Investigation of University Students' Awareness of Digital Game Addiction

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Abstract: Today's digital games attract the attention of many people from various age groups. Some sources suggest that acquaintance with digital games is as low as three years old. When digital games are evaluated from a general perspective, it is seen that the largest user group is individuals in adolescence and youth period. Individuals at this age spend most of their time playing digital games. However, playing digital games for uncontrolled and excessive periods causes some physical and mental negative effects on both children and adults over a long period of time. In the long run, such excessive use turns into an important problem, such as digital game addiction. Digital game addiction, which is considered a behavioral addiction, is defined as a situation in which digital games cause various changes and deteriorations in daily life as a result of the inability to control the desire of individuals to play digital games. In this context, it is crucial to identify and increase the awareness of young people who spend more time with digital games and are at risk of digital game addiction. In this research, the awareness of university students about digital game addictions was examined. The research sample consists of university students studying at various education levels. Descriptive statistics, independent samples t-tests, and chi-square tests were used in the analysis of the study, which was designed with the survey model, one of the quantitative research methods. As a result of the research, it was found out that digital games are generally used for entertainment and spending time purposes, women have a higher level of awareness than men, and there is a significant relationship between gender and the device where digital games are played. The obtained findings were compared with the studies in the literature. In line with the results, some suggestions were presented.

Keywords: Digital game addiction, Awareness, University students

Citation: Hebebci, M.T., Bertiz, T., & Alan, S. (2022). Investigation of University Students' Awareness of Digital Game Addiction. In A. Ben Attou, M. L. Ciddi, & M. Unal (Eds.), *Proceedings of ICSES 2022--International Conference on Studies in Education and Social Sciences* (pp. 675-686), Antalya, Türkiye. ISTES Organization.

Introduction

Gaming activities that in the past were usually carried out face-to-face and interactively in open spaces or playgrounds have turned into virtual activities done through game consoles, computers, or mobile devices with the development of technology in recent years (Dursun & Eraslan-Çapan, 2018; Horzum et al., 2008). In parallel with the development of technology, the platforms on which digital games are played have been differentiated in terms of the number and features of the game participants and categorized according to these differences. Digital games are named video games, mobile games, console games, computer games, and online games according to the environment and vehicle they are played, while they are named as single-player games played alone, multiplayer games played against artificial intelligence or with other real players according to the number of players. (Bozkurt, 2014). Digital games have a vital place in people's lives with various features such as sound, reality, visuality, the interaction between players, and the advantage of accessibility brought by mobile technology.

There are controversial views on digital games' positive and negative effects in the literature (Ferguson, 2007; Hebebci, 2022). Granic et al. (2014) stated that digital games could have cognitive, emotional, social, and motivational benefits. They also have many positive effects, such as improving problem-solving skills (Kim & Smith, 2015), increasing course success (Prot et al., 2014), improving motor skills (Lin & Hou, 2015), supporting decision-making skills (Kim & Smith, 2017), and getting away from problems (Kneer et al., 2014). Besides, some other studies reported that digital games contribute to emotional relaxation when played in moderation (Prot et al., 2014; Green & Bavelier 2003). However, in addition to these positive effects, playing digital games uncontrolled and for a long time causes physical problems such as the low back, neck, back pain, burning and irritation in the eyes, and fatigue (Ögel, 2012; Ministry of Health, 2018). Young people especially show great interest in games, which are users of almost all ages, and the time they spend on the game is gradually increasing (Gentile 2009, Rideout et al., 2010).

The competition in the field of digital games (Yalçın & Bertiz, 2019) obscures the boundaries of reality and virtuality of digital games and causes individuals to immerse themselves in this artificial world (Timisi, 2003). The immersion and diversity provided by digital games enabled individuals to spend more time on these platforms, bringing the concept of digital game addiction to the agenda (Gentile & Anderson, 2006; Lieberman et al., 2009; Griffiths & Meredith, 2009). Digital game addiction has been defined by Grüsser and Thalemann (2006) as the uncontrolled use of digital tools and behavioral addiction. Although digital gaming addiction is not considered a disease by current diagnostic systems, when the Diagnostic and Statistical E-Book of Mental Disorders-5 (DSM 5) is examined, it is seen that digital gaming addiction is considered an internet gaming disorder (APA, 2013). More studies are needed for it to be considered a disease.

When the process of playing digital games reaches the level of addiction, it can cause various important problems such as attention disorder (Hyun et al., 2015), decrease in academic achievement (Gentile, 2009), loneliness,

dissatisfaction with life, fear, depression (Mentzoni et al., 2011; Anderson et al., 2007), the tendency to violence (Fisher et al., 2010), decrease in social behaviors (Greitemeyer & Mügge, 2014), sleep problems (Bruni et al., 2015). Moreover, considering that individuals from all age groups can be addicted to digital games (Gentile, 2009), digital game addiction is a critical issue that should be highlighted and researched. Hence, individuals need to be conscious and aware of digital game addiction.

