The Effects of Self-Control on Internet Immersion : The Moderating Effects of Parenting Attitude

Jea-Ug Ko¹, Ki-Hyun Kim², Jin-Ho Jeon³

¹ Professor, Dept. of Social Welfare, Catholic Kwandong University, South Korea, kojea62@cku.ac.kr

² Doctor's course, Dept. of Business Administration, Catholic Kwandong University, South Korea,
kimkihyun5037@gmail.com

³ Professor, Dept. of Business Administration, Catholic Kwandong University, South Korea,
jhgy@cku.ac.kr

Corresponding author: Jea-Ug Ko

Abstract: This study aimed to determine the effects of self-control on Internet immersion in adolescence and the moderating effects of negative parenting attitudes. Furthermore, this study is intended to provide education, prevent Internet immersion, and give parent education so that adolescents could desirably use the Internet. To this end, a survey was conducted on 249 male and female adolescents at the national level. Self-control was used as an independent variable, parenting attitude as a parameter, and Internet immersion as a dependent variable. This study obtained the following results. First, the negative maternal parenting attitude has moderating effects on the impact of self-control on Internet immersion, whereas a negative paternal parenting attitude has no moderating effect. Second, self-control was identified as an essential variable in preventing Internet immersion in adolescence; a significant association was found between maternal parenting attitude and self-control. It is ultimately necessary to improve self-control and maternal child-rearing education at home to solve Internet immersion in adolescence. Furthermore necessary to get attention and support for maternal education regarding Internet over-immersion in cooperation with schools and communities.

Keywords: Self-control, Parenting Attitude, Internet Immersion, Adolescent, Internet

1. Introduction

1.1 Need for Study

Adolescents, who have poorer self-control than adults, tend to be easily tempted to rely heavily on the Internet and continue to accept information impulsively with no definite idea. Over-reliance on the Internet due to the failure in timing can negatively affect attention development in adolescence. While the Internet, which is available all the time, gives us convenience and enjoyment, it can have an adverse impact due to overuse[1]. Adolescents, who are poor at self-control, are likely to become immersed in a smartphone, and the most frequent cause of smartphone over-reliance was a failure in self-regulation (28.6%)[2]. It is reported that Internet overuse has made some adolescents neurotic, angry, and sensitive to anxiety[1]. A survey on the use of the Internet in adolescence, which the Ministry of Gender Equality and Family (2020) conducted, found that 228,120 adolescents (17.1%) formed the over-reliance risk group showing addiction symptoms to the Internet or a smartphone[3].

Received: April 19, 2021; 1st Review Result: June 3, 2021; 2nd Review Result: July 21, 2021
Accepted: August 30, 2021

Of these, 175,496 adolescents (76.9%, including overlapped ones) belonged to the Internet over-reliance risk group[3]. While the Internet is used to positively form interpersonal relationships as a means of communication in virtual space, it can positively reduce social activity and adversely threaten psychological well-being, called the Internet paradox[4]. In particular, adolescents in a growth phase tend to be at higher risk of mental, social, and emotional sequelae in development due to Internet addiction than adults[5]. Parenting attitude discordance means inconsistent and opposite opinions in parenting. It refers to the lack of consistency in paternal and maternal parenting behavior; such a confusing parenting attitude involves either paternal or maternal parenting behavior, which is inconstant and inconsistent[6]. Inconsistent parenting attitude led to serious Internet immersion; the stronger the control and supervision parents put on Internet use, the more likely adolescents were to get addicted to the Internet. Particularly, the more inconsistent the maternal parenting attitude, the more severe the Internet addiction[7]. Adolescents who were less patient, who showed short-term satisfaction, who were impulsive, and who showed more inadequate attention in terms of self-control got immersed in the Internet quickly; the poorer at self-control one is, the more immersed in the Internet[8]. The delayed outcome with long-term satisfaction or patience, in terms of self-control, can make it less likely to have self-control and impulse control disorders or addiction[9]. It is essential for both parents to be consistent in parenting attitude or behavior; tension and discordance regarding domination and obedience are reportedly strongly correlated with their children's maladaptive behavior[10]. The study on the effects of self-control and parenting attitude on Internet immersion has confirmed that self-control depends significantly on the extent of Internet immersion; thus, the more immersed in the Internet, the poorer at self-control one is. This result implies that the extent of Internet immersion is associated with self-control. Adolescents with poor self-control, who are likely to get addicted to the Internet easily, require attention and control from their parents[11]. Through cyberspace, adolescents experiment and explore a sense of self-identity and introduce and expose themselves boldly. In addition, they meet diverse people, get familiar with strangers freely with no burden, and feel free to express themselves in cyber-space via the Internet[12]. The findings that people immersed in the Internet were less satisfied with their family and social life and that those who were more likely to feel lonely or solitary and who were less aware of social support showed a higher rate of Internet addiction also confirm that social support, which involves family, is an essential factor affecting adolescents[13][14]. On this basis, this study is intended to determine how parenting attitude moderated the effects of self-control perceived by adolescents on Internet immersion.

