https://doi.org/10.7251/EMC2601161D

UDK: 0

Datum prijema rada: 29. avgust 2025.
Submission Date: August 29, 2025
Datum prihvatanja rada: 28. februar 2026.
Acceptance Date: February 28, 2026

Časopis za ekonomiju i tržišne komunikacije
Economy and Market Communication Review

Godina/Vol. **XVI** • Br./No. **I**
str./pp. 161-177

ORIGINALNI NAUČNI RAD / ORIGINAL SCIENTIFIC PAPER

A STUDY ON THE EFFECT OF DIGITAL GAME ADDICTION ON ATTITUDE

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Abstract: *Increased internet access and usage are considered to be one of the most important determinants of behavioral addictions such as digital game addiction. Children and adolescents constitute a high-risk group in terms of digital game addiction. This situation highlights the importance of specifically addressing children and adolescents in preventive interventions. The purpose of this study is to determine the effect of digital games on attitude change. In this study, the relationship between digital game addiction and attitude change was examined using a structural equation model among 248 students attending a public university who play digital games. According to the results obtained from the analyses, it was found that the reasons individuals play digital games significantly and positively influence the three main dimensions of digital game addiction (''excessive focus and procrastination,'' ''deprivation and seeking,'' and ''emotional change and immersion''). These findings indicate that students' motivations for playing digital games play a decisive role in both the formation process and the continuity of digital game addiction. Based on the study results, it is recommended that intervention programs developed for behavioral addictions such as digital game addiction be designed in a way that takes into account the internal and external motivational factors that drive individuals to play games.*

Keywords: *Gaming Addiction, Addiction, Attitude Change, Reasons for Playing Digital Games*

JEL classification: *Z13*

INTRODUCTION

Advances in technology are radically changing our daily habits and shifting our understanding of entertainment and gaming to digital platforms. The replacement of traditional outdoor games with digital games played on screens is leading to changes in many areas, from individuals' forms of social interaction to their attitudes.

Gaming addiction, one of the types of technological addiction, is a behavioral addiction caused by excessive and uncontrolled playing of digital games using technological devices such as game consoles, tablets, televisions, phones, and computers. Digital game addiction, which is becoming increasingly prevalent among adolescents, can have negative effects on individuals' social interactions, academic performance, and psychological well-being .

Excessive and uncontrolled use of digital games can lead to negative consequences such as mental health problems and addiction, while controlled use can support individuals' emotional, cognitive, and social development. Digital gaming behavior is shaped by basic psychological needs such as socialization, self-confidence, and competence, as well as motivations aimed at fulfilling these needs. The effort to fulfill these needs in a digital environment can sometimes turn into an uncontrolled gaming habit and lead to digital game addiction.

THE CONCEPT OF DIGITAL GAMES

Throughout human history, games have served as a cultural element that increases interaction between individuals and plays an important role in shaping social structures. However, in today's rapidly advancing technological world, the traditional understanding of games is undergoing a fundamental transformation, evolving into a different dimension under the influence of the digital world and moving from physical spaces to virtual environments. This transformation is redefining both the way games are played and their effects on individuals .

Digital games are visual games that run on computer-based systems, offer personalized experiences to users thanks to their programmable structures, and can be played on various electronic devices such as phones, tablets, desktop computers, and game consoles .The first commercial product in this field was released in 1971 under the name "Computer Science" and is considered the starting point of the digital game industry . The rapid growth observed in the gaming industry since the 1990s has paved the way for both the diversification of digital games and the release of new versions that are consumed more quickly and constantly updated . On the other hand, with the acceleration of urbanization, the restriction of physical spaces where games can be played, urbanization, and the increase in population density have caused children to move away from traditional play environments. In addition, the weakening of neighborhood culture, individuals with different socio-cultural backgrounds sharing the same living spaces, and increasing security concerns have made streets less safe for children. Therefore, digital games have become an attractive option, both as a safe alternative for play and as a means for individuals to develop a virtual identity through roles, statuses, and actions they cannot experience in real life.

