



The mediator's role of communication skills in the effect of social skills on digital game addiction

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ABSTRACT

This study aimed to investigate the mediating role of communication skills, which has a decisive role in people's healthy interaction with others, between social skills that enable the construction of social networks and digital game addiction. The study was conducted as a relational survey quantitative research model. A total of 474 university students, 232 of whom were female and 242 were male, comprised the participants of the study. The Social Skills Scale, the Communication Skills Scale, and the Digital Game Addiction Scales were used in this research. The data were analyzed using the AMOS-23 program. Results of the analysis showed that social and communication skills were strongly negatively related to digital game addiction, while communication skills were a solid mediator between social skills and digital game addiction. When the results are evaluated holistically, it is thought that digital games are an important escape area for individuals with low social and communication skills.

1. Introduction

Digital game addiction, which is a type of behavioral addiction, is defined as the irregular or obsessive use of computer games, including unhealthy daily life behaviors of game enthusiasts such as losing self-control, experiencing psychological distress when not playing, loneliness, aggression, and depression (e.g., Choo et al., 2010; Jeong & Kim, 2011; Lai, Kim, & Jeong, 2016; WHO, 2018). The results of recent studies on digital game addiction have shown that game addicts have difficulty managing and controlling the psychological and social problems that occur in their daily lives (e.g., Griffiths & Meredith, 2009; Jeong, Kim, & Lee, 2017; Kuss & Griffiths, 2012; Liu & Peng, 2009; Reith & Dobbie, 2012). Therefore, digital game addiction has become one of the serious public health problems with increasing social costs.

The intensity of the research carried out to discover and understand the underlying causes of this emerging problem from a psychosocial perspective is increasing. Studies from this viewpoint suggest that multidimensional structures, including family relationships, psychological and social factors, game-related features, and in-game rewards, maybe the cause of digital game addiction (e.g., Kim, Namkoong, Ku, & Kim, 2008; Lemmens, Valkenburg, & Peter, 2011; Mehroof & Griffiths, 2010; Mentzoni et al., 2011; Paulus, Ohmann, Von Gontard, & Popow, 2018; Peng & Liu, 2010; Seay & Kraut, 2007; Sugaya, Shirasaka,

Takahashi, & Kanda, 2019).

2. Theoretical framework and hypothesis development

2.1. Game addiction

Conceptualizing gaming addiction has been a topic of great debate for decades (e.g., Brown, 1993; Griffiths, 1996; Widyanto & McMurran, 2004; Liu & Peng, 2009; Billieux, Flayelle, Rumpf, & Stein, 2019). However, a conceptual debate remains despite the enormous amount of research on gaming addiction behavior. Although the term "gaming addiction" has not yet been widely adopted, particularly by clinicians, in Chapter III of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) published by the American Psychiatric Association (APA, 2013) in May 2013, game addiction has been defined as Internet Gaming Disorder. The "pathological gambling" criteria in the DSM (APA, 2013) have been widely adopted for assessing digital game addiction. In the 2018 review of the 11th International Disease Classification Book prepared by the World Health Organization (ICD-11): Game addiction has been defined as a "gaming behavior pattern" in which control over the game is impaired, which is defined as giving priority to the game over other interests and daily activities despite its negative consequences and continuing to play or increasing the playing time (WHO, 2018).

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Although gaming disorder is used in the newly published international disease classification (ICD-11) by WHO, the terms gaming addiction, video game addiction, digital gaming addiction, online gaming addiction, or gaming addiction have been used for a long time in academia (Bhagat, Jeong, & Kim, 2020). In this study, these terms are used interchangeably from time to time.

The results of the study on operational definition reveal that game addiction should be considered as a multidimensional concept. A pioneering researcher in this field, Griffiths, in his article on the “components model of addiction”, defined digital game addiction according to the emergence of six specific components: salience, mood modification, tolerance, withdrawal, conflict, and relapse (Griffiths, 1996; Griffiths, 2005). Widyanto and McMurrin (2004) discussed addiction as a six-factor construct that neglects salience, overuse, work neglect, expectation, lack of self-control, and neglect of social life. Liu and Peng's (2009) approach to gaming addiction from the perspective of cognitive impairment includes some cognitive and behavioral effects such as lack of control, neglect to work, and social problems.

Salience in Griffiths' (2005) component model of addiction: This means that the game becomes an important part of the game addict's life and plays a dominant mental, emotional, and behavioral role. The players are often busy with games instead of other things, and he/she imagines himself/herself playing games. The second component, mood modification, refers to the subjective experience that people report because of participating in a particular activity (i.e., they experience an arousing “buzz” or “high” or paradoxically a calming and/or destructive “escape” or “numbness”). The third component, tolerance, refers to the process in which increasing numbers of certain activities are required to achieve previous effects. The fourth component, withdrawal symptoms, refers to unpleasant moods and/or physical effects that occur when a particular activity is stopped or suddenly reduced. Such withdrawal effects can be psychological (e.g., irritability and irascibility) or physiological (e.g., nausea, sweating, headache, insomnia, and other stress-related reactions). Fifth component conflict refers to conflicts between the addict and those around his/her (interpersonal conflict) or within the individual regarding a particular activity (intrapyschic conflict). Finally, the relapse component refers to the tendency to repeatedly revert to previous patterns of a given activity, and even the most extreme patterns typical of the peak of addiction to be quickly restored after years of abstinence or control.

