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Identifying Factors Encouraging University Students to Play Computer Games

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Abstract

The study employed a quantitative research design using the general survey model to understand a large research population without intervening in variables. It involved 552 teacher candidates from an education faculty in Eastern Anatolia, Turkey, with 142 males and 410 females participating voluntarily. Data were collected using the Computer Game Motivation Scale (CGMS) with 17 items and five sub-dimensions (Concentration, Enjoyment, Escape, Learning, and Socialization), assessed on a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The reliability coefficients (Cronbach's Alpha) ranged from .77 to .95 for scale structures and were .94 for the entire scale. Internal consistency coefficients for sub-dimensions varied from .78 to .94, with .93 for the overall scale. The information form included gender, department/unit, perceived income status, and place of residence inquiries. Male students had higher gaming addiction scores than females, and those in verbal programs scored higher than numerical programs. 2nd and 3rd-year students had higher gaming addiction scores, and students with a perception of very poor income also scored higher in gaming addiction. Interestingly, the place of residence did not significantly affect gaming

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addiction, likely due to widespread internet and technology access. In summary, this study highlighted how gender, program, class level, and income perception impact gaming addiction among university students, while place of residence does not seem to play a significant role.

Keywords: *Game, Computer games, Game addiction, Computer game addiction*

Introductıon

Games have their roots in human history (Onur, 1992). Throughout the historical process, the lifestyles and needs of societies have shaped the games people play (Kahya Canlı & Demirarslan, 2020). Games, which have an important function in individual development, have undergone changes in terms of form, number of participants, equipment, and environment parallel to technological advancements of our time (Başal, 2007). For instance, during the Industrial Revolution, industrial games were preferred, while digital games have taken the forefront in today's society.

With the advancement of technology in the globalized world, outdoor games have been transferred to indoor environments. In other words, the widespread use of the internet and digital platforms has influenced the shift of games from street settings to digital platforms (Kahya Canlı & Demirarslan, 2020; Soyöz Semerci, 2020). According to the data from the Turkish Statistical Institute (2021), 36.0% of children between the ages of 6 and 15 play digital games, and 94.7% of these children spend time on these gaming platforms almost every day or at least once a week. According to the Gaming in Turkey (2021) report, 78% of adults in Turkey play mobile games, with the highest number of players falling in the age group of 21-35.

According to Glasser (1998), games, which are an integral part of the learning process in all stages of life, are mostly preferred for entertainment purposes. Games assist in the development of individuals' cognitive skills and problem-solving abilities, but they can also have negative effects such as addiction, obscenity, and a tendency towards violence (Güvenliweb.org, 2017). In addition to these effects, games also influence people's social lives across all age groups (Soyöz Semerci, 2020).

Excessive internet use and spending too much time playing digital games have different psychological, sociological, and physiological effects on individuals. Addiction, defined as the excessive and uncontrolled use of something, refers to the inability to quit or continue using a substance despite causing physical, psychological, and social problems (Saglik.gov.tr, 2020). In the literature, gaming addiction has been defined as the inability to control the duration of game playing, continued gaming despite negative consequences, loss of interest in other

activities, and experiencing psychological withdrawal symptoms (Yalçin Irmak & Erdoğan, 2016). Young (2009) emphasized the importance of users paying attention to warning signs in the game and discussed how the addiction process starts with the game, with users often fantasizing about playing the game even when they are not playing it.

Individuals who are addicted to gaming may experience psychological problems such as lying or hiding their gaming habits, loss of interest in other activities, defensiveness, and anger, as well as using the game as an escape mechanism (Young, 2009). Someone addicted to playing digital games may also face difficulties in interacting with their social environment, experience sleep disturbances, and hygiene issues (Werdini et al., 2021).

Research on digital game addiction has found that variables such as gender, mother's education level, and income level have an impact on game addiction. The majority of studies conducted on digital game addiction since the 2000s have focused on middle school and high school groups (Şimşek & Karakuş Yılmaz, 2020).