The literature review suggests that there are studies focusing on digital game addiction and awareness from different aspects. However, in the literature, there are scale development studies to determine awareness of digital game addiction (Tekkurşun Demir & Cicioğlu, 2020; Lemmens et al., 2009). In the study of Can and Demir (2020), the relationship between digital game addiction and awareness levels of digital game addiction among athletes and e-athletes was examined. Sezgin et al. (2021) also study the level of awareness of digital game addiction in youth and adults in terms of different variables such as age, gender, and frequency of playing digital games. Similarly, in the international literature, various studies have been conducted, such as trying to determine the underlying causes of digital game addiction in adolescents related to digital game addiction Haghbin et al., (2013) (Wan & Chiou, 2006), examining the relationship between high school students' digital game addictions and their academic performance and self-control levels, studying the relationship between impulsivity and digital game addiction (Irles & Gomis, 2015), determining the effect of virtual reality therapy on digital game addiction (Park et al., 2016).

Although it is not possible to remove digital games from human life in the age of developing technology, a controlled awareness can be created. Çebi and Colonel (2022) stated that awareness should be developed in order to keep young people and children away from the effects of digital game addiction. It is known that high awareness can reinforce and strengthen the relationship between behavior and attitude (Hutton & Baumeister, 1992). Young (2009) argues that it is vital to recognize the symptoms of addiction in terms of stopping the progression of the addiction process. Considering the addictive effect of digital games, awareness studies on digital games are needed to protect individuals from this effect and to enable them to play controlled digital games (Irmak & Erdoğan, 2016). Nevertheless, the studies in the literature on digital game addiction are limited. In this context, this research is considered to be important. In addition, this study is crucial as it is expected to guide new studies in this field. The main purpose of this research is to examine the awareness of university students about digital game addictions. In this direction, the study seeks answers to the following research questions:

1. What are the students' goals for playing digital games?
2. Is there a significant relationship between awareness of digital game addiction and gender?
3. Is there a significant relationship between gender and digital game device?

Method

This study, which aims to determine the awareness of university students about digital game addictions, is a

descriptive study in the survey model.

Study Group

The study group of the research consists of university students studying in different departments and education levels. Demographics about the students are explained in detail in the findings section (see Table 1).

Data Collection Tools

Data were collected through a data collection consisting of two parts. In the first part, there are questions about demographics and the variables used in the research in the personal information form developed by the researchers. In the second part, there is the Awareness of Digital Game Addiction Scale (ADGAS). This scale is a valid and reliable 5-point Likert-type measurement tool that measures the level of awareness of digital game addiction (Demir & Cicoğlu, 2020). The total point for Cronbach's Alpha value of the scale, which consists of two factors, external awareness (EA) and internal awareness (IA), is 0.88.

Data Analysis

The data collected online was first examined in a general way. Invalid data were excluded from the study. Scoring the items in the scale are as follows: 1 "Strongly Disagree," 2 "Disagree," 3 "Undecided," 4 "Agree," and 5 "Strongly Agree." Analyzes were made considering an item that required reverse coding. Then, it was checked whether the data showed a normal distribution or not. In this context, the skewness and kurtosis coefficients were investigated, and parametric and nonparametric tests were used (George & Mallery, 2019). Independent sample t-test and Chi-Square test were used to analyze the data. Additionally, descriptive analysis methods such as frequency, percentage, and standard deviation were used in the data analysis. The results of the analyzes are discussed in the findings section.

Findings

Findings Regarding Participants

Gender, department, duration of gaming, type of the game, and status of playing games on computers and mobile devices regarding the participants are shown in Table 1. Table 1 indicates that approximately 60% of the students participating in the research are female, and 40% are male. Most of the students are computer engineering students. The numbers of students in other departments are close to one another. While approximately 34% of the students participating in the study do not play games, 14.2% play games on computers, 23.1% on mobile devices, and 28.7% on both computers and mobile devices. When examined in terms of the type of the game, approximately 26% of the students prefer war and strategy games. The least preferred game category is educational games.

Table 1. Demographics of the Participants

		f	%
Gender	Female	159	59.3
	Male	109	40.7
Department	Computer Engineering	121	45.1
	Elementary Mathematics Teaching	40	14.9
	Classroom Teaching	35	13
	Turkish Teaching	38	14.1
	Psychological Counseling and Guidance	34	12.6
Type of the game	Adventure	67	21.9
	Sports and racing	57	17.8
	War and strategy	111	34.6
	Educational	33	10.3
	Simulation	52	16.2
Device	Not playing	91	34
	Computer	38	14.2
	Mobile	62	23.1
	Both computer and mobile	77	28.7

Findings Regarding Purposes of Playing Digital Games

The word cloud created for the purposes of participants to play digital games is shown in Figure 1. Students' digital game playing purposes were evaluated under the components of entertainment, spending time, avoiding problems, socialising, and earning money.

Figure 1. Word Cloud for Digital Game Usage Purposes

When Figure 1 is examined, entertainment (f=132) and spending time are among the most frequently mentioned digital game usage purposes by students. Other purposes include avoiding problems (f=46), socialising (f=16), and earning money (f=9).