In addition to the studies to determine the components of game addiction, one of the important research axes is research on the causes of addiction. Academics mainly examine the causes of gaming addiction by combining their research areas from different theoretical perspectives. These research results generally show that both personal and social factors are associated with game addiction. Undoubtedly, family is an important element when examining the social factors of digital game addiction (e.g., Mesch, 2003; Sugaya et al., 2019; Wolak, Mitchell, & Finkelhor, 2003). According to Jeong and Kim's (2011) research, the education style of parents, the general activities parents participate in with their children, and the way of communication are directly related to game addiction. In addition, the high expectations and demands of parents for children and the difficulties that children experience in meeting them increase their tendency to game addiction (Jin, Qin, Zhang, & Zhang, 2021). In addition, it has been shown that children with substance-addicted parents are at increased risk of playing games as a means of coping with problems such as developmental problems, school problems, health problems, delinquency, sexual problems, mental problems, and family problems (Yen, Yen, Chen, Chen, & Ko, 2007). It is one of the social factors that affect game addiction in life in school, classroom, and friend environments. Particularly, commitment to school and level of classroom interactions, and being accepted by significant others in this field were associated with game addiction. Accordingly, while the positive social interaction established in the school environment reduces the level of addiction, the opposite situation increases the likelihood of the individual turning to digital games more

(e.g., Chang & Kim, 2020; Du & Yuan, 2016; Wei, Yu, & Zhang, 2019; Yu, Li, & Zhang, 2015).

The results of the study conducted to reveal the personal reasons for game addiction showed that childhood traumas, negative life experiences, anxious attachment, and people who have interpersonal interaction difficulties tend to develop game addiction. Results show that especially anxious attachment style, difficulties in relationships, and maladaptive coping skills trigger game addiction (Grajewski & Dragon, 2020). In addition, the results of the research showed that low self-confidence and self-efficacy were positively associated with the possibility of being addicted to digital games (e.g., Jeong & Kim, 2011; Julia, Diana, James, & Ivory, & Christopher F., 2014; Lo, Wang, & Fang, 2005). Bandura defines self-efficacy as “the belief that one can successfully implement the behavior required to produce results”; this means that people with low self-efficacy may not be able to successfully maintain social relationships (Bandura, 2010). People with low self-esteem or self-efficacy rarely engage in social activities or have fewer opportunities to engage in such activities because of their negative perception of their sociability competence. However, social relationships are an indispensable psychological desire for most people, so people with low self-confidence or self-efficacy may view digital games as an escape route to mask their desires (e.g., Chak & Leung, 2004; Jin et al., 2021; Lemmens et al., 2011; Lin, Ko, & Wu, 2008; Young, 2009). The results of this study on the causes of game addiction show that especially social and communication skills are important in addiction.

2.2. Social skills

As a biopsychosocial being, man has to meet the needs of both the organism and the mentally constructed self within the social network to survive. The formation of the mentally constructed self within the social network is not an independent event produced by an autonomous actor (Coover & Murphy, 2000); rather, the self emerges through social interaction (Blumer, 1969; Goffman, 1959) and social categorization (Ethier & Deaux, 1994; Turner, Oakes, Haslam, & McGarty, 1994). The self-construction process, which is explained by the concept of socialization in psychology, occurs through communication that provides the formation of individual identity (Hargie, 2017). Therefore, an individual has a strong and universal desire to interact and communicate with others during the construction process. In other words, we become who we are because of our dealings with others (Coover & Murphy, 2000).

For the mentally constructed self to survive, some basic psychological needs must be satisfied within the social network. These psychological needs include the need for affiliation, competence, and autonomy. The need for competence consists of the desire to feel confident and effective in performing actions to achieve one's goals. The need for relationships reflects the desire to have close and positive relationships with their significant other. The need for autonomy includes the level of feeling in control of one's destiny rather than being directed by others. The optimal satisfaction of these needs determines the level of well-being of the individual (Patrick, Knee, Canevello, & Lonsbary, 2007). To satisfy all three psychological needs, it is necessary to have an effective repertoire of interpersonal skills. These needs are not sufficiently satisfied within the social network motivates the individual to seek another source of welfare elsewhere to remedy the situation (Ryan & Deci, 2000).

The efforts of the self to feel balanced in a social network are explained with the terms ‘social skills’, ‘interpersonal skills’, and ‘communication skills’, which are sometimes used interchangeably (Hargie, 2017). In general, social skills can be defined as the ability to interact with others in a socially acceptable way that is beneficial to both oneself and the interlocutor (Combs & Slaby, 1978; Phillips, 1978). Therefore, social skills include a process in which an individual applies a set of learned and controlled purposeful, interrelated, and situation-appropriate social behaviors to obtain and maintain reinforcement from the environment (Bornstein, Bellack, & Hersen, 1977; Hargie,

2017; Kelly, 1982). The results of the study showed that there is a clear and positive relationship between effective social skills and a range of benefits, such as greater happiness in daily life, resilience to stress and psychosocial problems, and increased academic and professional success (Hargie, Dickson, & Tourish, 2004). Therefore, people's social skill levels are very important for their individual and social well-being.