Literature Review

When examining studies conducted on university students, it has been found that males are more prone to addiction based on gender, place of residence does not have an impact, addiction levels differ depending on the type of games played, and factors such as maternal education level, maternal employment status, and income level affect the level of addiction (Bekir, 2018; Çavuş et al., 2016; Öz, 2021; Toker & Baturay, 2016). It has been indicated that university students' satisfaction with their leisure time is inversely proportional to digital game addiction (Satılmış et al., 2023), and that cigarette and alcohol use can increase digital game addiction (Kocaay et al., 2022).

Research on the relationship between individuals who play digital games and psychosocial and behavioral problems has shown that violent digital games can have various negative effects. The findings of these studies have associated violent digital games with psychosocial problems such as loneliness (Wack & Tantleff-Dunn, 2009), low life satisfaction and depression (Mentzoni et al., 2011). Additionally, such games can contribute to behavioral problems such as aggression (Demirtaş Madran

& Ferligül Çakilci, 2014; Bluemke et al., 2010; Anderson & Carnagey, 2009; Wang et al., 2009; Möller & Krahé, 2009; Olson et al., 2009; Anderson et al., 2008; Polman et al., 2008; Bartholow et al., 2005; Carnagey & Anderson, 2005; Bilgi, 2005; Anderson et al., 2004; Gentile et al., 2004), tendency towards violence (Williams et al., 2011; Fischer et al., 2010), increased hostile feelings (Gentile et al., 2004; Hasan et al., 2013), and decreased positive social behaviors (Greitemeyer & Mügge, 2014) (Gentile et al., 2004; Mentzoni et al., 2011). Attention problems and desensitization to violence (Bartholow et al., 2005; Bushman & Anderson, 2009; Engelhardt et al., 2011; Hummer et al., 2010; Montag et al., 2012; Wang et al., 2009) have also been associated with violent digital games. Players who engage in problematic digital game playing have scored higher in various psychopathological symptoms (somatization, obsession, interpersonal sensitivity, depression, anxiety, anger, phobic, paranoid, and psychotic) compared to regular players (Starcevic et al., 2011). These findings indicate that violent digital games may contribute to psychosocial and behavioral problems in some individuals. However, it should be noted that the effects of games are also influenced by individual factors, as each person's reactions may vary.

The increasing number and dissemination of these studies are crucial for interpreting the obtained findings and their implications. The aim of this study is to examine factors that motivate university students to play computer games and explore them based on various demographic characteristics.

Research Questions

In this study, the following research questions have been addressed:

1) Do computer game motivation scores vary significantly based on gender?
2) Do participants' computer game motivation scores differ significantly depending on the enrolled program?
3) Do computer game motivation scores vary significantly according to the grade level?
4) Is the perceived income status a significant predictor of computer game motivation?
5) Is the place of residence a significant predictor of computer game motivation?

Methodology

Research Design

In this study, the general survey model which is a quantitative research design, was used. The general survey model is conducted to obtain a general understanding of the research population, which consists of a large number of items. The purpose is to describe the phenomenon, situation, object, or individual under investigation within its existing conditions. The researcher does not intervene or manipulate any variables. The emphasis is on observing and determining the phenomenon as it is (Karasar, 2015).

Population and Sample

The research includes 552 teacher candidates enrolled in an education faculty affiliated with a state university in the Eastern Anatolia region of Turkey. Out of these students, 142 are male and 410 are female, and they voluntarily participated in the research.

Data Collection Tools

The Computer Game Motivation Scale (CGMS) was used to collect data (Munusturlar Munusturlar, 2018). The CGMS consists of 17 items and five sub-dimensions: Concentration, Enjoyment, Escape, Learning, and Socialization. The scale, structured in a five-point Likert format, has response options ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). In Table 1, the reliability coefficients (Cronbach's Alpha) ranged from .77 to .95 for scale structures and were .94 for the entire scale. Internal consistency coefficients for sub-dimensions varied from .78 to .94, with .93 for the overall scale. The information form includes questions regarding the students' gender, department/unit, perceived income status, and place of residence.