1.2 Research Questions

This study is aimed to answer the following questions:

First, self-control would affect Internet immersion.

Second, a negative paternal parenting attitude would have moderating effects on the impact of self-control on Internet immersion.

Third, a negative maternal parenting attitude would have moderating effects on the impact of self-control on Internet immersion.

2. Contents

2.1 Research Model and Hypotheses

This study is designed to examine the effect of parenting attitude on the effect of self-control on Internet immersion.

[Fig. 1] Research Methods

H1: Self-control would positively affect Internet immersion.

H2: Negative paternal parenting attitude would have moderating effects on the impact of self-control on Internet immersion.

H3: Negative maternal parenting attitude would have moderating effects on the impact of self-control on Internet immersion.

2.2 Research Procedure

An online survey was conducted for two months, starting from March 2020, on 249 college students in the capital area. Questionnaires were distributed to the students willing to participate in the online survey due to COVID-19.

2.3 Instrument

2.3.1 Dependent Variable: Internet Immersion

The revised version of Young's (1996) Internet addiction inventory was used to measure Internet immersion[4]. It was a five-point Likert scale with a total of 20 items: 6 concerning Internet addiction, 4 concerning social isolation due to Internet use, and 10 concerning academic, physical, and emotional problems accompanying Internet use.

2.3.2 Moderating Variable: Parenting Attitude

The revised version of Parker's (1979) Parental Bonding Instrument (PBI) was used to measure parenting attitude[15]. It was a five-point Likert scale with a total of 31 items: 7 concerning parenting abuse and 7 concerning parenting neglect in terms of negative parenting attitude, 7 concerning child's needs in parenting, 9 child's concern, and 3 concerning inconsistent parenting attitude.

2.3.3 Independent Variable: Self-control

The revised version of the self-control scale developed by Tangney, Baumeiste, and Boone (2004) was used to measure self-control[16]. It was a five-point Likert scale with a total of 20 items: 10 concerning patient, long-term satisfaction, and 10 concerning impatient, immediate satisfaction.

2.4 Data Processing

The collected data were statistically processed using an SPSS 23.0 program. For the demographic factors of the sample, frequency analysis was performed to estimate frequency and percentage. Confirmatory factor analysis and reliability tests were carried out to validate the variables. To analyze the variables' distribution, descriptive statistics were used to estimate the mean and standard deviation, and inter-variable correlation was determined. For hypothesis testing, structural equation modeling was carried out to determine inter-variable direct and moderating effects.

3. Results

3.1 Demographic Characteristics

[Table 1] Demographic Factors of Sample

Division		No. of persons	%
Gender	M	127	51.0
	F	122	49.0
Parent attitude toward Internet use	Very strict	2	.8
	Strict	29	11.6
	Average	91	36.7
	Recommending	124	49.8
	Very recommending	3	1.2
The main spot for Internet access	Home	220	88.3
	School	6	2.4
	PC room/Cafe	23	9.2
Internet installation spot at home	One's room	149	59.8
	Parent's room	6	2.4
	Sibling's room	25	10.0
	Living room	44	17.7
	Another spot	13	5.2
	None	12	4.8
Source of help concerning Internet immersion	Parents	61	24.5
	Schoolteacher	4	1.6
	Peer	74	29.7
	School counselor	10	4.1
	Professional counseling center	26	10.4