Although conceptualized in various ways in terms of social skills, motor or verbal elements, cognitive abilities, regulation of arousal, or some combination of these three factors, it involves considerable conceptual ambiguity (Curran, 1979; Linehan & Egan, 1979). In general terms, social skills can be defined as skills used when communicating with other people on an interpersonal level. However, this definition is not very illuminating as it explains what these skills are used for rather than what they are (Hargie, 2006). According to Spence (1980), the components of social skills necessary to enable individuals to achieve the desired result from a social interaction include both the results or goals of social interaction and the behaviors of those who interact. Ellis (1980), on the other hand, adds the interaction component to social skills and states it as a set of individual behaviors that are somehow integrated with the behavior of one or more people and based on some predetermined criterion or criteria.

All social behavior takes place in social situations and social situations are not characterized by a fixed structure; the way communications or gestures are evaluated is situational or context-dependent. An important task facing an individual in social situations, then, involves identifying a set of expectations or related structural features on which behavior-outcome relationships will be based (Curran, 1979; Wessler, 1984). Therefore, the individual who wants to function effectively in a social environment must be familiar with the nature of the activities of the social context and the normative expectations that accompany certain roles. An individual who does not conform to these social realities is likely to behave in ways that violate normative expectations. It will be difficult for people who think they lack this skill to enter social environments. The results of the study show that people with social skills deficiency have difficulties in making friends, starting social activities, and joining groups (Berg & Peplau, 1982; Busch, 2009; Caplan, 2003; Jeong et al., 2017; Vitkus & Horowitz, 1987; Williams & Solano, 1983). In addition, it has been shown that these people do not prefer to be close in interpersonal relationships, reveal themselves less and have low self-confidence (Burger, 1997; Jones, Freeman, & Goswick, 1981; Williams & Solano, 1983). Therefore, when people with low social skills think that they are not equipped to meet their social needs, they look for new ways to reduce the loneliness and stress that may arise (Bhagat et al., 2020; Wan & Chious, 2006). One of these escape areas is the orientation toward digital games. The results of the studies conducted in the field show that the digital game orientation of people with low social skills level is higher than those with high social skills level (Caplan, 2003; Davis, 2001; Kartlj & Millburn, 1993; Morahan-Martin & Schumacher, 2000).

2.3. Communication skills

The concept of social skills encompasses skills related to social sensitivity, relating, working with others, listening, and communication (Huffcutt, Conway, Roth, & Stone, 2001; Klein, DeRouin, & Salas, 2006; Roth, Bobko, McFarland, & Buster, 2008). Therefore, as Rogers and Escudero (2004) stated, social relationships are at the heart of our social life and form the center of our relationships in communication. Similarly, Norton (1978) expresses communication as the process of creating and maintaining relations with the social environment, emphasizing that communication is the most universal basis of human relations. The development of interpersonal relations is closely related to communication skills, as it affects the messages produced in interpersonal relations and the processes and actions in which they are exchanged. Communication skills are understanding speech, listening effectively, establishing eye contact in communication, encouraging the other

person to speak, benefiting from praise, and using nonverbal actions effectively (Omolulu, 1984). For this reason, communication skills, which stand out as the most important factor in the construction of the social world, are vital for our health, our relationships, and in fact, all the activities we are involved in as functioning people (Hannawa & Spitzberg, 2015; Hargie, 2017). Therefore, as Stewart et al. (2005) stated, there is a direct connection between an individual's communication skills and quality of life.

Personality traits such as communication ability, entrepreneurship, and courage are negatively affected by increased digital playtime and decreased communication skills. In addition, digital game addiction is used as an escape area to avoid the anxiety caused by interpersonal interaction in individuals with low communication skills (Weinstein & Lejoyeux, 2010), but this may further impair socialization by preventing the development of communication skills as it will increase social isolation. People with low communication skills may prefer to play games and be alone instead of making real friends (Young, 2009; Yücel & Gürsoy, 2013). In a study conducted by Lee, Kim, and Lee (2019) to determine the effect of communication skills on game addiction, they found that there is a relationship between computer game addiction and communication skills. In short, meeting social needs with digital games strengthens their motivation to play more games, and their need for seeking satisfaction outside of games can decrease (Bhagat et al., 2020; Jeong, Kim, Lee, & Lee, 2016; Wan & Chious, 2006; Yee, 2006).