Examining Awareness of Digital Game Addiction by Gender

Awareness scores of students for digital game addiction were examined in terms of gender. The independent samples t-test results are shown in Table 2.

Table 2. t-test Results of ADGAS Scores by Gender

Factors	Gender	N	$\bar{X}$	S	df	t	p
Internal Awareness	Female	159	17.4	4.61	266	6.13	0.00
	Male	109	13.6	5.50			
External Awareness	Female	159	25.9	6.75	266	4.55	0.00
	Male	109	21.8	7.82			
Total of ADGAS	Female	159	43.4	10.91	266	5.47	0.00
	Male	109	35.5	12.49			

Students' awareness of digital game addiction differs by gender in terms of IA ($t_{(266)}$=6.13, p<.01), EA ($t_{(266)}$=4.55, p<.01), and total ADGAS ($t_{(266)}$=5.47, p<.01). Mean awareness scores related to digital game addiction were significantly higher in favor of female students in terms of across the scale ($\bar{X}_{female}$=43.4; $\bar{X}_{male}$=35.5), IA ($\bar{X}_{female}$=17.4; $\bar{X}_{male}$=13.6), and EA ($\bar{X}_{female}$=25.9; $\bar{X}_{male}$=21.8) factors. This can be interpreted as female students' awareness of digital game addiction being higher than that of male students.

Examining the Relationship Between Gender and Digital Game Devices

The Chi-square test was used to determine the relationship between gender and the digital game tool (Computer, laptop, mobile device etc.) (see Tablo 3).

Table 3. Chi-Square Test Results Showing the Relationship Between Gender and Device

Gender	Not playing games		Computer		Mobile Device		Both		Total	
	n	%	n	%	n	%	n	%	n	%
Female	71	44.7	4	2.5	46	28.9	38	23.9	**159**	**100**
Male	20	18.3	34	31.2	16	14.7	39	35.8	**109**	**100**
Total	91	34	38	14.2	62	23.1	77	28.7	**268**	**100**

χ^2=59.54 df=3 p=0.00

Based on the figures in Table 3, about half of the female students participating in the research do not play games

(44.7%), while most male students (81.7%) play games. Besides, 32.2% of male students only play games on the computer, while 35.8% play games on both mobile platforms and computers. Males usually play games on computers, and women generally play on mobile devices. The results of the Chi-Square test conducted to determine whether there is a relationship between the gender of the students and the devices they play digital games with report that there is a significant relationship between gender and the device on which they play digital games (χ^2=59.54; p<0.01). In other words, gender has caused differentiation in the devices on which students play digital games.

Discussion and Conclusion

In this study, which investigated the awareness levels of university students for digital game addiction, it was concluded that students' awareness of digital game addiction was significant by gender. According to the results, significant results were found in favor of women. The high level of awareness of female students about digital game addiction may be due to the fact that women can play digital games in a controlled manner without making them addicted (Sezgin et al., 2021). There are studies showing similar results in the literature (Hazar, 2016; Pala & Erdem, 2016; Gökçearslan & Durakoğlu, 2014). Besides, this result can be evaluated as a result of women playing digital games less than men (Christakis et al., 2004; Hastings et al., 2009; Sherry et al., 2003). As a matter of fact, it is thought that they do not play digital games because they are aware of the negative effects of digital games.

Another finding obtained as a result of the study is the determination of students' digital game playing purposes. When the results were examined, it was concluded that most of the students played games for fun and spending time. Considering that digital games are a fun learning environment (Casby, 2003), it can be thought that playing games for entertainment and spending time is a natural outcome. As a result of the studies of Toran et al. (2016) and Yumrukuz (2021), it was concluded that digital games are played for fun and spending time. In the literature, games are also played for purposes such as leisure activities (Tarlakazan & Yavuz, 2018), and entertainment (Uluyol et al., 2014).

When the relationship between the gender of the students and the device they play games with is examined, it is concluded that women play more games on mobile devices and men play more games on computers. Additionally, female students play fewer games than males. However, when it comes to mobile games, it is noteworthy that women play more games than men. Similar results were found in studies conducted in the USA and Japan. In the USA, the proportion of women playing mobile games in 2021 is 55%, and 45% of men (Clement, 2021). 52% of this rate is women in 2022, and 48% are male (Kunst, 2022). More than half (55%) of mobile-first players in Japan are women, while the rest (45%) are men (Gu, 2019).

In terms of games played on the computer, male students have a considerably higher rate than female students. The number of people playing games with both devices is close to each other. Considering that those who use

computers while playing games are more addicted than those who play smartphones (Semerci & Balcı, 2020), it can be concluded that male students play more games because they are more addicted.

Suggestions

Awareness activities can be designed for individuals and parents that digital games are beneficial to be played in a controlled manner, but excessive use causes physical, psychological, and social problems. Comparisons can be made by examining the digital game awareness status of individuals in different age groups. Studies can be conducted to examine the reasons behind the high digital game awareness of women.

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