Table 01
Reliability coefficients for computer games motivation scale

Dimensions	Number of Items	Original Scale N=943 Cronbach's Alpha	Current Practice N=552 Cronbach's Alpha
Concentration	4	.774	.843
Entertainment	4	.959	.935
Escapism	3	.846	.879
Learning	4	.922	.919
Socialization	2	.857	.778

Total	17	.949	.929

The reliability coefficients for the Computer Games Motivation Scale, including the original scale and its subscales, are presented in Table 1. The results indicate that both the scale and its subscales are sufficiently reliable, and the obtained findings can be used to address the research questions. Internal consistency coefficients, represented by Cronbach's Alpha values in the table, are calculated for each dimension. These values reflect the internal consistency of the scale and subscales. A high Cronbach's Alpha value (typically considered as 0.7 or higher) indicates the reliability of the scale or subscale, as well as the consistent measurement of items. Therefore, it can be concluded that the utilized scales and subscales in this study are reliable, allowing for the reliable analysis of the obtained results.

Analysis of Data

Data obtained from the students were analyzed using the Statistical Package for the Social Sciences (SPSS) software program. Descriptive statistics were utilized in these analyses to determine the students' perceptions regarding the sub-dimensions of concentration, enjoyment, escapism, learning, and socialization. Descriptive statistics are statistical methods employed to describe the fundamental characteristics of a dataset. These analyses were employed to comprehend students' opinions regarding specific sub-dimensions and provide a general analysis of the data.

Findings

The findings regarding the participants' demographic characteristics are presented in Table 2. A total of 552 students participated in the study, including 410 females and 142 males. Among these students, 130 were enrolled in programs that admit students based on numerical scores, while 442 were enrolled in programs that admit students based on verbal scores. Furthermore, among these participants, 187 were first-year students, 73 were second-year students, 199 were third-year students, and 93 were fourth-year students. Additionally, based on their perception of income status, the students were grouped into three categories: Good (107), moderate (387), and poor (58). Of the participants, 386 resided in dormitories, while 166 lived in their own homes or with their families.

Table 02
Results on students' demographic characteristics

Demographic Characteristics		N	%
Gender	Female	410	74.3
	Male	142	25.7
Department	Science	130	23.6
	Literature	422	76.4
Grade	1st Grade	187	33.9
	2nd Grade	73	13.2
	3rd Grade	199	36.1
	4th Grade	93	16.8
Perceived Income	Good	107	19.4
Status	Moderate	387	70.1
	Poor	58	10.5
Residence	Dormitory	386	69.9
	Home	166	30.1

The scores of students on CGMS and its sub-dimensions are provided in Table 3. When the scores from each dimension of the scale were converted to a percentage system, it was observed that the sub-dimension and total score averages were slightly above the moderate level (54.39). Particularly, higher average scores were observed in the sub-dimensions of entertainment (63.13), learning (56.90), and socialization (57.83). These findings indicate that the students' evaluations of the sub-dimensions are generally above the moderate level, and higher scores are given, especially in the areas of entertainment, learning, and socialization.

Table 03
Results regarding the students' CGMS and its sub-dimensions

Dimensions	N	Min.	Max.	Mean	Standard deviation	Score based on 100 system
Concentration	552	4	20	9.83	3.841	49.13
Entertainment	552	4	20	12.63	4.592	63.13
Escapism	552	3	15	6.62	3.148	44.12
Learning	552	4	20	11.38	4.235	56.90
Socialization	552	2	10	5.78	2.269	57.83
Total	552	17	85	46.23	13.955	54.39

The independent samples t-test results for the computer game motivation scores of participants according to gender are provided in Table 4. Independent samples t-test was used to reveal the differences in computer game motivation scores between male and female students. Although the score of male participants (50.67, SD=16.21) is higher than the scores of female participants (44.70, SD=12.75), it can be said that the difference is statistically significant (t(550)=-4.472, p < .001).

Table 04
Independent group t-test results regarding participants' reasons for participating in computer games according to gender

Participation motivations (reasons for participation)	Gender	N	$\bar{X}$	SD	df	t	p
Concentration	Female	410	9.67	3.77	550	-1.643	.101
	Male	142	10.28	4.01			
Entertainment	Female	410	12.03	4.32	550	-5.282	.000*
	Male	142	14.34	4.92			
Escapism	Female	410	6.27	2.92	550	-4.444	.000*
	Male	142	7.61	3.56			
Learning	Female	410	11.10	4.00	550	-2.705	.007**
	Male	142	12.20	4.77			
Socialization	Female	410	5.63	2.16	550	-2.758	.006**
	Male	142	6.23	2.51			
Total	Female	410	44.70	12.75	550	-4.472	.000*
	Male	142	50.67	16.21			

*p < .001. **p <.01

When examining the independent samples t-test results for the sub-dimensions of participation motivators according to gender. it was found that there was no statistically significant difference in the Concentration sub-dimension (t(550) = -1.643. p > .01). However. it can be said that there is a statistically significant difference in the sub-dimensions of Entertainment (t(550) = -5.282. p < .001). Escape (t(550) = -4.444. p < .001). Learning (t(550) = -2.705. p < .01). and Socialization (t(550) = -2.758. p < .01).