In general, social skills (Lievens & Sackett, 2012), defined as the skills used when communicating with other people at an interpersonal level, include the outputs and/or goals of social interaction and the behaviors in these interactions (Spence, 1980). Therefore, the primary source of displaying social skills is the ability to communicate and establish relationships (Ellington, Dierdorff, & Rubin, 2014). That is, our ability to create and maintain our social world largely depends on how well we communicate (Jones, Hobbs, & Hockenbury, 1982). While many studies adopt the view that social skills include communication skills and that it is one of its sub-dimensions, in the current study, communication skills are considered a means of displaying social skills in the social world. For this reason, in this study, the mediating role of communication skills, which play a decisive role in the healthy interaction of people with others, between social skills that enable social networking and digital game addiction has been investigated. For this purpose, the following hypothesis will be tested:

- H1. . Social skills have a significant effect on digital game addiction.
- H2. . Communication skills have a significant effect on digital game addiction.
- H3. . Social skills have a significant effect on communication skills.
- H4. . Communication skills mediate between social skills and digital game addiction.

3. Methods

In this part of the study, the hypotheses developed in line with the literature, the methods and measurement tools used in the data collection process, the analyzes performed with the collected data, and the findings obtained are included. Ethical approval required for the study was obtained from Kastamonu University Social and Human Sciences Research and Publication Ethics Committee meeting numbered 2022/1–21.

3.1. Participants

A total of 474 university students, 232 (48.9 %) female, and 242 (51.1 %) male, participated in the study. While 125 (26.4 %) of the participants are in the age group 20 and under, 313 (66.0 %) are in the 21–25 age group, and 36 (7.6 %) are in the 26-year-old and over group. Participants were from different faculties of the university. While 72

(15.2 %) of the participants were 1st-year students, 98 (14.7 %) were 2nd-year students, 104 (21.9 %) were 3rd-year students and 200 were 4th-year students. While 11 (2.3 %) of the participants never played digital games, 192 (40.5 %) for 1–2 h, 177 (37.3 %) for 3–5 h, and 68 (14.3 %) played games for 6–8 h. Demographic information about the participants is given in Table 1.

3.2. Research model

After the literature review, the relational survey quantitative research model shown in Fig. 1 was created to reveal the relationships thought to exist between the variables for the study. Among the general screening model types, the relational screening model; is a research model that aims to determine the existence and/or degree of covariance between two or more variables (Fraenkel & Wallen, 2009).

3.3. Data collection process

The data used to evaluate the developed hypotheses and the research model created were obtained by the survey method. To measure the variables scales with validity and reliability that were used by many researchers before were used. The created questionnaire consists of 4 parts. The sections are respectively: 1st Section-Demographic information, 2nd Section-Communication skills, 3rd Section-Social skills, and 4th Section-Digital game addiction scales.

Since the data collection of the study was carried out during the COVID-19 pandemic period, the questionnaires were sent via the university's information processing system and filled in by students who wanted to participate in the study voluntarily. During the January–February 2022 period, 495 participants volunteered to fill out the questionnaires via the system. The sample consisted of 474 participants after removing 21 incomplete and incorrectly filled questionnaires.

3.4. Measures

3.4.1. The communication skills scale

Data on communication skills were collected with the

Table 1
Sociodemographic characteristics of participants at baseline.

Baseline characteristic	Gender				Full sample	
	Female		Male			
	n	%	n	%	n	%
Age						
20 and under	83	17,5	42	8,9	125	26,4
21–25	130	27,4	183	38,6	313	66,0
26 and over	19	4,0	17	3,6	36	7,6
Faculty						
Faculty of Education	55	11,6	36	7,6	91	19,2
Faculty of Arts and Sciences	31	6,5	18	3,8	49	10,3
Communication Faculty	24	5,1	30	6,3	54	11,4
Faculty of Theology	23	4,9	10	2,1	33	7,0
Faculty of Engineering and Architecture	11	2,3	43	9,1	54	11,4
Faculty of Health Sciences	38	8,0	18	3,8	56	11,8
Faculty of Economics and Administrative Sciences	21	4,4	34	7,2	55	11,6
Tourism Faculty	16	3,4	15	3,2	31	6,5
Faculty of Sports Sciences	13	2,7	38	8,0	51	10,8
Class						
1st Class	37	7,8	35	7,4	72	15,2
2. Class	59	12,4	39	8,2	98	20,8
3rd Class	55	11,6	49	10,3	104	21,9
4th Grade	81	17,1	119	25,1	200	42,2
Game play time						
None	10	2,1	1	0,2	11	2,3
1–2 h a day	88	18,6	104	21,9	192	40,5
3–5 h a day	85	17,9	92	19,4	177	37,3
6–8 h a day	33	7,0	35	7,4	68	14,3

“Communication Skills Scale” developed by Owen and Bugay (2014). The scale comprises 4 factors and 25 items. The KMO value of the scale (0.84) and the Barlett Test of Sphericity were found [$X^2 = 12,227.031$; $p < 0.1$] and exploratory factor analysis was applied to the scale. The Cronbach's alpha coefficient determined for the internal consistency reliability of the scale was found to be (0.88). Factors of the scale: Communication Principles and Basic Skill (10 items); Self-Expression (4 items); Active Listening and Non-Verbal Communication (6 items); Willingness to Communicate (5 items). High scores on the scale indicate that communication skills increase. The score of each question varies between 1 and 5, because of the ratings ranging between “Never” and “Always” answers on the scale (Owen & Bugay, 2014).