DIGITAL GAME ADDICTION

The Turkish Language Association (TDK) defines addiction as "a state of dependence on something or someone; subjection" . Dependency is a concept related to a person's strong desire to perform an action and the temporary sense of relief they experience when they engage in this behavior. If this action cannot be performed, the individual may experience restlessness, feelings of inadequacy, and symptoms of deprivation. In this context, dependency can be defined as an individual repeating a behavior that provided them with pleasure or satisfaction in the past, with the expectation that it will provide similar satisfaction in the future. However, if the satisfaction obtained from previous experiences is insufficient, the individual may become conditioned to this behavior in order to obtain the same satisfaction from new experiences. This situation becomes particularly evident in technology-related behavioral addictions. Addictions to media, television, smartphones, computers, and the internet fall under this category .

Digital addiction can be defined as an addiction to watching, listening to, or playing games on electronic devices for entertainment purposes, and has become a widespread trend in recent years due to technological developments.

Digital game addiction is characterized by an individual's inability to control their gaming behavior, prioritizing their relationship with gaming over their daily life, and consequently neglecting their academic, social, or personal responsibilities. While this condition can be observed in all age groups, it is particularly prevalent among adolescents. During adolescence, excessive engagement with digital games, preferring them over traditional games, and identifying with game content are among the factors that increase the risk of addiction. Additionally, individuals may exhibit psychological withdrawal symptoms such as anger, restlessness, insomnia, and mood disorders when they are unable to play games .

According to World Health Organization (WHO) data, digital game addiction is observed at rates ranging from 1.3% to 9.9% globally, and these rates are increasing every year. These figures reveal that one in ten people is at risk of digital gaming addiction, indicating that this issue should be addressed as a global public health concern. According to data from the Turkish Statistical Institute (TÜİK), the rate of internet usage among children has increased significantly over the years. While the rate of internet usage among children was 82.7% in 2021, this rate has risen to 91.3% as of 2024. When evaluated by gender, the internet usage rate, which was 83.9% for boys and 81.5% for girls in 2021, reached 92.2% for boys and 90.3% for girls in 2024 . These data suggest that increased internet access and usage are among the most important determinants of behavioral addictions such as digital game addiction. Children and adolescents, on the other hand, constitute a high-risk group for digital game addiction due to their vulnerability to environmental stimuli and high rates of internet use. This situation highlights the importance of specifically addressing children and adolescents in protective interventions.

THE EFFECTS OF DIGITAL GAME ADDICTION

It is stated that digital games reduce individuals' fatigue and stress levels, help them escape from the pressures of complex city life and stress factors in their work life, increase their motivation as a source of entertainment, and contribute to the develop-

ment of self-confidence. Digital games designed for educational purposes accelerate the learning process, positively influence academic achievement in the targeted subject area, and support students' learning motivation by capturing their interest. In addition, it is stated that digital games encourage social interaction, reduce aggressive attitudes and behaviors, and contribute to the development of social skills such as cooperation, sharing, empathy, and mutual aid . Digital games also positively affect short-term memory development, and multi-user game platforms increase communication and interaction . In addition, various studies have shown that digital games have positive effects on foreign language learning. It is also stated that this learning approach is consistent with Krashen's language acquisition theory (1982) and is supported by the theory's basic principles .

In addition to the positive aspects of digital games mentioned above, it is known that various negative effects arise when they are played for long periods of time without control or awareness. One of the most common and tangible negative effects of digital games is the risk of obesity associated with prolonged inactivity. Insufficient physical activity leads to negative outcomes on the musculoskeletal system and is considered a primary cause of various health issues . Not spending enough time on social life while playing digital games can lead to deterioration in family and friend relationships . In addition, playing violent digital games contributes to increased physical reactions and heightened aggressive perceptions, feelings, and behaviors. This situation causes individuals to be perceived as incompatible by their surroundings and to be rejected in social environments . On the other hand, games can offer unique coping strategies that divert users' attention and energy away from real-life problems and stress . Therefore, some individuals may turn to prolonged video game sessions to avoid problems rather than developing coping mechanisms for the stress and problems they face .

Digital game addiction can have serious negative effects on players . In the literature, symptoms such as "inability to control the duration of gaming," "loss of interest in other activities," "continuing to play games despite negative effects," and "feeling psychologically inadequate due to inability to play games" are highlighted . Additionally, digital game addiction can lead to other issues such as low self-esteem, high levels of loneliness and shyness, increased heart rate, aggression and impulsivity, psychological problems such as depression, compulsive behaviors, suicidal tendencies, attention deficit and hyperactivity, and low self-acceptance. These factors are positively associated with problematic gaming tendencies.