The independent samples t-test results for the reasons for participation in computer games according to the type of program participants are

provided in Table 5. Although the mean score of participants studying in the verbal group (48.08) is higher than the mean score of participants studying in the numerical group (45.66). it cannot be said that there is a statistically significant difference between them (t(550) = 1.734. p > .01).

Table 05
Independent group t-test results regarding the reasons for participation in computer games according to the program score type of the participants.

Participation motivations (reasons for participation)	Department	N	$\bar{X}$	Sd	df	t	p
Concentration	Science	130	10.37	4.11	550	1.848	.065
	Literature	422	9.66	3.74			
Entertainment	Science	130	13.31	4.51	550	1.944	.052
	Literature	422	12.41	4.60			
Escapism	Science	130	6.79	3.36	550	.723	.470
	Literature	422	6.56	3.08			
Learning	Science	130	11.99	4.14	550	1.888	.059
	Literature	422	11.19	4.25			
Socialization	Science	130	5.62	2.14	550	-.917	.360
	Literature	422	5.83	2.31			
Total	Science	130	48.08	14.04	550	1.734	.083
	Literature	422	45.66	13.89			

p>.05

When examining the sub-dimensions of participation motivators according to the type of program enrolled. no statistically significant difference was observed in any of the sub-dimensions: Concentration (t(550) = 1.848. p > .01). Entertainment (t(550) = 1.944. p > .01). Escape (t(550) = .723. p > .01). Learning (t(550) = 1.888. p > .01). and Socialization (t(550) = -.917. p > .01). Except for the Socialization sub-dimension. students enrolled in the verbal program had higher average scores in all other sub-dimensions.

Descriptive statistics results for the reasons for participation in computer games according to the students' grade levels are provided in Table 6. It is observed that the total score averages range from 44.26 to 50.64 depending on the grade levels. Regarding the sub-dimensions of participation

motivators. the average scores for the Concentration sub-dimension range from 9.52 to 10.77 according to grade levels. for the Entertainment sub-dimension. the average scores range from 11.77 to 13.68. for the Escape sub-dimension. the average scores range from 6.20 to 7.33. for the Learning sub-dimension. the average scores range from 10.32 to 12.53. and for the Socialization sub-dimension. the average scores range from 5.20 to 6.33.

Table 06

Descriptive statistics on the reasons for participating in computer games according to the class level of the participants.

Participation motivations (reasons for participation)	Grade	N	$\bar{X}$	Ss
Concentration	1st Grade	187	9.70	3.18
	2nd Grade	73	10.77	4.50
	3rd Grade	199	9.75	3.89
	4th Grade	93	9.52	4.32
	Total	552	9.83	3.84
Entertainment	1st Grade	187	12.82	4.13
	2nd Grade	73	13.68	4.55
	3rd Grade	199	12.45	4.78
	4th Grade	93	11.77	4.96
	Total	552	12.63	4.59
Escapism	1st Grade	187	6.20	2.79
	2nd Grade	73	7.33	3.22
	3rd Grade	199	6.55	2.97
	4th Grade	93	7.05	3.94
	Total	552	6.62	3.15
Learning	1st Grade	187	12.11	3.67
	2nd Grade	73	12.53	3.78
	3rd Grade	199	10.32	4.41
	4th Grade	93	11.28	4.75
	Total	552	11.38	4.23
Socialization	1st Grade	187	6.22	1.72
	2nd Grade	73	6.33	2.30
	3rd Grade	199	5.20	2.38
	4th Grade	93	5.72	2.67

	Total	552	5.78	2.27
Total	1st Grade	187	47.05	11.47
	2nd Grade	73	50.64	15.02
	3rd Grade	199	44.26	14.13
	4th Grade	93	45.34	16.38
	Total	552	46.23	13.95

Table 7 presents the results of the ANOVA regarding the reasons for participation in computer games based on the participants' grade levels. A significant difference was observed among the total scores of participants' motivations for engaging in computer games based on their grade levels ($F(3\text{-}548) = 4.164$. $p < .01$). According to the Tukey test conducted in light of these findings. it can be inferred that the difference arises from participants in the 2nd and 3rd grades.