3.4.2. The social skills scale

The Social Skills Inventory scale developed by Riggio (1986) was used as a data collection tool in the research. Scale; It includes six subscales: Affective Expression, Affective Sensitivity, Affective Control, Generic Expression, Social Sensitivity, and Social Control. Each subscale has 15 items and the Social Skills Inventory consists of 90 items. The reliability of the original scale was found to be “ $r = 0.94$.” Generally, the higher the scores, the higher the level of social skills. Seven points, six subscales, and a total score will be obtained from the social skills inventory (Riggio, 1986). “High” scores from the Social Skills Inventory indicate positive social skills, and “low” scores indicate negative ones.

3.4.3. The digital game addiction scale for university students

In the research, a scale consisting of 3 factors was developed by Hazar and Hazar (2019) and the first factor is excessive focus and procrastination, the second factor is deprivation and seeking, and the third factor is emotion change and plunge. Factor analysis results showed that the scale had a 3-dimensional structure with 1 % eigenvalue explaining 59.61 % of the total variance. The first factor, consisting of 11 items, was excessive focus and procrastination, and as a result of the reliability analysis, the Cronbach Alpha (α) value was found to be 0.93. Example sentences for Factor 1: “There are times when I miss my studies to play digital games.”, “I spend most of my time outside of school playing digital games.” The second factor consisting of 6 items was deprivation and seeking, and as a result of the reliability analysis, the Cronbach Alpha (α) value was found to be 0.88. Sample items for Factor 2: “I get angry if I don't play digital games when I want.”, “I feel uneasy when I don't play digital games.” The third factor, consisting of 4 items, is mood change and immersion, and as a result of the reliability analysis, the Cronbach Alpha (α) value was found to be 0.75. Example sentences for factor 3: “Playing digital games relaxes me when I am unhappy.”, “I do not realize that I am hungry while playing digital games.” The total Cronbach Alpha (α) value of the items was found to be 0.92 (Hazar & Hazar, 2019). According to the results of the reliability analysis of the factors in the current study, the Cronbach Alpha (α) values are as follows: 0.97 for factor 1; 0.95 for factor 2; For factor 3, 0.90 and total Cronbach Alpha (α) values were found to be 0.95. The evaluation of the scale items developed by Hazar and Hazar (2019) consists of 5-point Likert-type scaling (1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree). The lowest score that can be obtained from the appendix is 21, and the highest score is 105. Scoring of the scale: 1–21: Normal group, 22–42: Low-risk group, 43–63: High-risk group, 64–84: Dependent group, 85–105: Highly dependent group.

3.5. Data analysis

The AMOS statistical program was used to test the model created for the study. Before starting the model analysis, a measurement model consisting of three latent variables and thirteen observed variables was examined using confirmatory factor analysis. Then, the correlations, mean, and standard deviation values between the analyzed variables were calculated. In the next step, the direct relationship between social skills and digital game addiction was tested. In the last step of the

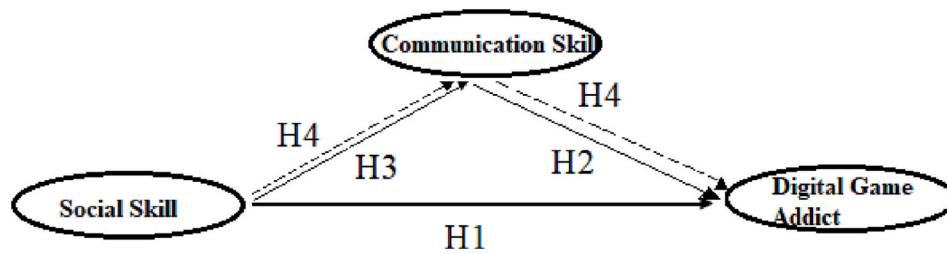


Fig. 1. Research model.

analysis, communication skill was added as a mediator variable to the model between social skills and digital game addiction, and the hypothetical model including the full mediation relationship was tested.

4. Results

In this study, before the analysis of the structural model, the measurement model was examined using confirmatory factor analysis. While social skills, communication skills, and digital game addiction are defined as implicit variables; scores from six subscales were defined as social skills, scores from four subscales were defined as communication skills, and scores from three subscales were defined as observed variables of digital game addiction. Thus, a measurement model was created with a total of three latent variables and thirteen observed variables. The path diagram of the model is presented in Fig. 2.

When the fit statistics of the measurement model were examined, the chi-square value was found to be significant at the $X^2 = 214.131$, $sd = 62$, $p = 0.00$ level. The ratio of the chi-square value obtained as a result of the analysis and the degrees of freedom ($X^2/sd = 3454$) show that the model is compatible with the real data (Hair, Black, Babin, Anderson, & Tatham, 2010; Marsh & Hocevar, 1985). Among the goodness-of-fit indices, was determined that the AGFI value was 0.903, the GFI value was 0.934, the CFI value was 0.980, the TLI value was 0.975, the SRMR value was 0.379 and the RMSEA value was 0.07. These values indicate that the fit indices of the measurement model are at an acceptable level (Hu & Bentler, 1999; Marsh, Balla, & McDonald, 1988; Schermelleh-Engel, Moosbrugger, & Müller, 2003).

