

The impact of Computer Game Addiction on Communication capabilities

Jung ae Kim¹, Byunghyun Lee²

Chodang Universty, Department of Medical Management, Korea¹
jjosha6615@hanmail.net

Chodang Universty, Department of Medical Management, Korea²
aveloxpm@gmail.com

Abstract

This study was a cross-sectional descriptive research that investigate the level of addiction and analyzed the impact of computer game addiction from 20 to 30 years old on communication capabilities. The purpose of this study was to investigate the level of game addiction according to general characteristics and to confirm the effect of computer game addiction on communication ability. There were a total of 220 participants in the study. This survey for this study was a self-reporting questionnaire, research tools for this study were developed by Lee (2000) using game addiction and Communication ability developed by Frits et al., (1999). Data analysis was analyzed with frequency analysis, t-test, ANOVA, and Regression using SPSS 18.0. As a result of analysis, the difference between game addiction and communication ability by gender was appeared to be different under statistical significance levels: game addiction ($t=-.9.2$, $p<0.01$), subcomponents of communication ability, concentration ($t=7.20$, $p<0.01$), understanding ($t=6.13$, $p<0.01$), response ($t=6.22$, $p<0.01$), memory ($t=2.88$, $p<0.05$). The highest level of game addiction was appeared between 28 and 30 years old under statistical significance ($p<0.01$). Finally computer game addiction affects understanding, a subcomponent of communication capabilities.

Keywords: *Computer game addiction, Communication ability level, 20-30 years old, cross-sectional descriptive research.*

1. Introduction

Currently, we live in the information age, and the Internet is a very important medium among the necessary information collection channels. In the information age, computer information is collected through computers [1-2]. Therefore, the computer literacy rate is higher than that of any other ability. This trend has steadily increased the computer ownership rate of all households. Especially, 99.3% of the students are internet users, and 86.0% of users use Internet-based games for leisure activities [3]. Computer games can be divided into online games and offline games. And computer game classification methods are diverse, but

most commonly divided into genres. Genre refers to the sharing of subjects and stories in a manner that draws them [4-5]. In 2002, HK Lim (2002) classified the genre of computer games as follows. First, arcade games can be played with simple keystrokes, and a method of attacking enemies using a part of the body, a predetermined object or a weapon is universally used, and it is necessary to have quickness and quick adaptability rather than intellectual aspect. For example, shooting games, puzzle games, soccer, baseball, etc., are computerized sports games. The second is the Adventure game, in which the player completes the story set in the program by typing words directly or by giving orders to the main character. In a fantastic and mysterious world, players will use their imagination and logic to adventure. Third, Role playing game means 'to play a role'. It is a game in which a player achieves a certain purpose by selecting and performing a role that he / she will assume before playing the game. Fourth, as a simulation game, the term 'simulation of a game' means 'simulation'. By creating conditions that resemble reality and experimenting with things that can happen easily, it is creating a virtual world that resembles reality, a virtual reality that can be called a reality model. This game is a game that sets the world of the game similar to reality and in which the player achieves a certain purpose. The positive side is making the computer friendly, fun, and relieving stress [6-8] The results of the study showed that the learners' interest and confidence were high when they were learning using games, and that the learning methods using computer games improved learner's reading ability compared with the general learning methods based on textbooks and audio and video [9-12]. In addition, as the types and genres of computer games have been diversified, factors that can affect students' spatial skills, psychological state, and cognitive development have been increasing in graphic and sound of computer games, and it has been reported that the judgment becomes faster and the imagination becomes richer [13]. In addition, since the computer game facilitates the coordination movement of the eyes and hands [14-15], children who have no structural capacity in general games acquire a certain pattern by repeating random games. It is also useful in the education of children with disabilities [16-17]. However, these sensory pleasures and fulfilling computer games can also add to the addiction of the game, which is a powerful negative result [18-20] The screen and color composition of the computer game, the sound effect, etc. are stimulating and violent, and it is said that boys who have a tendency to pursue stimulation and aggressive tendency are easily distracted [21-23]. The phenomenon of addiction that is exacerbated by the effects of superior surrogacy provided by computer games threatens not only the psychological well-being of the individual but also the relationship with other important people and when teenagers are addicted to games, their conversations with their parents are diminished [24-25]. Furthermore, students lose interest in school life and are neglected in their studies [21][25]. Most of the games these days are characterized by violence. Therefore, the violence of the game is easily transferred to the children, and since the game is a window that interacts with other gamers, it reflects the self-consciousness of the youth and can learn the violence that is distorted without knowing it. Impulsive and aggressive games are sometimes seen as violence for some young people who want to be independent of the protection of their parents and lack real dialogue with their parents [26-27]. In addition, computer games are often used alone to avoid interpersonal relationships, which may indicate interpersonal anxiety [21][23], increase social isolation, raise personal inclination and deteriorating sociality. In addition, according to recent researches, it is possible to make a cynical attitude toward reality by making experience of living the world with a completely different appearance and character in virtual space and time completely separated from the real world and making it difficult to distinguish between reality and virtual. Other complaints are physical symptoms due to the addiction of the game, which are complaints of pain in the wrist, cervical, and elbow joints and complain of mental disorders such as anxiety, depression, and anxiety in relationships with others [28].