Table 07
The ANOVA results of participants' reasons for participating in computer games by grade level

Participation motivations (reasons for participation)		Sum of Squares	df	Mean Square	F	p	Tukey
Concentration	Between Groups	77.975	3	25.992	1.770	.152	
	Within Groups	8049.330	548	14.689			
	Total	8127.304	551				
Entertainment	Between Groups	162.249	3	54.083	2.587	.047**	2-4
	Within Groups	11457.126	548	20.907			
	Total	11619.375	551				
Escapism	Between Groups	88.530	3	29.510	3.010	.030**	1-2
	Within Groups	5371.816	548	9.803			
	Total	5460.346	551				
Learning	Between Groups	423.516	3	141.172	8.179	.000*	1-3.2-3
	Within Groups	9458.593	548	17.260			
	Total	9882.109	551				

Socialization	Between Groups	127.149	3	42.383	8.574	.000*	1-3. 2-3
	Within Groups	2708.764	548	4.943			
	Total	2835.913	551				
Total	Between Groups	2391.611	3	797.204	4.164	.006*	2-3
	Within Groups	104906.708	548	191.436			
	Total	107298.319	551				

*p<.01. **p<.05

When examining the sub-dimensions of the motives for participation in computer games according to the participants' grade levels. significant differences were found among the scores of the sub-dimensions except for Concentration ($F(3\text{-}548) = 1.770$. $p > .01$). Specifically. significant differences were observed in the sub-dimensions of Entertainment ($F(3\text{-}548) = 2.587$. $p < .05$). Escapism ($F(3\text{-}548) = 3.010$. $p < .05$). Learning ($F(3\text{-}548) = 8.179$. $p < .01$). and Socialization ($F(3\text{-}548) = 8.574$. $p < .01$). These differences were observed between 2nd and 4th-grade students in the Entertainment sub-dimension and between 1st and 2nd-grade students in the Escapism sub-dimension. Regarding the Learning and Socialization sub-dimensions. the differences were observed between 1st and 3rd-grade students and between 2nd and 3rd-grade students in a similar manner.

Descriptive statistics results regarding the motives for participation in computer games based on participants' income perception are presented in Table 8. It can be observed that the mean total scores for students' income perceptions range from 45.308 to 51.345. In terms of the sub-dimensions of motivational factors for the Concentration sub-dimension. the mean scores range from 9.631 to 10.914 according to income perception. For the Entertainment sub-dimension, the mean scores range from 12.297 to 14.379 based on income perception. Regarding the Escapism sub-dimension, the mean scores range from 6.287 to 8.759 depending on income perception. For the Learning sub-dimension, the mean scores range from 11.318 to 11.862 based on income perception. Lastly, for the Socialization sub-dimension, the mean scores range from 5.431 to 6.028 according to income perception.

Table 08
Descriptive statistics on the reasons for participating in computer games according to the income status perception of the participants.

Participation motivations (reasons for participation)	Income status perception	N	$\bar{X}$	Ss
Concentration	I. Very Poor	58	10.914	4.29722
	II. Medium	387	9.631	3.55423
	III. Very Good	107	9.944	4.46545
	Total	552	9.826	3.84059
Entertainment	I. Very Poor	58	14.379	5.35356
	II. Medium	387	12.297	4.22024
	III. Very Good	107	12.860	5.21690
	Total	552	12.625	4.59214
Escapism	I. Very Poor	58	8.759	4.08811
	II. Medium	387	6.287	2.84449
	III. Very Good	107	6.654	3.18636
	Total	552	6.618	3.14800
Learning	I. Very Poor	58	11.862	5.36214
	II. Medium	387	11.326	4.02871
	III. Very Good	107	11.318	4.30357
	Total	552	11.380	4.23496
Socialization	I. Very Poor	58	5.431	2.74093
	II. Medium	387	5.767	2.16966
	III. Very Good	107	6.028	2.33294
	Total	552	5.783	2.26867
Total	I. Very Poor	58	51.345	18.10355
	II. Medium	387	45.308	12.52732
	III. Very Good	107	46.804	15.70929
	Total	552	46.232	13.95470