Mainly used type of Internet	Internet search	49	19.7
	No help needed	25	10.0
	Information search	50	20.1
	Email	5	2.0
	Personal website	6	2.4
	Online shopping	10	4.1
	Game	74	29.7
	Club	8	3.2
	Chatting	16	6.4
	Messenger	41	16.5
	Download	3	1.2
	Multimedia	34	13.6
	Pornography/Gambling	1	.4
	Other	1	.4
Daily Internet-using time (weekday)	<1 hour	7	3.2
	1-2 hours	41	16.5
	2-3 hours	63	25.3
	3-4 hours	78	31.3
	≥4 hours	60	24.1
Daily Internet-using time (weekend)	<1 hour	9	3.6
	1-2 hours	26	10.4
	2-3 hours	58	23.3
	3-4 hours	49	19.7
	≥4 hours	107	43.0
Total		249	100.0

As for the sample's demographic characteristics, 51.0% of the respondents were male, and 49.0% female; parents' most frequent attitude toward Internet use was recommendation (49.8%), followed by average and strict attitudes. The most frequent Internet access site was the home (88.3%), followed by PC room/cafe and school; the most frequent Internet installation site was one's room (89.8%), followed by the living room, sibling's room, other, none, and parent's room. The most frequent source of help concerning Internet immersion was peer (29.7%), followed by parents, Internet search, and professional counseling center. The most frequent Internet use type was game (29.7%), followed by information search, messenger, and multimedia. The most frequent amount of time for daily Internet

use on weekdays was 3-4 hours (31.3%), followed by 2-3 hours, ≥ 4 hours, 1-2 hours, and < 1 hour. The most frequent amount of time for daily Internet use on weekends was ≥ 4 hours (43.0%), followed by 2-3 hours, 3-4 hours, 1-2 hours, and < 1 hour.

3.2 Reliability Test for Variables

Cronbach's alpha for internal consistency was used to determine the variables' reliability; in social science, Cronbach's alpha of ≥ 0.6 means being reliable.

[Table 2] Reliability Test of Variables

Division		Cronbach's Alpha	
Self-control	Long-term satisfaction	.774	.823
	Immediate satisfaction	.819	
Internet immersion	Addictive use	.846	.934
	Social isolation	.767	
	Accompanying problem	.877	
	Abuse	.893	
	Neglect	.862	
Negative parenting attitude	Demand	.884	.925
	Attention	.856	
	Inconsistency	.778	

Cronbach's alpha was estimated at 0.774-0.819 for self-control, 0.767-0.877 for Internet immersion, and 0.778-0.893 for negative parenting attitude. Specifically, every variable was rated ≥ 0.6 for reliability, and the instrument can be considered reliable.

3.3 Confirmatory Factor Analysis of Variables

Confirmatory factor analysis of the variables was performed to validate the observed and latent variables. Goodness-of-fit test as confirmatory factor analysis and the results of the analysis can be analyzed as follows:

[Table 3] Goodness-of-fit Test for Confirmatory Factor Analysis

Division	χ^2	CMIN/df	RMR	GFI	CFI	TLI	RMSEA
Model	153.401	1.966	.044	.925	.959	.945	.063
Criterion		< 3.0	$< .05$	$> .09$	$> .09$	$> .09$	$< .08$

If CMIN/df is ≤ 3.0 , RMR is ≤ 0.05 , GFI, CFI, and TLI are ≥ 0.9 , and RMSEA is ≤ 0.08 , goodness-of-fit is present. In this study, every goodness-of-fit index met the following criteria: CMIN/df=1.966, RMR=0.044, GFI=0.925, TLI=0.945, CFI=0.959, and RMSEA=0.064. The inter-variable relations in this study were found to be valid.