The characteristics of game addiction show strong attachment and dependency. The game occupies a very

important position in an individual's life, and game addicts behave like obsessive obsessions and dependencies in order to continue the game behavior as well as the behavioral characteristics of general behavior addiction. In more severe cases, resistance and loss of control may occur. Tolerance refers to the ability to use more time in the game to get the same level of satisfaction, or to feel satisfied only through more aggressive or aggressive games. Addicted computer gamers may withdraw when they stop playing games, but withdrawal is an indication of anxiety, depression, insomnia, etc. if they are not used for a certain period of time. In addition, there may be various problems when confusing with the virtual world of the computer is confused with reality. Especially, it is difficult to communicate 'non-verbal communication' such as expressions and behaviors such as communication through direct interpersonal relationship. Empathy in a person's life can have a profound impact on the vitality of life. Communication, which is an important part of interpersonal relationships, is also important for the mental health of modern people. Communication is recognized as a field of social science and communication affects the messages generated in interpersonal relationships and the processes and actions in which they are exchanged. Norton, R. W. defined the communication as: Communication is the most universal and fundamental of human relationships and is defined as the process of forming and maintaining the relationships between family members [29-30]. Sullivan emphasizes that a person was born with interpersonal skills from birth. It is emphasized that infants act as an important factor in the process of self-formation through the formation of relationships with meaningful objects, and that the source of all the anxiety of humans comes from interpersonal relationships. [31]. Improving communication skills is very important to improve interpersonal skills [18][19][23]. This communication can be said to exist when two people interact with each other in a specific way, and it is important to share basic desires in human life [31]. Communication skills are closely related to human empathy for social life. [32] According to Koo's study [33], empathy education in university lecture for college students emphasizes positive social interaction by forming social support network well. In other words, empathy was emphasized as having a positive role in interpersonal relationship. Thus, communication skills are closely related to empathy and positive interpersonal relationships. Nonetheless, the research that has been done so far shows that games that use computers are more concerned about physical, emotional, and social functioning rather than many positive effects. In other words, the majority of researchers are concerned about the phenomenon of interpersonal relations and communication in the virtual world of computer games. If so, it is meaningful to investigate the problem in which field of communication ability. Through this study, it can be obtained basic data for the alternative of computer game addiction by analyzing the relationship between computer game addiction level and communication ability and its effect. The purpose of the study is as follows.

First, investigate the level of computer game addiction according to general characteristics.

Second, investigate the relationship between computer game addiction and communication ability.

Third, analyze factors affecting communication ability of computer game addiction.

2. Research Method

2.1. Research design

The research design was to investigate whether the level of game addiction level affects communication ability (figure 1).