METHOD

Subject and Purpose of the Study

The main focus of this study is how playing digital games and being in the digital gaming environment affects attitude changes beyond just being a way to spend free time in people's daily lives. Digital games are significant in that they can encourage individuals to develop their own cultural practices, actively participate in gaming groups in accordance with the rules of the game, organize themselves within the game, and develop the ability to exhibit critical, intellectual, and strategic attitudes and behaviors. In this context, the research aims to identify the impact of digital games on attitude change.

The research topic was determined based on the fact that no studies have been

found on attitude changes among university students who play digital games, and it is believed that this study will contribute to the literature and to individuals who play digital games, their families, and digital game producers. This study is expected to contribute to the literature by describing digital games and players, examining the relationship between online games and life inside and outside the game, and revealing the extent to which all of these are related to changes in players' attitudes toward social issues through different research techniques.

Hypotheses

The hypotheses developed within the scope of the study are as follows:

H1: The reasons for playing digital games positively affect the sub-dimension of digital game addiction, "excessive focus and procrastination**.**"

H2: The reasons for playing digital games positively affect the sub-dimension of digital game addiction called "withdrawal and seeking."

H3: The reasons for playing digital games positively affect the sub-dimension of digital game addiction called "emotional change and immersion."

Research Universe and Sample

University students studying at a state university in Turkey's Central Anatolia Region during the 2024-2025 academic year constituted the universe of the study, while 348 students who volunteered to participate in the study and completed the data collection tools in full constituted the sample of the study.

Data Collection and Measurement Tools

The questionnaire used in the study consists of 36 questions, excluding gender, marital status, age, income status, digital gaming, frequency of digital gaming, year of digital gaming, and personality structure. The questionnaire utilizes scales previously used in the literature to measure the reasons for digital gaming and digital gaming addiction. All scales were rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Table 1 shows the scales used in the study. The following table shows the scales used in the study:

Table 1. Scales Used in the Research

Variable	Subdimensions	Code	Items	Source
Reasons for Playing Digital Games	-	DON1	Completing the tasks in the game is important to me.	
		DON2	When I play games, I feel more like myself than I do in real life.	
		DON3	Digital games offer teamwork, encouragement, and a fun environment.	
		DON4	I like chatting with other players and socializing while playing digital games.	
		DON5	I trust my gaming friends and would like to meet them in real life.	
		DON6	I play games to make the most of my free time.	
		DON7	I play games to relieve the stress and anxiety I am experiencing.	

		DON8	Playing games is good for my physical and mental health.
		DON9	I experience various attitude changes while playing games.
		DON10	I feel close to the people I play games with.
		DON11	I think we share common values with other individuals in digital gaming environments.
		DON12	Playing games together has a positive effect on my relationships with the people I play games with.
		DON13	The feelings of my friends who play games with me are important to me.
		DON14	I respond in various ways to the problems my friends encounter in the game.
		DON15	Communication with other players while playing games is important to me.
Digital Game Addiction Scale	**Overfocusing and Procrastination**	AOE1	There are times when I skip my classes to play digital games.
		AOE2	Digital games are an indispensable part of my life (they are very important to me).
		AOE3	A life without digital games would be boring to me.
		AOE4	A life without digital games would be meaningless to me.
		AOE5	Because I play digital games, I don't have time for other fun activities (such as sports or music).
		AOE6	The first thing that comes to mind when I wake up in the morning is playing digital games.
		AOE7	I spend most of my time outside of school playing digital games.
		AOE8	I prefer playing digital games to going to school.
		AOE9	I don't want to stay away from digital gaming devices such as computers, phones, tablets, and consoles.
		AOE10	I prefer playing digital games to chatting face-to-face with others.
		AOE11	There are times when I delay going to the bathroom while playing digital games.
	Deprivation and Search	YA1	I get angry/upset when I can't play digital games whenever I want.
		YA2	I lose my appetite when I don't play digital games.
		YA3	I feel restless when I don't play digital games.
		YA4	I fantasize about playing digital games during class.
		YA5	When I go anywhere outside my home, I look around to see if there is a device (computer, phone, tablet, console, etc.) that I can use to play digital games.
		YA6	When I see technological devices such as computers, cell phones, or tablets, the first thing that comes to mind is playing digital games.