The ANOVA results regarding the motives for participation in computer games based on participants' income perception are presented in Table 9. A significant difference was observed among the total scores of participants' motivations for engaging in computer games based on their income perception ($F(3\text{-}548) = 4.900$. $p < .01$). According to the Tukey test conducted. it can be inferred that the difference arises from participants with a perception of Very Poor income status compared to participants with a perception of Moderate income status.

Table 09
The ANOVA results regarding the motives for participation in computer games based on participants' income perception

Participation motivations (reasons for participation)		Sum of Squares	df	Mean Square	F	p	Tukey
Concentration	Between Groups	84.912	2	42.456	2.898	.049**	I-II
	Within Groups	8042.393	549	14.649			
	Total	8127.304	551				
Entertainment	Between Groups	225.996	2	112.998	5.445	.005*	I-II
	Within Groups	11393.379	549	20.753			
	Total	11619.375	551				
Escapism	Between Groups	308.357	2	154.178	16.429	.000*	I-II. I-III
	Within Groups	5151.989	549	9.384			
	Total	5460.346	551				
Learning	Between Groups	15.039	2	7.520	.418	.658	
	Within Groups	9867.070	549	17.973			
	Total	9882.109	551				
Socialization	Between Groups	13.703	2	6.852	1.333	.265	
	Within Groups	2822.210	549	5.141			
	Total	2835.913	551				
Total	Between Groups	1881.929	2	940.964	4.900	.008*	I-II

Within Groups	105416.390	549	192.015
Total	107298.319	551	

*p<.01. **p<.05

When examining the sub-dimension scores of motivational factors for participation in computer games based on participants' perception of income status. no significant differences were found for the Learning dimension ($F(2\text{-}549) = 0.265$. $p < 0.05$) and the Socialization dimension ($F(2\text{-}549) = 1.333$. $p < 0.05$). However. significant differences were observed for the Concentration dimension ($F(2\text{-}549) = 2.898$. $p < 0.05$). the Entertainment dimension ($F(2\text{-}549) = 5.445$. $p < 0.01$). and the Escape dimension ($F(2\text{-}549) = 16.429$. $p < 0.01$). These differences were observed between the income perception categories of very poor and average for the Concentration and Entertainment dimensions. while for the Escape dimension. differences were observed between the income perception categories of very poor and average. as well as very poor and very good.

The independent group t-test results regarding the reasons for participation in computer games based on participants' place of residence are presented in Table 10. The mean total score of participants living with their family (45.89) is slightly lower than the mean total score of participants living with friends or in their own homes (46.37). However. it cannot be concluded that there is a statistically significant difference between them ($t(550) = -0.375$. $p > 0.05$).

Table 10
Independent group t-test results on the reasons for participation in computer games based on participants' place of residence.

Participation motivations (reasons for participation)	Residence	N	$\bar{X}$	Ss	df	t	p
Concentration	Family residence	166	10.0301	3.93342	550	.818	.414
	Friend's or Own Home	386	9.7383	3.80177			

Entertainment	Family residence	166	12.7289	4.60882	550	.348	.728
	Friend's or Own Home	386	12.5803	4.59022			
Escapism	Family residence	166	6.3434	3.03058	550	-1.344	.180
	Friend's or Own Home	386	6.7358	3.19376			
Learning	Family residence	166	10.9940	4.42650	550	-1.407	.160
	Friend's or Own Home	386	11.5466	4.14468			
Socialization	Family residence	166	5.7952	2.42091	550	.085	.932
	Friend's or Own Home	386	5.7772	2.20321			
Total	Family residence	166	45.8916	15.03774	550	-.375	.707
	Friend's or Own Home	386	46.3782	13.48003			

p>.05

When looking at the sub-dimensions of motivational factors based on participants' place of residence. no statistically significant differences were found in any of the sub-dimensions: Concentration ($t(550) = 0.818$. $p > 0.05$). Entertainment ($t(550) = 0.348$. $p > 0.05$). Escape ($t(550) = -1.344$. $p > 0.05$). Learning ($t(550) = -1.407$. $p > 0.05$). and Socialization ($t(550) = 0.085$. $p > 0.05$). However. in the Concentration. Entertainment. and Socialization sub-dimensions. participants living with their family had higher mean scores compared to those living with friends or in their own homes. On the other hand. in the Escape and Learning sub-dimensions. participants living with their family had lower mean scores compared to those living with friends or in their own homes.