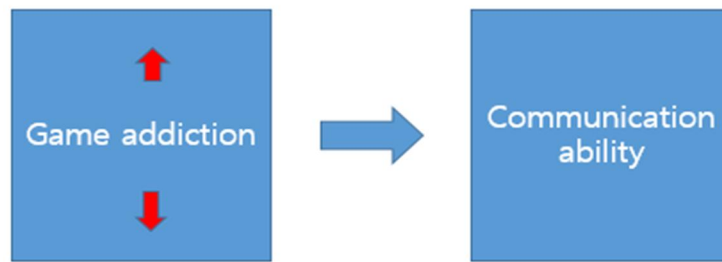


Figure 1. Research design

2.2 Participants

The total number of participants in this study was 220, who responded to online surveys. The questionnaire included an understanding of the purpose of the study and a voluntary response to the questionnaire. Participants were between the ages 20 and 40 and consisted of people who were familiar with the researchers. The survey period was from December 1 to 15, 2018.

2.3 Research tools

2.3.1 Game addiction

The game addiction tool was the internet addiction test (the addiction test made by the center for on-line addiction), which was modified according to the game situation by Lee [34]. The original test consisted of 20 questions and 5 points scale. In this study, it was modified to 'Yes' and, 'No', and it was judged that the higher score of game addiction test, the higher the degree of game addiction. The total scores ranged from 0 to 20, with the top 33% being 10-20 points for computer game addicts, the middle 33% for 6-9 computer game addicts, and the bottom 33% classified as 0-5 points in the game.

2.3.2 Communication ability

The communication ability tool for this study was developed by Frits et al., [35] and was a 5-point scale. The higher the score, the higher the communication ability, the 15-20 score was in the range of 20-25, the 'excellent communication', it was judged as 'communication problem' in the range of 15-15 score. The reliability of original tool was Cronbach alpha=0.91, and which was 0.95 in this study.

Table 1. Communication Tool

Sub-factor	Question	Number	Cronbach alpha
Concentration	4,12,13,16,19	5	.734
Understanding	2,10,11,22,25	5	.794
Analysis	1,7,17,18,23	5	.854
Reaction	5,8,15,20,21	5	.892
Memory	3,6,9,14,24	5	.700

3. Result

3.1 General characteristics

A frequency analysis was performed to identify the general characteristics of participants (Table 2). The study involved a total 220 participants, aged 20 to 30. The age of participants was the highest among the 22-24 year olds as 60(27.3%), 25-27 were 50 (22.7%), above 30 years olds were 40 (18.1%), 20-21 were 30 (13.6%), and 28-29 were 10 (4.5%). The participants were 180 (81.8%) women and 40 (18.2%) were men. Religion was the highest with 160 people (72.7%) without religion, and 20 (9.1%) people with Protestant, Catholic and Buddhist. Among the participants, the youngest siblings were the most, 220 (81.8%) participants were the youngest, and 20 (9.1%) were the first and 20 (9.1%) were the middle. At present, 90 (40.9%) have the most living on one's own, 70 (31.8%) were commute school, 40 (18.2%) were lodging people, and 20 (9.1%) were living on dormitories. As a result of a survey on drinking, it was found that 80 (36.4%) people were the most drinkers when they were asked to drink, 50 (22.7%) were drinking once a month, and 40 (18.2%) drinking twice a week and 10 (4.5%) drinking daily. According to a survey on tobacco, the highest number of people who did not smoke 200 (90.9%), 10 (4.5%) who smoked and 10 (4.5%) who quit smoking. As a result of research on the areas of interest, the respondents answered that they were interested in shopping with 110 (50.5%). 20 (9.1%) people were interested in art, reading a book, getting in touch with people, part-time work, and others. A survey of having opposite gender friend, at present, 140 (63.6%) have no opposite friend, and 80 (36.4%) have opposite gender friend.