	Emotional Change and Immersion	DDD1	Playing digital games relaxes me when I am unhappy.
		DDD2	I want to play digital games for longer and longer periods of time.
		DDD3	I don't notice when I get hungry while playing digital games.
		DDD4	There are times during the day when I suddenly feel like playing digital games.

* DON = Reasons for Playing Digital Games, AOE = Excessive Focus and Procrastination, YA = Deprivation and Searching, DDD = Emotional Change and Immersion.

Source: Henseler, J., Hubona, G. & Ray, P. 2016. Using PLS path modeling in new technology research: updated guidelines. Industrial management & data systems, 116, 2-20.

Ethical Aspects of the Research

Permission to conduct the research was obtained from the Scientific Research and Publication Ethics Committee of Karamanoğlu Mehmetbey University Faculty of Social and Human Sciences (Date: 07.05.2025/ Number: 06-2025/175). Participation in the study was voluntary. Therefore, participants were informed about the purpose and content of the study, and written consent was obtained from participants who volunteered to participate in the study.

Descriptive Statistics

Table 2. presents demographic information and other descriptive data:

		Frequency	Percentage	Cumulative Percentage
Gender	**Female**	166	47,7	47,7
	Male	182	52,3	100
	Total	348	100	
Age	**18-24**	306	87,9	87,9
	25-29	29	8,3	96,3
	30-34	13	3,7	100
	Total	348	100	
Marital Status	**Single**	325	93,4	93,4
	Married	23	6,6	100
	Total	348	100	
Income	**5.000 TL ve Altı**	158	45,4	45,4
	5.000 TL-10.000 TL	95	27,3	72,7
	10.000 TL-20.000 TL	39	11,2	83,9
	20.000 TL-30.000 TL	32	9,2	93,1
	40.000 TL Ve Üstü	24	6,9	100
	Total	348	100	
Do you play digital games?	**Yes, I play**	292	83,9	83,9
	Yes, I used to play, but I quit	56	16,1	100
	Total	348	100	

How often do you play digital games?	**Less than 1 hour per day**	107	30,7	30,7
	1-3 hours per day	106	30,5	61,2
	3-5 hours per day	71	20,4	81,6
	More than 5 hours per day	64	18,4	100
	Total	348	100	
How many years have you been playing digital games?	**Less than 1 year**	46	13,2	13,2
	1-3 years	74	21,3	34,5
	3-6 years	72	20,7	55,2
	More than 6 years	156	44,8	100
	Total	348	100	
Your Personality	**Outgoing/Social/Optimistic (Positive Thinker)**	225	64,7	64,7
	Introverted/Shy/Pessimistic (Negative Thinker)	123	35,3	100
	Total	348	100	

Source: This table is standard because it contains demographic values.

The majority of participants were aged 18-24 (87.9%) and single (93.4%), with more than half (52.3%) being male. 45.4% stated that their monthly income was 5,000 or less. The majority (83.9%) of participants who reported playing digital games stated that 30.7% played digital games for less than 1 hour per day, while 44.8% reported having played digital games for more than 6 years. More than half of the participants (64.7%) described their personality as extroverted/social/optimistic (positive thinker) (Table 2).

RESEARCH METHODOLOGY AND FINDINGS

In the study, the hypotheses developed within the structural equation model were tested using the Partial Least Squares method to estimate the structural equation model (PLS-SEM) with the Smart PLS 4 (Ringle, et. al., 2022), statistical program. In this context, in terms of the reliability and validity tests of the scale, factor loadings were examined for item reliability, Cronbach's Alpha and composite reliability values for internal consistency reliability, explained variance values for convergent validity, and finally, cross-loadings and Fornell-Larcker Criterion values for discriminant validity. Subsequently, the structural equation model was estimated using the Partial Least Squares method. The research model is presented in Figure 1:

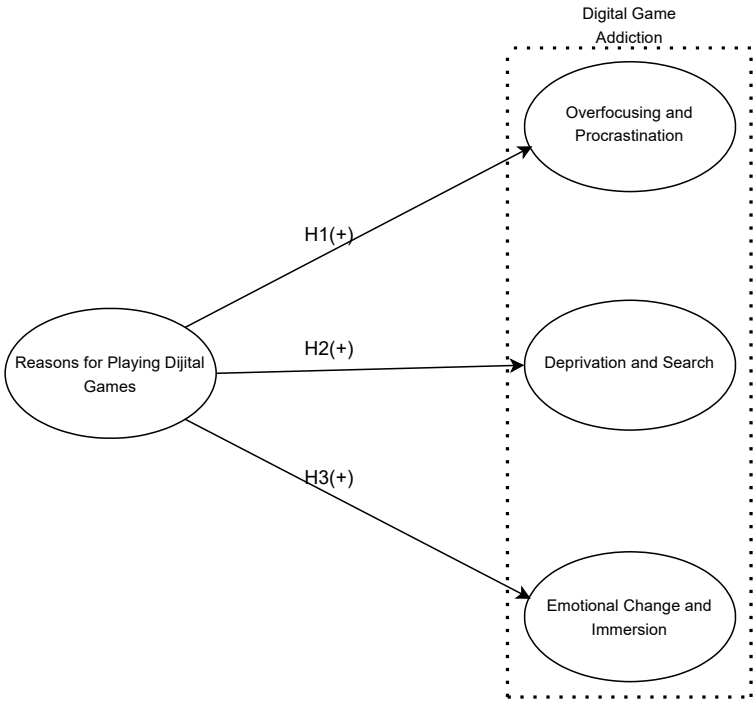

Figure 1. Research Model

Source: Henseler, J., Hubona, G. & Ray, P. 2016. Using PLS path modeling in new technology research: updated guidelines. Industrial management & data systems, 116, 2-20.

Research Model Scale Reliability and Validity Results

First, validity and reliability studies were conducted for the scales. In this context, item reliability, internal consistency reliability, convergent validity, and discriminant validity were examined. To test item reliability, standardized item loadings were examined for each item (Hair, et. Al., 2010). For internal consistency reliability, Cronbach's alpha coefficient and composite reliability (CR) coefficient were considered (Hair et. al., 2017). For convergent validity, attention was paid to the average variance extracted (AVE) values of the statements . To determine discriminant validity, cross-loading values and the square roots of the AVE values in the Fornell-Larcker table were examined (Hair et al., 2017; Henseler, et. al., 2015).

Convergence Criteria

Finally, within the scope of analyses of the measurement model, convergence indices were checked to understand the extent to which the model corresponded with the research data. Convergence values are expected to be less than 0.08 for SRMR and close to 1 for NFI . Hensler et al. (2016) state that the d_ULS and d_G values should be below the 95% percentile value obtained using the bootstrap method (HI 95% for d_G). In this study, the SRMR value was calculated as 0.073 and the NFI value as

0.912. Other parameters related to fit indices are d_ULS 2.660, d_G 0.787, and Chi-square 1520.778. In this study, since the d_ULS and d_G values are below the relevant HI 95% limits calculated using bootstrap, it was concluded that the model shows good fit with the data.

Table 3. Factor Loadings

Variables	Sub-dimensions	Items	Factor loadings > 0.5	Standard deviation	T statistic
Reasons for Playing Digital Games	-	DON1	0.624	0.038	16.589
		DON10	0.762	0.026	29.351
		DON11	0.731	0.034	21.602
		DON12	0.708	0.033	21.340
		DON13	0.703	0.034	20.726
		DON14	0.674	0.037	18.154
		DON15	0.748	0.025	29.962
		DON2	0.657	0.033	19.705
		DON3	0.699	0.034	20.296
		DON4	0.727	0.028	26.379
		DON5	0.711	0.030	24.003
		DON8	0.664	0.035	18.944
Digital Game Addiction	Overfocusing and Procrastination	AOE1	0.693	0.031	22.147
		AOE2	0.827	0.023	35.811
		AOE3	0.814	0.024	34.137
		AOE4	0.799	0.024	33.041
		AOE5	0.740	0.033	22.480
		AOE7	0.811	0.019	42.581
		AOE9	0.698	0.028	24.503
	Deprivation and Searching	YA1	0.801	0.027	30.204
		YA2	0.825	0.024	34.420
		YA3	0.883	0.016	55.133
		YA4	0.803	0.030	26.456
		YA5	0.882	0.015	59.218
		YA6	0.822	0.022	37.166
	Emotional Change and Immersion	DDD1	0.798	0.021	37.793
		DDD2	0.820	0.024	33.998
		DDD3	0.704	0.040	17.415
		DDD4	0.768	0.030	25.304

Items DON6, DON7, DON9, AOE6, AOE8, AOE10, and AOE11 were excluded from the analysis due to factor loading issues.