Then, the correlations, mean and standard deviation values between the variables being studied were calculated and are presented in Table 2. Pearson correlation analysis was carried out to examine the

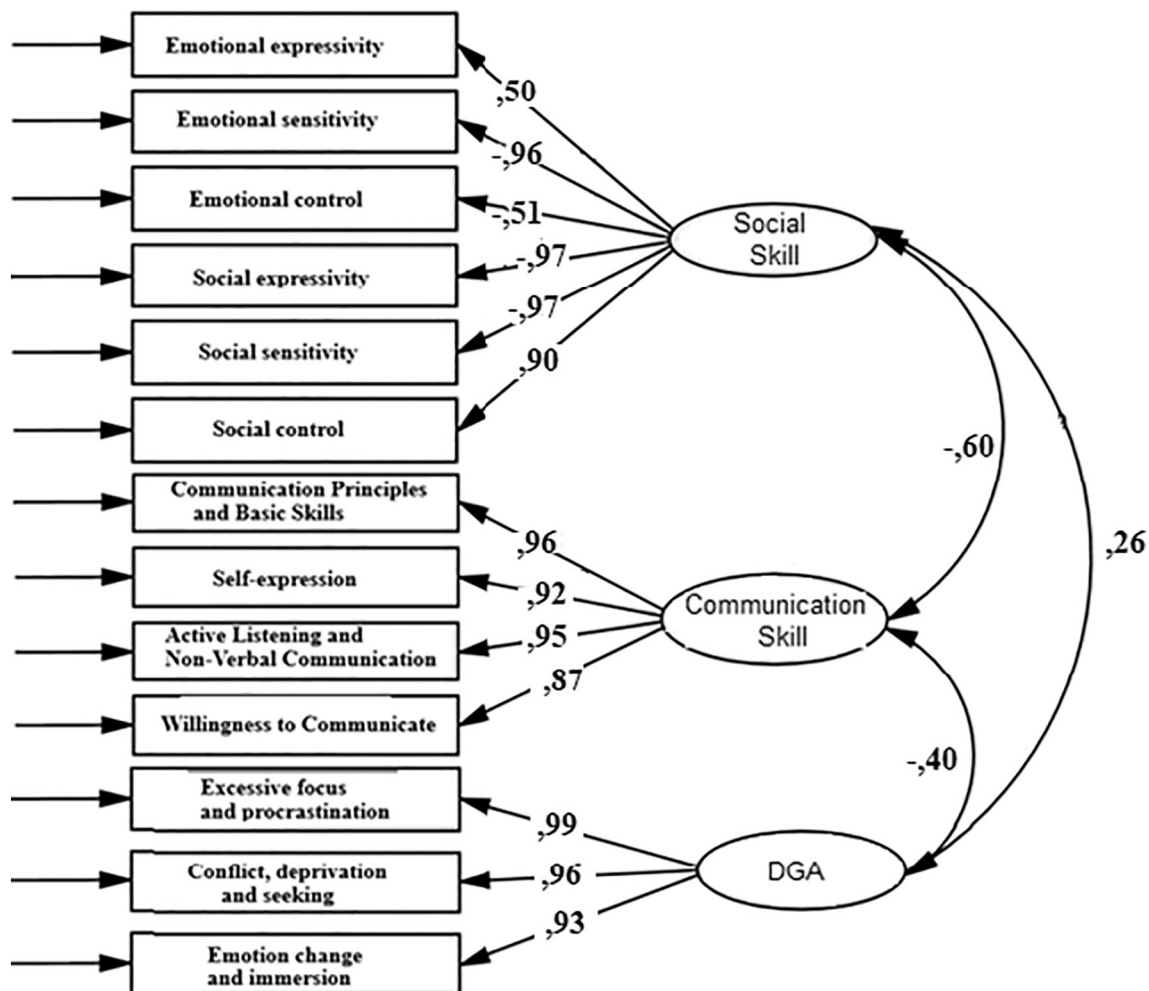


Fig. 2. Measurement model.

Table 2
Correlations, mean and standard deviation values between variables.

Variables	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3
1. Social skills	474	282,41	26,23	–		
2. Communication skills	474	93,37	21,22	,600**	–	
3. Digital game addiction	474	40,45	20,56	–,283**	–,400**	–

** $p < 0.01$.

relationships between social skills, communication anxiety, and digital game addiction, and the direction of these relationships. There was a significant and strong positive correlation between communication and social skills ($r = 0.600$; $p < 0.001$). Accordingly, as the social skills of the person increase, the communication skills also increase positively. There was a significant and strong negative correlation between communication skills and digital game addiction ($r = -0.400$; $p < 0.001$). Accordingly, as people's communication skills decrease, their digital game addiction levels increase significantly. A negative, significant, and strong relationship was found between social skills and digital game addiction ($r = -0.283$; $p < 0.001$). Accordingly, as people's social skills decrease, their digital game addiction levels increase significantly.