Table 2. General characteristics

N=220

Variables	Type	N(%)	Variables	Type	N(%)
Age	20-21	60(27.3)	Housing	Dormitory	20(9.1)
	22-24	60(27.3)		Living own	90(40.9)
	25-27	50(22.7)		Lodging	40(18.2)
	28-30	10(4.5)		Commuting	70(31.8)
	30 ↑	40(18.1)			
Gender	Male	40(18.2)	Sister& Brother	Only child	20(9.1)
	Female	180(81.8)		Middle	20(9.1)
				The youngest	180(81.8)
Religion	Protestant	20(9.1)	Smoking	Yes	10(4.5)
	Catholic	20(9.1)		No	200(90.9)
	Buddhist	20(9.1)		Quit	10(4.5)
	Other	0(0.0)			
	None	160(72.7)			
Alcohol	Everyday	10(4.5)	Interest	Art	20(9.1)
	2times/wk	40(18.2)		Reading a book	20(9.1)
	Once/mon	50(22.7)		Exercise	40(4.5)
	Requested	80(36.4)		Shopping	110(50.0)
	No	40(18.2)		Relation	20(9.1)
		Making money		20(9.1)	
		Others		20(9.1)	
Marriage	Yes	80(36.4)	Lover	Yes	80(36.4)
Thinking	No	60(27.3)		No	140(63.6)
	Unknown	80(36.4)			

Variables	Type	N(%)	Variables	Type	N(%)
Age	20-21	60(27.3)	Housing	Dormitory	20(9.1)
	22-24	60(27.3)		Living own	90(40.9)
	25-27	50(22.7)		Lodging	40(18.2)
	28-30	10(4.5)		Commuting	70(31.8)
	30 ↑	40(18.1)	Sister& Brother	Only child	20(9.1)
Gender	Male	40(18.2)		Middle	20(9.1)
	Female	180(81.8)		The youngest	180(81.8)
Religion	Protestant	20(9.1)	Smoking	Yes	10(4.5)
	Catholic	20(9.1)		No	200(90.9)
	Buddhist	20(9.1)		Quit	10(4.5)
	Other	0(0.0)	Interest	Art	20(9.1)
	None	160(72.7)		Reading a book	20(9.1)
Alcohol	Everyday	10(4.5)		Exercise	40(4.5)
	2times/wk	40(18.2)		Shopping	110(50.0)
	Once/mon	50(22.7)		Relation	20(9.1)
	Requested	80(36.4)	Making money	20(9.1)	
No	40(18.2)	Others	20(9.1)		
Marriage	Yes	80(36.4)	Lover	Yes	80(36.4)
	No	60(27.3)		No	140(63.6)
Thinking	Unknown	80(36.4)			

3.2 Correlation between game addiction and communication ability level

The relationship between game addiction and communication ability was analyzed (Table 3). As a result of analysis, it was appeared that response, a sub-factor of communication, was correlated with game addiction under statistical significance level ($r=-.030$, $p<0.05$).

Table 3. Correlation between Game addiction and Communication ability level

Variables	Mean	SD	1	2	3	4	5	6
1. Concentration	2.91	.691	1	.802	.858	.833	.803	-.106
2. Understanding	2.93	.706		1	.871	.843	.736	-.222
3. Analysis	2.96	.849			1	.904	.765	-.180
4. Response	0.70	.187				1	.766	-.030
5. Memory	2.82	.487					1	-.074
6. Addiction	1.89	.162						1

Correlation is significant at level 0.01 (both side)

*, Correlation is significant at level 0.05 (both side)

3.3 Game addiction and communication ability level difference according to gender

A t-test was correlated to identify differences in game addiction and communication ability according to gender (Table 4). The results of this research were as follow: gender was statistically significant at game addiction ($t=-9.2$, $p<0.01$), concentration ($t=7.20$, $p<0.01$), understanding ($t=6.13$, $p<0.01$), response ($t=6.22$, $p<0.01$), and memory ($t=2.88$, $p<0.05$).

Table 4. Game addiction and communication ability level differences according to gender

Type	Mean		SD		t	p
	Male	Female	Male	Female		
Addiction	1.71	1.93	.243	.100	-9.32	.000**
Concentration	3.55	2.77	.220	.680	7.20	.000**
Understanding	3.50	2.80	.175	.716	6.13	.000**
Analysis	3.70	2.80	.303	.846	6.62	.000**
Response	.857	.670	.034	.190	6.22	.000**
Memory	3.02	2.78	.180	.522	2.88	.004*

*,p<0.05, **,p<0.01

3.4 Game addiction differences according to age

ANOVA analysis was conducted to identify differences in game addiction according to age (Table 5). As a result of analysis, age was found to affect game addiction at statistical significance level ($p<0.01$). 28-30 years old were the most addicted to the game, followed by 25-27, 22-24, and 31 years old ($p<0.01$)

Table 5. Game addiction differences according to age

Dependent variables	Independent variables	Mean	SD	F/p	Post hoc result
	Age				
Game addiction	22-24(a)	1.858	.128	45.458/.000**	c>b,a,d
	25-27(b)	1.975	.056		
	28-30(c)	2.000	.000		
	31 or more	1.633	.000		

*,p<0.05, **,p<0.01, missing data was excluded.