Source: Hair, J. H. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) Second Edition. Los Angeles: Sage

Table 4. Cronbach's Alpha, Composite Reliability, and Explained Mean Variance Values

	Cronbach's alpha	Composite reliability (rho_a)	Average variance extracted (AVE)
AOE	0.885	0.886	0.594
DDD	0.779	0.795	0.599
DON	0.906	0.908	0.508
YA	0.914	0.925	0.700

Source: Hair, J. H. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) Second Edition. Los Angeles: Sage

Fornell, C., & Larcker, D. (1981). Structural equation models with unobservable variables and measurement error. Journal of Marketing Research, s. 18(1), 39–50.

Table 5. Cross Loads

	AOE	DDD	DON	YA
AOE1	**0.693**	0.429	0.376	0.428
AOE2	**0.827**	0.583	0.393	0.567
AOE3	**0.814**	0.579	0.406	0.531
AOE4	**0.799**	0.548	0.353	0.643
AOE5	**0.740**	0.558	0.364	0.647
AOE7	**0.811**	0.639	0.413	0.693
AOE9	**0.698**	0.547	0.449	0.458
DDD1	0.534	**0.798**	0.502	0.455
DDD2	0.677	**0.820**	0.404	0.727
DDD3	0.535	**0.704**	0.324	0.655
DDD4	0.506	**0.768**	0.394	0.504
DON1	0.368	0.384	**0.624**	0.240
DON10	0.387	0.424	**0.762**	0.309
DON11	0.342	0.357	**0.731**	0.290
DON12	0.322	0.381	**0.708**	0.249
DON13	0.319	0.344	**0.703**	0.229
DON14	0.312	0.345	**0.674**	0.205
DON15	0.372	0.366	**0.748**	0.259
DON2	0.481	0.402	**0.657**	0.380
DON3	0.320	0.315	**0.699**	0.133
DON4	0.331	0.352	**0.727**	0.213
DON5	0.352	0.359	**0.711**	0.293
DON8	0.362	0.429	**0.664**	0.243
YA1	0.598	0.610	0.342	**0.801**
YA2	0.552	0.535	0.227	**0.825**
YA3	0.642	0.597	0.329	**0.883**
YA4	0.617	0.578	0.233	**0.803**
YA5	0.648	0.670	0.333	**0.882**
YA6	0.616	0.682	0.351	**0.822**

Source: Hair, J. H. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) Second Edition. Los Angeles: Sage

Henseler, J., Hubona, G. & Ray, P. 2016. Using PLS path modeling in new technology research: updated guidelines. Industrial management & data systems, 116, 2-20

Items with factor loadings below 0.5 were excluded from the analysis. The remaining items had factor loadings above 0.5, ensuring item reliability. As seen in the tables above, since the Cronbach's Alpha values for the variables are higher than 0.7 and the Composite Reliability values are higher than 0.7, internal consistency reliability is ensured, and since the explained average variance values are higher than 0.5, convergent validity is ensured. Additionally, as seen in Table, according to the cross-loading results from the discriminant validity tests, the factor loading of the variable under which an expression is located is higher than the factor loading it receives in other variables. Furthermore, as seen in Table, according to the Fornell-Larcker criterion, discriminant validity is ensured because the diagonal values are the largest.

Table 6. Fornell-Larcker Criterion Values (Square Root of AVE)

	AOE	DDD	DON	YA
AOE	0.771			
DDD	0.724	0.774		
DON	0.515	0.535	0.713	
YA	0.734	0.739	0.371	0.837

Source: Fornell, C., & Larcker, D. (1981). Structural equation models with unobservable variables and measurement error. Journal of Marketing Research, s. 18(1), 39–50.

Within the scope of the research, the HTMT (Heterotrait-Monotrait Ratio) coefficients proposed by Henseler et al. (2015) were also used to demonstrate the validity of differentiation. According to this criterion, the average of the correlations of all variables included in the research represents the average ratio of the correlations of the same variable. In this sense, depending on the theoretical relationships between the structures, the HTMT coefficients must be below 0.90 or 0.85 (Henseler et al., 2015). When examining the HTMT coefficients, it is observed that all values are below 0.90 (see Table 5). In this sense, it is possible to state that the discriminant validity of the study has been established. The HTMT values are shown in the table below.