In the next step, the direct relationship between social skills and digital game addiction was tested and the path correlation showing the relationship between them was found to be $-.283$. In the absence of a mediator variable, we can say that the effect of social skills on digital game addiction is statistically significant ($p < 0.001$). The structural model is presented in Fig. 3.

In the next step, communication skills were added as a mediator variable to the model between social skills and digital game addiction, and the hypothetical model including the full mediation relationship was tested. Because of the path analysis, it was seen that the goodness of fit indexes of the hypothesis model was sufficient. The model is as in Fig. 4.

When the diagram in Fig. 3 is examined, it is seen that the direct effect of social skills on digital game addiction is -0.22 , and when the diagram in Fig. 4 is examined, it is seen that the effect of social skills on digital game addiction is -0.05 if communication skills are determined as a mediator variable. This decrease in the path coefficient provides evidence that communication skills have a full mediator effect between social skills and digital game addiction. Accordingly, as can be seen in Table 3, it can be said that social skills affect digital game addiction and communication skills have a full mediator effect in this relationship.

The direct effect of “Social Skills → Digital Game Addiction,” which was found to be significant when there was no mediating variable in the mediating relationship of “Social Skills → Communication Skills → Digital Game Addiction,” lost its significance when the mediating variable was added to the model. Therefore, social skills are transferred both through communication skills and directly. Here, full mediation has taken place.

5. Discussion

Over the last decade, many studies have found associations between low psychosocial well-being and excessive, compulsive, and/or pathological use of computer and digital games (Lemmens et al., 2011). For example, studies have shown that pathological digital game addicts experience less satisfaction with daily life (Wang, Chen, Lin, & Wang, 2008), lower self-esteem (Ko et al., 2005), and increased aggressiveness (Anderson et al., 2010) as well as lower socialization and interaction (Lo

et al., 2005). In this context, when the analysis results of the study conducted to determine the effect of the lack of social and communication skills, which constitute an important part of these skills, on the low psychological well-being of digital game addicts: A significant and negative effect of social skills on digital game addiction was determined and Hypothesis 1 was accepted. This finding is compatible with the findings of other studies on social skills and game addiction (Griffiths & Hunt, 1998; Grüsser et al., 2007; Hussain & Griffiths, 2009; Morahan-Martin & Schumacher, 2000; Davis, 2001; Caplan, 2003).

The results of the studies conducted in the field revealed that independent of digital game addiction, lack of social skills has consequences such as loneliness, depression, anxiety, aggression, and low self-esteem (Bozoglan & Demirer, 2015; Caplan, 2003; Check, Perlman, & Malamuth, 1985; Jones et al., 1981; Vitkus & Horowitz, 1987). Therefore, these people are likely to experience negative emotions such as disappointment, sadness, powerlessness, rejection, and helplessness due to social rejection or social exclusion in face-to-face interactions and are vulnerable to such social situations (Busch, 2009). An area of escape from these negative results of people with a lack of social skills is to turn to digital games. In particular, the results of the studies on online games have shown that people with social skills deficiency can replace real social interaction in online games because of the online social interaction, online anonymity, and the absence of physical presence that allows users to control social interaction (Bhagat et al., 2020; Griffiths, 2010; Griffiths, Davies, & Chappell, 2004; Hussain & Griffiths, 2009; Yee, 2006). These advantages provided by online games may be the source of the development of digital game addiction in a person after a while. For this reason, as Griffiths (2010) stated, the achievements of people with social skills deficiency through digital games may lead them to play digital computer games instead of socializing. Therefore, game addiction will reduce contact and interaction with others and prevent the individual from learning opportunities to develop their social skills effectively and efficiently, and will distract them from social labeling (Zamani, Kheradmand, Cheshmi, Abedi, & Hedayati, 2010). This, in turn, can remove the previously learned skill because social skills are typically learned through interactions with others (Hargie, Saunders, & Dickson, 1998) and need correction and feedback to continue (Argyle, 1983).

The second finding is that communication skills have a significant and negative effect on digital game addiction, similar to the results of Kim and Lee's (2019) study. Accordingly, Hypothesis 2 is accepted. People have a deep need to communicate because communication is an integral part of ongoing self-negotiation (Coover & Murphy, 2000). Therefore, the greater their ability in this regard, the more satisfying and rewarding their presence will be (Hargie, 2017; Jones et al., 1982). It has been shown that positive communication skills increase the interactions enjoyed in the social network by contributing to changes in the emotional state (Gable & Shean, 2000). Previous studies on psychosocial health and communication skills have shown that the lack of communication skills has negative outcomes such as loneliness, depression, anxiety, and aggression. For this reason, people with low communication skills may prefer to play online computer games instead of communicating with people face to face as a way to increase their self-esteem (Liu & Peng, 2009). Although results are showing that online games increase communication skills (Caplan, 2005; Morahan-Martin & Schumacher, 2000), results are showing that digital game addiction will contribute to negative situations such as loneliness, depression, and aggression, as well as a decrease in communication skills due to increased isolation.

