lestari (2020) presents data that students use the internet to play games, explore social media, communicate, access homework videos, and shop online. Similarly, Lo et al. (2021) also state that the use of the internet and electronic devices for communication, social networking and learning has increased, especially among adolescents. Expressing the internet as a fundamental technology in the development of information technology, Shahibi and Khafidhah Ku Rusli (2017) explain that the internet is an important tool used for many purposes such as information management, information search, communication, research and learning, and they state that an unlimited world is realized via the internet. In this context, it is considered very important to plan trainings that will provide students with knowledge, skills and awareness in order to use the internet in a positive way.

The results obtained from the research revealed that parents need training on safe internet use. According to the opinions of the parents, their children use the internet partially safely; therefore, parents need to be well-informed and conscious on the issue in order to be able to guide their children to use the internet safely. Ayas and Horzum (2013) state that it is the liability of parents to protect their children from malicious websites on the Internet, and that parents should first have the knowledge and skills required to raise their children's awareness on the threats on the Internet. Similarly, Manouselis et al. (2009) state that the time children spend online has increased in recent years, and parents need to be trained how to protect their children, who spend a great deal of time online, from virtual dangers. The study conducted by Kasikci et al. (2014) concludes that the internet usage rates of parents are low, and in this context, they do not have enough information to save their children from online risks.

Expressing their opinions by taking into account the internet use of their children, parents state that their children prefer to spend time online rather than spending time with the rest of the family. Highlighting that their children play computer games alone in their rooms, parents state that their children spend time on the Internet instead of doing activities outside, they do not prefer to do activities outside with their friends, and they isolate themselves from social environments to play digital games. The results obtained through the research reveal that parents complain about the time

their children spend on the Internet. Pointing that their children feel unhappy, sad or nervous when they are off-line, parents state that they experience conflicts with their children. In their study, Lo et al. (2021) have determined that harsh parenting and maltreatment are significantly associated with the internet addiction of children. Expressing that one of the most challenging tasks in the digital age is parenting, Throuvala et al. (2021) draw attention to the necessity of including digital education in the formal education system. Indicating that not only students need to be trained but also the parents need training to be able to be digital individual and parents, the researchers emphasize the importance of establishing a systematic cooperation between adolescent children and schools, families and the state (Throuvala et al., 2021). In their study, Kalkim and Sert (2021) also make suggestions regarding the preparation of school-based intervention programs for students and parents in order to enable them to take measures to prevent internet addiction. In this context, the cooperation to be ensured between different stakeholders is considered to be effective in resolving conflicts between parents and their children.

Another result obtained from the research is that the majority of teachers believe that their students are addicted to digital games. Indicating that they actively participate in seminars held on technology, internet and game addiction, the teachers state that they cooperate with the parents of students with digital game addiction. Expressing that digital game addiction increases the stress of students, teachers state that it makes the students aggressive, reduces their communication with the surrounding, and drives them to a sedentary life. The results obtained reveal that teachers have high levels of internal and external awareness on digital game addiction. During the research, the problems experienced by teachers in the classroom setting with the students, whom the teachers are considered as addicted to digital games, have also been questioned. The results show that students, who are addicted to digital games, have problems in communicating with their peers in the classroom and exhibit maladaptive behaviors. Similarly, it is stated that students with internet and digital game addiction experience problems such as sleep deprivation, distraction, absentmindedness, and fatigue. Indicating that their students addicted to digital games exhibit irritable, impatient, and petulant behaviors, teachers state that they cooperate with parents to support their students. Carli et al. (2013) point to the significant relationship between pathological internet use and depression, anxiety, obsessive-compulsive symptoms, hostility and aggression. The study conducted by Seok et al. (2018) concludes that the greater the internet addiction in adolescents, the greater changes experienced by them both physically and

mentally and they exhibit changes and anger in their moods although they are quiet and shy. In the study, it has been determined that after becoming addicted to games, the adolescents exhibit aggressive and obsessive behaviors, and they experience changes in their sleeping and eating habits, a decrease in parental relationships, and a change in their daily lives. Drawing attention to the increasing digital game addiction among children, Keya et al. (2020) underline that anxiety also increases in people due to the detrimental effects of addiction on health and social life. Besides, in their study that they carried out with teachers, Karadağ and Kılıç has determined that technology addiction causes students suffer from low academic achievements and difficulty in communicating with their surroundings. The results show that students with internet addiction are negatively affected physically, mentally and psychologically.

During the last stage of the research, it has been aimed to determine the views of the students about their internet and digital game addiction levels. The results reveal that the majority of the students use the internet actively. Similarly, the majority of students use the internet for 3 hours or over per day. This result supports the views of the parents. More than half of the students participated in the research state that they spend 3 hours or more a day playing games on the Internet. The vast majority of students believe that they use the internet safely. While parents state that they and their children need training on safe use of the internet, the majority of children argue that they do not need training. Students, who state that they use the internet for educational purposes such as doing homework, conducting research, listening to music, watching movies and documentaries, believe that they can protect themselves from cyber threats. This shows that parents and children have different views on internet and digital game addiction. The study conducted by Hernán-García et al. (2021), underlines that parents consider that the overuse of internet cause a decrease in their children's face-to-face communication, physical, sports and game activities, while children consider that the internet provides opportunity for interacting with others, playing games, learning, communicating, and having fun. While parents focus on the risks of the internet, children emphasize the possibilities and opportunities offered by the internet. The results obtained by Hernán-García et al. (2021) support the findings of this study. For studies to be conducted in the future, it is recommended to further discuss the perceptions of parents and children about internet use and their awareness on cyber threats and malicious websites. Similarly, it is recommended to support safe internet use and digital parenting by developing digital training programs for both parents and students.

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