Table 7. HTMT Values

	AOE	DDD	DON	YA
AOE				
DDD	0.872			
DON	0.563	0.617		
YA	0.816	0.886		

Source: Fornell, C., & Larcker, D. (1981). Structural equation models with unobservable variables and measurement error. Journal of Marketing Research, s. 18(1), 39–50.

Structural Equation Model Hypothesis Tests

As summarized in Table and Figure below, hypotheses H1, H2, and H3 of the study were supported.

Table 8.

		B	S.S.	T value	P value	Conclusion
H1	DON -> AOE	0.515	0.041	12.625	0.000	Supported
H2	DON -> YA	0.371	0.044	8.388	0.000	Supported
H3	DON -> DDD	0.535	0.039	13.795	0.000	Supported

Source: Ringle, C. M., & Becker, J.-M. (2022). SmartPLS 4. Oststeinbek: SmartPLS GmbH. http://www.smartpls.com.

The reasons for playing digital games positively affect the sub-dimension of digital game addiction, "excessive focus and procrastination" ($\beta = 0.515$, $t = 12.625$, $p < 0.01$). Therefore, H1 hypothesis is accepted. The reasons for playing digital games positively affect the sub-dimension of digital game addiction 'withdrawal and seeking' ($\beta = 0.371$, $t = 8.388$, $p < 0.01$). Therefore, H2 hypothesis is accepted. Reasons for playing digital games positively affect the sub-dimension of digital game addiction 'emotional change and immersion' ($\beta = 0.535$, $t = 13.795$, $p < 0.01$). Therefore, H3 hypothesis is accepted.

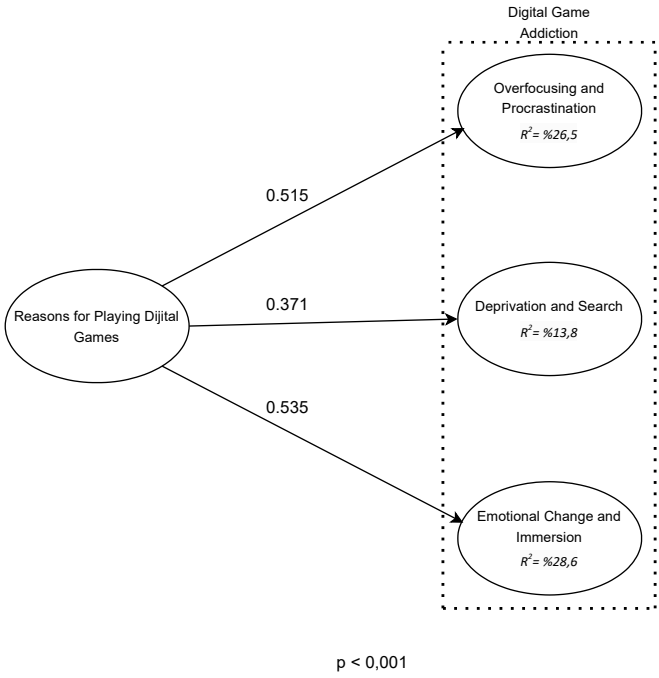

Figure 2. PLS Results of the Structural Model

Source: Henseler, J., Hubona, G. & Ray, P. 2016. Using PLS path modeling in new technology research: updated guidelines. Industrial management & data systems, 116, 2-20.

Hair, J. H. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) Second Edition. Los Angeles: Sage

DISCUSSION

In this study, the relationship between digital game addiction and attitude change was analyzed using a structural equation model, and the validity and reliability analyses of the scales used ensured psychometric adequacy.

Our findings show that digital game addiction causes significant changes in individuals' attitudes. Studies in the literature also reveal that digital games have an effect on user behavior and attitudes (Yalçın Irmak & Erdoğan, 2015; Anderson & Bushman, 2001). In particular, it has been observed that increases in addiction levels lead to deterioration in individuals' social relationships and a decline in their academic performance . In addition, digital game addiction leads to social isolation and withdrawal from real life, directing individuals' attitudes more toward the digital environment, which negatively affects users' social adaptation . At the same time, attitude changes associated with addiction can cause an increase in stress, anxiety, and aggressive behavior in individuals . Digital game addiction is a phenomenon with multidimensional effects, causing significant changes not only in individual behavior and attitudes but also in social and psychological areas. Therefore, awareness programs and intervention strategies need to be developed to ensure balanced and controlled use of digital games.