Discussion

The findings of the study conducted to determine the factors that motivate university students to play computer games reveal that the average total scores are slightly above the moderate level. In the study. the sub-

dimensions of Entertainment. Learning. and Socialization have higher mean scores. According to the Turkey Gaming Sector 2020 Report prepared by Gaming in Turkey. a Game and Esports Agency. it is stated that gaming durations increased by 30% especially during the pandemic (gaminginturkey.com/tr/2020).

In this study. a significant difference was found in the game addiction scores of students based on gender. where the mean scores of male participants were higher than those of female participants. Similar studies in the relevant literature also show results consistent with these findings (Alfaro et al.. 2009; Şahin & Tuğrul. 2012; Taş. Eker & Anlı. 2014; Alemdağ. Öncü & Yılmaz. 2014; Gökkaya & Deniz. 2014; Sıcak & Başören. 2015; Filiz & Demirhan. 2018; Dursun & Çapan. 2018; Göldağ. 2018; Mallı. 2019; Ayhan & Köseliören. 2019; Demir & Cicioğlu. 2019; Bozkurt & Tamer. 2020; Eren. Özdemir & Osma. 2020; Soyöz-Semerci & Balcı. 2020; Aktaş & Daştan. 2021; Gülbetekin. Güven & Tuncel. 2021).

When examining the independent group t-test results for the sub-dimensions of motivational factors based on gender. it can be stated that. except for the Concentration sub-dimension. there is a statistically significant difference in all other sub-dimensions (Entertainment. Escape. Learning. and Socialization).

Regarding the registered program. the mean scores of participants studying in the verbal group were higher than those of participants studying in the numerical group. but no statistically significant difference was observed between them. This result is parallel to the study conducted by Taş. Eker. and Anlı (2014). When looking at the sub-dimensions of motivational factors based on the type of registered program. no statistically significant difference was found in any sub-dimension. Except for the Socialization sub-dimension. the mean scores of participants enrolled in the verbal program were found to be higher than those of participants enrolled in the numerical program in all other sub-dimensions.

Significant differences were observed in the total scores of participants' motivational factors for computer game participation based on grade level. It is evident that this difference stems from participants in the 2nd and 3rd grades. According to this. as the grade level decreases. participation in computer games increases. In a study by Horzum (2011) examining the levels of computer game addiction among primary school students in relation to various variables. it was found that game addiction was higher among 4th-grade students compared to 5th and 3rd-grade students. Similarly. Erboy (2010) stated that 5th-grade students had higher game addiction scores than 4th-grade students.

When examining the sub-dimension scores of participants' motivational factors for computer game participation based on grade level. a significant difference was observed in all sub-dimensions (Entertainment. Escape. Learning. and Socialization) except for Concentration. These differences were observed between 2nd and 4th-grade students in the Entertainment sub-dimension and between 1st and 2nd-grade students in the Escape sub-dimension. Regarding the Learning and Socialization sub-dimensions. the difference was observed between 1st and 3rd-grade students and between 2nd and 3rd-grade students in a similar manner.

Significant differences were observed in the total scores of participants' motivational factors for computer game participation based on their perceived income status. It is evident that this difference arises from participants whose income status is classified as "Very poor" to "Average". Income status plays an important role in game addiction. Participants who perceive their income status as "Very poor" are more affected by their motivational factors for computer game participation compared to those who perceive their income status as "Good" or "Very good". In a study by Bilgin (2015) on the relationship between middle school students' levels of computer game addiction and their communication skills. it was found that game addiction increases as family income decreases. Similarly. Horzum (2011) found a significant difference based on family income level in their research.