Another finding is that social skills have a significant and positive effect on communication skills, and Hypothesis 3 was accepted. From an evolutionary perspective, humankind's discovery of symbolic language enables him to plan for the past, present, and future, and to be aware of himself. Others are the place where the ego must reach its needs to stay in an optimal state of balance, and others have expectations from the person to meet these needs. The only way to meet these expectations is

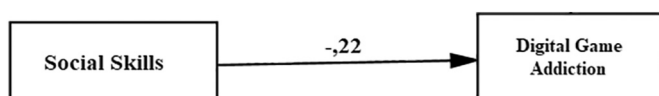


Fig. 3. Structural model of social skills and digital game addiction variable.

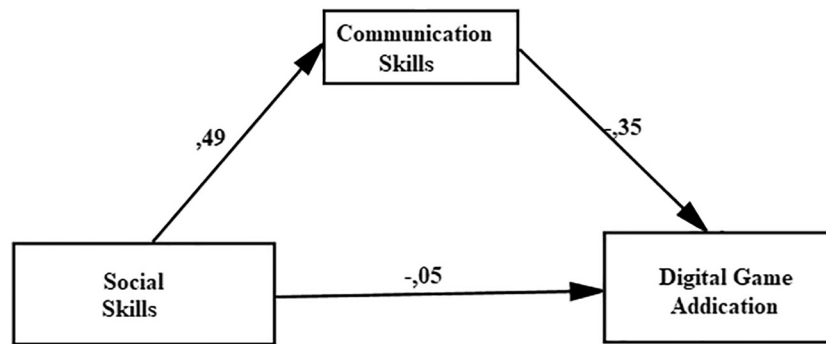


Fig. 4. Structural model between social skills, communication skills, and digital game addiction.

Table 3
Direct, indirect, and total effect of social skills on digital game addiction.

	Result variables					
	Social skills			Digital game addiction		
	β	SE	P	β	SE	P
Social skills				-0.283	0,35	**
R ²					-0,222	
Communication skills	0,600	0,30	**			
R ²		0,485				
Social skills				-0,067	0,41	0,203
Communication skills				-0,360	0,051	**
R ²					-0,349	
Indirect effect				-0,169	(-0,227 -0,116)	

** $p < 0.01$.

by being successful in interpersonal communication. Communication requires not only the use of symbolic language but also many social skills (aggression, empathy, etc.). Therefore, communication skills become a tool of practice within social skills. For this reason, there is a high level of positive relationship between social and communication skills, which are sometimes used interchangeably and complement each other. It is very important to develop communication skills to exhibit these skills in the social network (Weinstein & Lejoyeux, 2010). It can be said that communication exists when two people interact with each other in a certain way, and considering that it manifests itself with the sharing of basic desires in human life, the prevention of this interaction by digital game addiction causes addicts to turn to an unrealistic virtual interaction through game characters without empathy.

Finally, it has been determined that communication skills play a fully mediating role between social skills and digital game addiction. Thus, Hypothesis 4 was accepted. Considering that communication is the most important apparatus in the construction of a social network, the means of using the social skills resources is realized with communication skills. According to Stewart et al. (2005), there is a direct relationship between our communication quality and our quality of life. Because the results of the studies on communication skills show that the inability of individuals with low communication skills to form a social network causes them to experience more negative emotions and that this situation necessitates turning to different resources (Baumeister & Leary, 1995; Finch & Graziano, 2001; Liu & Peng, 2009). One of these escape areas is the online playground, which causes the consolidation of digital game addiction. Increasing digital game addiction may serve to decrease communication skills and increase negative emotions by increasing isolation as a result. As a result, researchers reported that individuals with digital game addiction are at risk of loneliness, low life satisfaction, high social anxiety, low self-esteem, high anxiety, and depression, and exhibit aggressive behaviors.

5.1. Conclusion

Digital game addiction has started to become more visible as an important public health problem that affects psychological well-being (Kim & Lee, 2019) as a factor that prevents the development of an individual's communication skills. An escape area is used to avoid the anxiety caused by interpersonal interaction in individuals with low communication skills (Kim & Lee, 2019; Weinstein & Lejoyeux, 2010), but this may further impair socialization by preventing the development of communication skills as it will increase social isolation. Although the results of the study reveal that communication skill is one of the important causes of multidimensional digital game addiction, there is a need to conduct qualitative studies on the life experiences of addicts on how digital game addiction changes communication skills.

5.2. Limitation

The limitations of this study are noted to suggest possible avenues for future research. The fact that the study was carried out during the COVID-19 pandemic may have affected the data obtained. Because the working group being at home and not being able to go out during this period may have increased their addiction to digital games. In addition, the fact that the study was conducted only with university students and students continuing their education in a single university constitutes an important limitation in comparison with people in a similar age group who did not attend university. The social and communication skill levels of the participants refer to the process in which they were addicted, therefore, a comparison could not be made regarding the social and communication skills of the participants in the process before they became addicted to games. In future studies, the effect of game addiction on the skills discussed must be carried out with qualitative studies based on life experiences.

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All researchers have no actual or potential conflict of interest that could improperly influence or be perceived as a conflict of interest, including any financial, personal or other relationships, with other individuals or organizations within three years of the beginning of the submitted study.

Data availability

Data will be made available on request.

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