[Table 4] Results of Confirmatory Factor Analysis

	Path		Non- standardized coefficient	Standardized coefficient	SE	t	AVE	CCR
Long-term satisfaction	←	Self-control	.748	.683	.106	8.323***	.928	.963
Immediate satisfaction	←	Self-control	1.000	.961				
Addictive use	←	Internet immersion	.871	.843	.041	20.692***	.962	.984
Social isolation	←	Internet immersion	.903	.798	.044	18.373***		
Accompanying problem	←	Internet immersion	1.000	.994				
Abuse	←	Negative paternal parenting attitude	.787	.672	.083	9.207***	.856	.962
Neglect	←	Negative paternal parenting attitude	.792	.613	.092	8.433***		
Demand	←	Negative paternal parenting attitude	.778	.592	.093	8.316***		
Attention	←	Negative paternal parenting attitude	.836	.704	.085	9.574***		
Inconsistency	←	Negative paternal parenting attitude	1.000	.703				
Abuse	←	Negative maternal parenting attitude	.763	.692	.079	9.921***	.882	.973
Neglect	←	Negative maternal parenting attitude	.764	.763	.073	10.661***		
Demand	←	Negative maternal parenting attitude	.881	.648	.091	9.503***		
Attention	←	Negative maternal parenting attitude	.841	.691	.088	9.932***		
Inconsistency	←	Negative maternal parenting attitude	1.000	.712				

***p<.001

The confirmatory factor analysis found that the sub-variables of negative parenting attitude, Internet immersion, and self-control statistically significantly accounted for the variables. Convergent validity was at a high level with AVE ≥ 0.8 , and CCR ≥ 0.9 , and concept reliability was also high.

3.4 Descriptive Statistics and Correlation Analysis of Variables

[Table 5] Descriptive Statistics of Variables

Division		N	Mean	SD	Skewness	Kurtosis
Self-control	Long-term satisfaction	249	3.41	.63	-.96	.91
	Immediate satisfaction	249	3.82	.64	-1.12	.78
Internet Immersion	Addictive use	249	3.16	1.05	-.08	-.57
	Social isolation	249	2.45	1.17	.64	-.19
	Accompanying problem	249	2.82	1.07	.18	-.59

Negative paternal parenting attitude	Abuse	249	1.77	.74	1.33	1.25
	Neglect	249	2.15	.82	.73	.17
	Demand	249	2.44	.91	.17	-.51
	Attention	249	2.42	.82	.43	-.84
	Inconsistency	249	2.49	.93	.06	-.97
Negative maternal parenting attitude	Abuse	249	1.62	.82	1.83	1.51
	Neglect	249	1.74	.71	1.23	1.28
	Demand	249	2.38	1.05	.35	-.71
	Attention	249	2.56	.94	.09	-.85
	Inconsistency	249	2.30	1.00	.28	-.86

The descriptive statistics showed that long-term and immediate satisfaction (3.41 and 3.82, respectively) were rated slightly high for self-control; social isolation (2.45) was rated lowest; addictive use (3.16) was rated highest for Internet immersion. Abuse (1.77) was rated lowest, and inconsistency (2.49) was rated highest for negative paternal parenting attitude, whereas abuse (1.62) was rated lowest, and attention (2.56) was rated highest for negative maternal parenting attitude. Each variable had its skewness and kurtosis within ± 1.97 , and normal distribution was secured for the variables.

[Table 6] Correlation Analysis of Variables

Division		Self-control		Internet immersion			Negative paternal parenting attitude			Negative maternal parenting attitude						
		Long-term satisfaction	Immediate satisfaction	Addictive use	Social isolation	Accompanying problem	Abuse	Neglect	Demand	Attention	Inconsistency	Abuse	Neglect	Demand	Attention	Inconsistency
Self-control	Long-term satisfaction	1														
	Immediate satisfaction	.545***	1													
Internet Immersion	Addictive use	-.292***	-.420***	1												
	Social isolation	-.306***	-.458***	.651***	1											
	Accompanying problem	-.361***	-.520***	.731***	.653***	1										
Negative paternal parenting attitude	Abuse	-.246***	-.38***	.153*	.234***	.271***	1									
	Neglect	-.105	-.250***	.176**	.224***	.317***	.351***	1								
	Demand	-.074	-.268***	.247***	.334***	.321***	.412	.273***	1							