3.5 The effect of game addiction to communication ability level.

Regression analysis was conducted to confirm the effect of game addiction on communication ability (Table 6). The result of analysis showed that game addiction affected only understanding which was sub-factor of communication ($t=-2.413$, $p<0.05$).

Table 6. The effect of game addiction to communication ability level

Dependent variables	Nonstandard Factor		β	t	P
	B	SD			
Constant	2.942	.152	-	19.365	.000
Concentration	-.014	.060	-.015	-.227	.820
Constant	3.279	.153	-	21.397	.000
Understanding	-.146	.061	-.161	-2.413	.017*
Constant	3.193	.186	-	17.156	.000
Analysis	-.095	.074	-.087	-1.288	.199
Constant	.643	.041	-	15.717	.000
Response	.025	.016	.105	1.559	.120
Constant	2.773	.107	-	25.894	.000
Memory	.021	.042	.033	.489	.625

Independent variable: communication ability level.

*, p<0.02, **, p<0.01

4. Conclusion and Discussion

In recent times, the use of computers has become absolutely necessary in real life. As the computer became more and more natural, the rate of natural contact with computer games increase, and the enjoyment of computer games naturally increased the number of people with addiction symptoms [3-4]. Computer addiction is a high-risk group, especially in the 20-30 age groups. So far, it has been studied that computer games have various advantages and disadvantages [10][14]. Recent studies have shown that computer game addiction was a major concern for people living in their own world. In other words, there was a huge concern about the problem of not communicating with people.

This study to investigate the level of addiction and analyzed the impact of computer game addiction from 20 to 30 years old on communication capabilities. The purpose of this study was to investigate the level of game addiction according to general characteristics and to confirm the effect of computer game addiction on communication ability. There were a total of 220 participants in the study. As a result of analysis, the difference between game addiction and communication ability by gender was appeared to be different under statistical significance levels: game addiction ($t=-.9.2$, $p<0.01$), subcomponents of communication ability, concentration ($t=7.20$, $p<0.01$), understanding ($t=6.13$, $p<0.01$), response ($t=6.22$, $p<0.01$), memory ($t=2.88$, $p<0.05$). The highest level of game addiction was appeared between 28 and 30 years old under statistical significance ($p<0.01$). Finally computer game addiction affects understanding, a subcomponent of communication capabilities.

As a result of this study, computer game addiction was correlated with communication capability, however communication capability were not as severe as in previous studies. According to Fritz S et al., [35] the communication ability was divided into five areas (concentration, understanding, analysis, response, memory), and this study appeared that it affected only the area of understanding, the sub-component of communication. This study suggested that it was meaningful that computer game addiction has a specific effect on the area of communication. Therefore, it is necessary to study further deeply what kind of game influence understanding.

References

- [1] Cox S, Pollock D, Rountree J, Murray CM. "Use of information and communication technology amongst New Zealand dental students", *Eur J Dent Educ*. Vol.20 No.3, pp. 135-41. Aug 2016.
DOI: 10.1111/eje.12151. Epub 2015 Apr 20. Sklar, Digital Communications, Prentice Hall, pp. 187, 1998.
- [2] J.A. Kim, E.Y. Cho, "Computer use experience of nurses working in hospital", *International Journal of Internet, Broadcasting and Communication*, Vol.10 No.1, pp. 31-39, Oct 2018.
DOI: <https://doi.org/10.7236/IJIBC>.
- [3] Ministry of Information and Communication, 1st Half Information Survey, 2007.
- [4] HG IM, "Interaction Characteristics of Computer Game Opening, Master Thesis", Master's thesis, Kookmin University, 2002.
- [5] Ustinavičienė R, Škėmienė L, Lukšienė D, Radišauskas R, Kalinienė G, Vasilavičius P. "Association between computer game type, playing time and sense of coherence in Lithuanian adolescents". *Cent Eur J Public Health*. Vol.26 No.3, pp. 209-214. Sep 2018.
DOI: 10.21101/cejph.a4731.
- [6] MS Kim, "A Study on the Actual Condition of Computer Game Usage and Change of Life in Adolescence", Master's thesis, Kumho University, 2002.
- [7] MG Hanm, "Use of Computer Games and Change of Life in Elementary School Students", Master's thesis, Yeungnam University, 2003.