As an important stage of the validity analyses conducted within the scope of the research, HTMT (Heterotrait-Monotrait) ratios were used to evaluate the construct-discriminant validity. This method, proposed by Hensler et al. (2015), is considered to be an analysis technique with higher discriminatory power compared to the traditional Fornell-Larcker criterion. HTMT values not exceeding the threshold of 0.85 or 0.90 indicate that discriminant validity is established. The fact that all HTMT ratios obtained in this study remain below 0.90 demonstrates that the variables are sufficiently discriminated from one another (see Table 7). Kuss and Griffiths (2012) have pointed out that in some studies conducted in the field of internet and digital game addiction, the distinction between structures in the measurement tools is not clear. From this perspective, the application of HTMT analysis in this study and the positive results obtained demonstrate that the model is based on a strong theoretical foundation.

The low and moderate correlations observed between digital gaming tendencies, digital gaming addiction, and attitudinal variables indicate that there is limited overlap between the structures, but that each structure has meaningful integrity within itself. In particular, the correlations between the tendency to play digital games and attitudinal variables (0.816) and between digital game addiction and attitudinal variables (0.886) indicate that attitudinal changes are strongly related to the level of addiction, but that theoretical boundaries between variables are also maintained. These findings can be evaluated in parallel with the causal relationships established in the literature between digital game addiction and social, academic, and cognitive attitude changes. Attitudes are found to be significantly related to addiction levels, but there is no measurement confounding between variables. This confirms the statistical integrity and discriminant validity of the study at the scale level.

All of the H1, H2, and H3 hypotheses tested in the study were found to be statistically significant and supported. According to the findings, the reasons for playing digital games significantly and positively affect the three different dimensions of digital game addiction. Therefore, it can be considered that the reasons for playing digital

games directly affect the dynamics of addiction and that digital games play a decisive role in individuals' psychological, behavioral, and emotional processes.

Within the scope of the H1 hypothesis, it has been observed that the reasons for playing digital games significantly affect the dimensions of "excessive focus and procrastination." Accordingly, games change the individual's perception of time and reinforce the tendency to put daily life responsibilities on the back burner. Similarly, , emphasizes that digital games are associated with behaviors such as procrastination and distraction, especially when used as an escape strategy from stressful life events. In other words, games are not only played for entertainment but also as a means of escaping reality, and this can negatively affect an individual's functionality.

Hypothesis H2 reveals that the reasons for playing digital games positively affect the "deprivation and search" dimension. This shows that when access to games is restricted or playing time is limited, individuals exhibit signs of deprivation and tend to fill this void by returning to gaming. Lemmens et al. (2011) also note that gaming addiction can be defined by withdrawal symptoms and that individuals continue to play games within a "reward cycle.".

In the H3 hypothesis, it is seen that the reasons for playing digital games contribute significantly to the "emotional change and immersion" dimension. This result reveals that individuals disconnect from real life during the game and become intensely involved in the game, and that this process serves as a temporary emotional regulation function. Ryan et al. (2006) state that digital games increase high intrinsic motivation and immersion levels in individuals as long as they meet personal competence and autonomy needs..

In this context, the findings of the study are consistent with the literature in terms of explaining both the psychological dimensions of addiction and how the reasons for playing games trigger addiction. Particularly in studies on problematic digital game use (Kuss and Griffiths, 2012; Pontes & Griffiths, 2014), it is emphasized that individuals' need for emotional regulation is a key determinant in their orientation toward games, which is consistent with the current findings.

CONCLUSION AND EVALUATION

In this study, the relationship between digital game addiction and attitude change was examined using a structural equation model; in addition, the validity and reliability analyses of the scales used were performed, confirming their psychometric adequacy. The results obtained from the analyses revealed that individuals' reasons for playing digital games significantly and positively influenced the three core dimensions of digital game addiction ("excessive focus and procrastination," "withdrawal and seeking," and "emotional change and immersion"). These findings show that motivations for playing digital games play a decisive role in both the formation process and the continuity of digital game addiction. Therefore, it can be suggested that intervention programs to be developed for behavioral addictions such as digital game addiction should be designed in a way that takes into account the internal and external motivational factors that drive individuals to play games.

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