Negative maternal parenting attitude	Attention	-.128 *	-.371 ***	.264 ***	.322 ***	.340 ***	.473 ***	.383 ***	.491 ***	1								
	Inconsistency	-.136 *	-.299 ***	.223 ***	.287 ***	.356 ***	.475 ***	.482 ***	.411 ***	.451 ***	1							
	Abuse	-.235 ***	-.376 ***	.222 ***	.304 ***	.358 ***	.458 ***	.344 ***	.252 ***	.351 ***	.342 ***	1						
	Neglect	-.324 ***	-.320 ***	.251 ***	.286 ***	.329 ***	.382 ***	.572 ***	.362 ***	.427 ***	.323 ***	.441 **	1					
	Demand	-.156 *	-.303 ***	.292 ***	.315 ***	.348 ***	.296 **	.343 ***	.602 ***	.442 ***	.359 ***	.420 **	.436 ***	1				
	Attention	-.155 *	-.372 ***	.354 ***	.324 ***	.428 ***	.292 **	.363 ***	.441 ***	.443 ***	.329 ***	.420 **	.464 ***	.525 ***	1			
	Inconsistency	-.201 **	-.286 ***	.253 ***	.293 ***	.348 ***	.303 ***	.391 ***	.311 ***	.329 ***	.454 ***	.404 **	.426 ***	.438 ***	.445 ***	1		

*p<.05, **p<.01, ***p<.001

The correlation analysis showed that Internet immersion was positively correlated with negative paternal and maternal parenting attitudes and that self-control was negatively correlated with negative paternal and maternal parenting attitudes in most cases. A negative correlation was found between self-control and Internet immersion. Since each variable's direction was consistent with the one set by the researcher, it had discriminant validity.

4. Hypothesis Testing

[Table 7] Goodness-of-fit Test of Model

Division	χ^2	CMIN/df	RMR	GFI	CFI	TLI	RMSEA
Model	2.226	.556	.010	.996	1.000	1.006	.000
Criterion		<3.0	<.05	>.09	>.09	>.09	<.08

A model's goodness-of-fit is present if CMIN/df is ≤ 3.0 , RMR is ≤ 0.05 , GFI, CFI, and TLI are ≥ 0.9 , and RMSEA is ≤ 0.08 . In this study, every goodness-of-fit index meets the criteria—CMIN/df=0.556, RMR=0.000, GFI=0.996, TLI=1.006, CFI=1.000, and RMSEA=0.000—and the model is considered valid.

[Table 8] Effects of Self-control on Internet Immersion

	Path	Non-standardized coefficient	Standardized coefficient	SE	t	p
Internet Immersion	← Self-control	-1.373	-.594	.195	-7.046***	.000

p<.01, *p<.001

Self-control negatively affected Internet immersion ($t=-7.046$, $p<0.001$); that is, the better at self-control, the less immersed in the Internet.

Structural equation modeling was used to analyze the moderating effects of parenting attitude on the impact of self-control on Internet immersion. When self-control and parenting attitude act as independent variables and Internet immersion as a dependent variable, the interaction term's statistical significance entails moderating effects.

[Table 9] Moderating Effects of Parenting Attitude

Division		Non- standardized coefficient	Standardized coefficient	SE	t	p
Internet Immersion	Self-control *negative paternal parenting attitude	-.067	-.116	.034	-1.955	.051
	Self-control *negative maternal parenting attitude	-.078	-.130	.040	-1.975*	.048

* $p<.05$

As for the moderating effects of negative parenting attitude on the impact of self-control on internet immersion, the interaction between self-control and negative paternal parenting attitude was not statistically meaningful ($t=-1.955$, $p>0.05$). Interaction between self-control and negative maternal parenting attitude was statistically meaningful ($t=-1.975$, $p<0.05$). Negative maternal parenting attitude had moderating effects on the impact of self-control on Internet immersion, whereas negative paternal parenting attitude had no moderating effect.

4. Conclusions

This study is intended to provide education, prevent Internet immersion, and give parent education so that adolescents could desirably use the Internet. As for the effects of parenting attitude on the impact of self-control perceived by adolescents on their Internet immersion, self-control negatively affected Internet immersion ($t=-7.046$, $p<0.001$); that is, the better at self-control, the less immersed in the Internet. It is necessary to provide various types of programs and education to improve self-control in adolescence. It was found that the better at self-control, the lower the level of Internet immersion, and that improved self-control lowered the level of Internet immersion. Second, as for the moderating effects of self-control on the impact of self-control on Internet immersion, interaction between self-control and negative paternal parenting attitude was not statistically meaningful ($t=-1.955$, $p<0.05$). Third, the interaction between self-control and negative maternal parenting attitude was statistically meaningful ($t=-1.975$, $p<0.05$). This result implies that a negative maternal parenting attitude has moderating effects on the impact of self-control on Internet immersion, whereas a negative paternal parenting attitude has no moderating effect. As for guidance and parenting for adolescents at home, since mothers spend more time in their children's education, maternal parenting draws more attention than paternal parenting. Ultimately, a negative maternal parenting attitude has moderating effects on the maternal impact on Internet immersion, whereas a negative paternal parenting attitude has no moderating effect. Self-control perceived by adolescents was significantly correlated with negative maternal parenting attitude and also affected Internet immersion. Also, it is necessary to run a self-control improvement program and give desirable maternal education at home and at school to prevent Internet immersion in adolescence. Thus, it is important to get attention and support for maternal education regarding Internet over-immersion in cooperation with schools and communities. There is a