- [8] Prahm C, Sturma A, Kayali F, Mörth E, Aszmann O, “Smart Rehab: App-based rehabilitation training for upper extremity amputees - Case Report”, *Handchir Mikrochir Plast Chir.* Vol.50 No.6, pp.425-432. 2018.
DOI: 10.1055/a-0747-6037. Epub 2019 Jan 8.
- [9] MS Kim, “The Effects of Learning Using Computer Games on the Improvement of English Vocabulary and Interest in Fourth Grade Elementary School”, Master Thesis, Busan National University of Education, 2002.
- [10] IS Hong, “The Effects of Classes Using Game on Computer Achievement in Computer Subject”, Master's Thesis, Ajou University, 2006.
- [11] Greitemeyer T, Weiß N, Heuberger T, “Are everyday sadists specifically attracted to violent video games and do they emotionally benefit from playing those games?”, *Aggress Behav.* Vol. 26. 2018 2018.
DOI: 10.1002/ab.21810.
- [12] Panchuk D, Klusemann MJ, Hadlow SM, “Exploring the Effectiveness of Immersive Video for Training Decision-Making Capability in Elite, Youth Basketball Players”, *Front Psychol.* Vol.27 No.9, pp.2315. Nov 2018.
DOI: 10.3389/fpsyg.2018.02315.
- [13] DH Lee, “The Effects of Computer Games on Science Attitude and Scientific Inquiry Ability of Middle School Students”, Master Thesis's, Korea National University of Education, 2003.
- [14] Young J, “Using a Role-Play Simulation Game to Promote Systems Thinking”, *J Contin Educ Nurs.* Vol.1 No.49(1), pp.10-11, Jan 2018.
DOI: 10.3928/00220124-20180102-04.
- [15] Calle-Bustos AM, Juan MC, García-García I, Abad F, “ An augmented reality game to support therapeutic education for children with diabetes”, *PLoS One.* Vol.28 No.12, pp.9, Sep 2017 :e0184645.
DOI: 10.1371/journal.pone.0184645. eCollection 2017.
- [16] DH Jeon, “Effects of computer – based game – based learning on reading literacy and attitude in mental retarded children”, Master thesis, Korea National University of Education, 2004.
- [17] Kim YH, Kang DW, Kim D, Kim HJ, Sasaki Y, Watanabe T, “Real-Time Strategy Video Game Experience and Visual Perceptual Learning”, *J Neurosci.* Vol. 22 No.35(29), pp.10485-92. Jul 2015.
DOI: 10.1523/JNEUROSCI.3340-14.2015.
- [18] Ravaja N, Turpeinen M, Saari T, Puttonen S, Keltikangas-Järvinen L, “The psychophysiology of James Bond: phasic emotional responses to violent video game events”, *Emotion.* Vol.8 No.1, pp.114-20. Feb 2008.
DOI: 10.1037/1528-3542.8.1.114.
- [19] Riedl D, Stöckl A, Nussbaumer C, Rumpold G, Sevecke K, Fuchs M, “Usage patterns of internet and computer games : Results of an observational study of Tyrolean adolescents”, *Neuropsychiatr.* Vol.30 No.4, pp.181-190. Dec 2016, Epub 2016 Nov 8. German.
- [20] Schivinski B, Brzozowska-Woś M, Buchanan EM, Griffiths MD, Pontes HM, “Psychometric assessment of the Internet Gaming Disorder diagnostic criteria: An Item Response Theory study”, *Addict Behav Rep.* Vol.30 No.8, pp.176-184. Jun 2018,.
DOI: 10.1016/j.abrep.2018.06.004. eCollection 2018 Dec.
- [21] SS Lee, “Relationship between Adolescent Computer Game Addiction and Emotional Characteristics”, Master's Thesis, Seoul Women's University, 2001.
- [22] Arvinen-Barrow M, Maresh N, Earl-Boehm J, “Functional Outcomes and Psychological Benefits of Active Video Gaming in the Rehabilitation of Lateral Ankle Sprains: A Case Report”, *J Sport Rehabil.* Vol.24, pp.1-45. Jan 2019.
DOI: 10.1123/jsr.2017-0135.
- [23] Weinstein AM, “Computer and video game addiction-a comparison between game users and non-game users”, *AM J Drug Alcohol Abuse.* Vol. 36 No.5, pp.268-76, Sep 2010.
DOI: 10.3109/00952990.2010.491879.
- [24] Göbel S, Maddison R, “Serious Games for Health: The Potential of Metadata”, *Games Health J.* Vol.6 No.1, pp.:49-56. Feb 2017,.
DOI: 10.1089/g4h.2016.0034. Epub 2017 Jan 4