Significant differences were observed in the average scores of the Concentration. Entertainment. and Escape sub-dimensions based on the participants' perceived income status. This difference in the Concentration and Entertainment sub-dimensions is observed between "Very poor" and "Average" income statuses. while in the Escape sub-dimension. it is observed between both "Very poor" and "Average" and "Very poor" and "Very good" income statuses. No significant difference was found in the Socialization and Learning sub-dimensions.

Perceived family income status is an influential variable in game addiction. Students who perceive their family income status as "Very poor" are more negatively affected by game addiction compared to other groups. Perceiving the family income status as "Very poor" may be an indication that the actual income status is also low. This situation may make it difficult for students to access the internet and internet-based technologies. This difficulty may influence the student's inclination towards internet technologies and increase their curiosity about online games. The limitations due to financial constraints may have increased the

appeal of such environments. However. further research on these topics could be a separate study subject.

The independent group t-test results for the total scores and all sub-dimensions related to the reasons for participating in computer games based on the participants' place of residence did not show any statistically significant difference. This result is similar to the study conducted by Bekir (2018). which examined online game addiction levels among university students in terms of emotional schemas. proactive personality. and certain variables. Although no research has been found on the relationship between online game addiction levels and the places of residence of university students when reviewing the literature. a study has been found regarding addiction and places of residence (Brugal et al.. 1999). According to this research. addiction rates are higher in small locations such as cities and districts. In this context. there can be several reasons why the online game addiction levels among university students do not vary based on their places of residence. These reasons may include the availability of computers in every home. the presence of internet cafes in every neighborhood. students studying away from their families. the availability of internet in dormitories and guesthouses. low purchasing power for computers. rapid spread of technology. and the fact that all professions are becoming computer-based (e.g.. architects using computer-aided design. engineers using AutoCAD. accountants using ETA and Netsis programs. teachers using computers for presentations). among many others.

Indeed, in today's world, internet, computers and mobile phones can be used almost everywhere (such as parks, shopping malls, restaurants, cafes, museums, airports, train stations, buses and many similar places) (Doğan & Tosun. 2016; Şar, Tuncay & Horzum, 2015). Students can access the internet and games anytime they want regardless of where they reside. A student without a computer can access online games from an internet cafe while a student with a mobile phone can access online games using their phone. Therefore, in the study, the online game addiction levels among university students may not vary based on their places of residence.

Conclusion

In conclusion, the study on factors motivating university students to play computer games indicates that the average total scores are slightly above the moderate level, with higher mean scores in the sub-dimensions of Entertainment, Learning, and Socialization. The findings also highlight a significant difference in game addiction scores based on gender, with males showing higher scores than females. The study further reveals

variations in motivational factors based on the type of registered program, grade level, and perceived income status. Notably, students in the 2nd and 3rd grades exhibit higher game participation. Income status plays a significant role in game addiction, particularly among participants perceiving their income status as "Very poor." Interestingly, the study does not find statistically significant differences in online game addiction levels based on the participants' place of residence, possibly due to the widespread accessibility of technology. Overall, these findings contribute valuable insights into the complex dynamics of game participation and addiction among university students, suggesting the need for targeted interventions and further research in specific areas, such as income status and its impact on game addiction.

Based on the findings of this study, several recommendations emerge. Firstly, a more detailed examination of the effects of gender and grade level factors on game participation and addiction is suggested. Understanding the influence of these factors on addiction levels and exploring the underlying mechanisms should be pursued comprehensively. Secondly, a more extensive evaluation of the impact of income perception on game participation and addiction is recommended, including an exploration of the relationship between income perception and actual income levels. This will provide a better understanding of how income perception reflects in students' game participation. Thirdly, the effects of residential location can be further investigated through larger sample sizes and studies conducted in diverse regions. Comparisons between different geographical areas and socioeconomic groups can enhance our understanding of the influence of students' residential location on game participation and addiction. Additionally, it is advised to consider factors such as students' access to technology and usage habits in studies examining the effects of game participation and addiction. Understanding the role of these factors in influencing students' game usage and their contribution to the development of addiction can offer valuable insights. Lastly, expanding research beyond university students and including different age groups in studies will provide a more comprehensive perspective on the effects of game participation and addiction. Collectively, these recommendations contribute to the development of more comprehensive and in-depth research in the field of game participation and addiction.

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