limit to generalizing the study sample to all adolescents, and it did not reflect the actual parenting attitude of the parents.

References

- [1] J. Ahmadi, A. Amiri, A. Ghanizadeh, M. Khademalhosseini, Z. Khademalhosseini, Z. Gholami, M. Sharifian, Prevalence of Addiction to the Internet, Computer Games, DVD, and Video and Its Relationship to Anxiety and Depression in a Sample of Iranian High School Student, *Iranian Journal of Psychiatry and Behavioral Sciences*, (2014), Vol.8, No.2, pp.75-80.
- [2] National Information Society Agency, 2017 The survey on smart phone overdependence, Korea: MIST and NIA, (2017)
- [3] http://www.mogef.go.kr/nw/rpd/nw_rpd_s001d.do?mid=news405, Aug 25 (2020)
- [4] R. Kraut, J. Patterson, V. Landmark, S. Kiesler, T. Mukopadhyay, W. Scherlis, Internet paradox: A social technology that reduces social involvement and psychological well-being, *The American Psychologist*, (1998), Vol.53, No.9, pp.1017-1031.
- [5] V. Brenner, Psychology of computer use: XLVII parameters of internet use, abuse and addiction: The first 90 days of the Internet Usage Survey, *Psychological Reports*, (1997), Vol.80, No.3, pp.879-882.
- [6] A. T. Beck, The development of depression: A cognitive model, In Friedman, *The psychology of depression: Contemporary theory and research*, UK: John Wiley & Sons, (1974)
- [7] H. S. Park, The Factors affecting on Internet Addiction in Adolescence and how to deal with it - Focusing on Ecosystem Theory, *Journal of the Korea Society of Computer and Information*, (2010), Vol.15, No.8, pp.193-200.
- [8] S. Y. Kim, S. Y. Choi, B. S. Kim, The Impact of Self-Consciousness, Stress, and Internet Use Control on Internet Addiction Among Adults, *Journal of Information Technology Services*, (2007), Vol.6, No.3, pp.47-67.
- [9] H. Y. Cho, A Study on the Juvenile Internet Game Addiction and Personality Traits, Hanyang University, Master's Thesis, (2001)
- [10] G. R. Mussen, B. N. Conger, Delinquents' perceptions of their parents, *Journal of Consulting Psychology*, (1965), Vol.29, No.6, pp.592-593, DOI: 10.1037/h0022776
- [11] S. G. Ahn, H. H. J, Relationship between middle school students and self-control power, *The Korean Educational Practice Research Society*, (2007), Vol.6, No.2, pp.87-103.
- [12] <http://users.rider.edu/~suler/psycyber/index.html>, Aug 1 (1998)
- [13] Y. H. Choi, B. D. Suh, E. H. Choi, Stress and social support according to internet addiction, *Journal of Korean Academy of Community Health Nursing*, (2007), Vol.18, No.3, pp.452-459.
- [14] H. K. Chung, K. H. Kim, Internet addiction, social support and psychological factors in adolescents, *Korean Journal of Child Health Nursing*, (2004), Vol.10, No.4, pp.406-412.
- [15] G. Parker, H. Tupling, L. B. Brown, A Parental Bonding Instrument, *British Journal of Medical Psychology*, (1979), Vol.52, No.1, pp.1-10.
- [16] J. P. Tangney, R. F. Baumeister, A. L. Boone, High self-control predicts good adjustment, less pathology, better grades, and interpersonal success, *Journal of Personality*, (2004), April, Vol.72, No.2, pp.271-324.