- [25] Stockdale L, Coyne SM, Video game addiction in emerging adulthood: Cross-sectional evidence of pathology in video game addicts as compared to matched healthy controls, *J Affect Disord.* Vol.1 No.225, pp.265-272. 2018 Jan. DOI: 10.1016/j.jad.2017.08.045. Epub 2017 Aug 18.
- [26] Reeves S, Greiffenhagen C, Laurier E, "Video Gaming as Practical Accomplishment: Ethnomethodology, Conversation Analysis, and Play", *Top Cogn Sci.* Vol.9 No.2, pp.308-342. Apr 2017. DOI: 10.1111/tops.12234. Epub 2016 Nov 30.
- [27] Teng Z, Nie Q, Guo C, Zhang Q, Liu Y, Bushman BJ, "A longitudinal study of link between exposure to violent video games and aggression in Chinese adolescents: The mediating role of moral disengagement", *Dev Psychol.* Vol.55 No.1, pp.184-195. Jan 2019. DOI: 10.1037/dev0000624.
- [28] Obst PL, Zhao X, White KM, O'Connor EL, Longman H, "Game Identity-Based Motivations of Playing World of Warcraft and Their Psychological Outcomes", *Cyberpsychol Behav Soc Netw.* Vol.21 No.10, pp.655-660. Oct 2018. DOI: 10.1089/cyber.2018.0185.
- [29] Izon E, Berry K, Law H, French P, "Expressed emotion (EE) in families of individuals at-risk of developing psychosis: A systematic review", *Psychiatry Res.* Vol.270, pp.661-672. Dec 2018, DOI: 10.1016/j.psychres.2018.10.065. Epub 2018 Oct 25.
- [30] Van Petegem S, Vansteenkiste M, Soenens B, Zimmermann G, Antonietti JP, Baudat S, Audenaert E, "When Do Adolescents Accept or Defy to Maternal Prohibitions? The Role of Social Domain and Communication Style", *J Youth Adolesc.* Vol.46 No.5, pp.1022-1037. May 2017. DOI: 10.1007/s10964-016-0562-7. Epub 2016 Sep 9.
- [31] Sullivan, H.S. The interpersonal theory of psychiatry, New York:W. W. Norton, 1953.
- [32] JW Kim, GS Choi, The effects of communication training program on self-expression and empathy ability of elementary students, *Child education*, Vol.17 No.1, pp.107-117, 2008.
- [33] JG Koo, The effects of the sympathetic education program using the liberal arts lectures of college on the communication and perception of human relations and therapeutic factors, *Counseling research*, Vol.7 No.1, pp.11-26, 2006.
- [34] KA Lee, Differences in Learning Strategies and Academic Achievement in Middle School Students Computer Game Addiction Level, Master's thesis, Keimyung University, 2007.
- [35] Fritz S., Brown, F. W., Lunder, S. P., & E. A. Banset. E. A. Interpersonal skill for readership. NJ: Printice Hall, 1999.