

Impact Analysis of Internet Addiction on Students' Academic Performance

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Abstract

Nowadays, with the spread of the Internet and the emergence of high-performance computers and various peripheral devices, our society is undergoing great changes. In the field of education, various types of education using smart education infrastructure are being conducted. The spread of the Internet and the development of various devices have problems that can lead to addiction due to excessive Internet use. Most of the problems that appear in adolescence are immersed in games, which can affect academic achievement. Therefore, in this study, the effect of excessive Internet use on students' academic achievement was studied. The survey for the study was conducted through a questionnaire survey, and the subjects of the survey were high school students majoring in humanities. As a result, the relationship between academic achievement and Internet addiction was low in the middle, upper, and lower groups in the general user group. Also, in the high-risk user group, it appeared high in the order of middle, low, and high.

Keywords: Smart education, Addiction, Internet, Game, High-performance computer.

1. Introduction

The increase in the use of the Internet has a positive side, but there is a problem of Internet-based addiction. According to the 'Internet Addiction Survey' conducted by the Ministry of Information and Communication and the Korea Information and Culture Promotion Agency on 2,000 men and women aged 9 to 39, 3.3% of Internet users (high-risk users) needed help from experts. In addition, 73.4% of adolescents use the Internet for online games, indicating that online games are the main cause of Internet addiction. When we think of addiction, it is easy to think of alcoholism or drug addiction. These diseases are related to substance dependence or substance abuse and cause perceptual disorders, arousal disorders, attention disorders, thinking ability disorders, judgment disorders, and interpersonal disorders. Recently, the concept of addiction has been applied to a wide range of behavioral problems beyond simple substance use [1-6]. In other words, the target of pathological addiction can be anything. Invading the human mind, such as food, exercise, gambling, consumption, work, and games, has become a focus among psychologists [7, 8].

The government established the Internet Prevention Center to respond to the problem of Internet addiction, and made sure that the most addicted teenagers could receive full financial support from the government [9-

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12]. Korea has a world-class Internet infrastructure and a large population of Internet users, so social problems caused by Internet addiction are serious functional disorders and require social measures. Therefore, research for a comprehensive and systematic understanding of adolescents' Internet use should increase the learning effect that can be obtained through Internet use, nurture internationally competitive talents, and socially protect and support them so that they can grow into healthy citizens. In Korea, most studies on Internet addiction have been conducted in general. On the other hand, studies on Internet addiction according to academic achievement are somewhat lacking. In this study, a survey was conducted targeting students attending a liberal high school in a specific region in order to understand the changes in school education caused by excessive Internet use by teenagers and prepare countermeasures. The survey was conducted with 174 students attending high schools in large, small cities and rural areas. In this study, the actual conditions of the user group were analyzed for the subtypes of Internet addiction, such as daily living disorder, reality discrimination disorder, positive expectation, withdrawal, virtual interpersonal orientation, deviant behavior, and tolerance. In addition, we tried to find out whether there were differences in Internet addiction by region and by academic achievement.

2. Study subjects and procedures

This study conducted a survey targeting adolescents attending a local high school. Sampling was conducted by a survey method targeting a total of 192 people by convenience sampling in several schools as adolescents attending a local liberal arts high school. Of these, 174 cases were used for analysis, excluding 18 cases with insincere responses. Table 1 shows the sociodemographic background of these survey subjects.

Table 1. Demographic and Sociological Characteristics of Survey Subjects

Division	Contents	N (%)	Contents	N (%)
School	Humanities	174 (100%)		
Residence	Big city	58 (33.3%)	Small city	58 (33.3%)
	Rural area	58 (33.3%)		
Internet usage period	Less than 1 year	5 (2.87%)	Less than 2 year	3 (1.72%)
	Less than 3 year	15 (8.62%)	Less than 4 year	36 (20.68%)
	More than 4 year	107 (61.49%)		
Average usage time per day	Less than 1 hour	1 (0.57%)	Less than 2 hour	4 (2.30%)
	Less than 3hour	106 (60.91%)	Less than 4 hour	18 (10.34%)
	More than 4 year	35 (20.11%)		
Main place of use	school	3 (1.72%)	Friend's house	2 (1.15%)
	PC room	16 (9.20%)	House	133 (76.44%)

As a result of examining the sociodemographic characteristics of the survey subjects, the total number of respondents was 174 students. Residents were equally distributed in consideration of regional differences. Regarding the period of Internet use, 82.17% of the total respondents answered that it was more than 3 years. Regarding the daily Internet use time, 30.46% of the total responded that it was more than 3 hours, 60.91% said more than 2 hours and less than 3 hours, and only 2.87% said less than 2 hours. The most common places to use the Internet were home, PC room, school, and friend's house, in that order.

The subjects of the study were humanities high school students. The reason for this is that humanities high school students, rather than vocational high school students, experience a lot of stress due to academic work in connection with entering college, and use the Internet as their main means of leisure. This study was conducted using a questionnaire method targeting male and female high school students using the Internet, and sociodemographic characteristics were used only as basic data.

3. Investigation result analysis

As presented in Table 2, looking at the Internet addiction tendency of the survey subjects, 87.36% of the total were classified as normal Internet users. Potential risk users accounted for 9.20% and high risk users accounted for 3.45%. Among the factors by subtype, daily living obstacle (26.43%), reality discrimination obstacle (18.39%), and positive expectations (20.69%) showed an addiction tendency more prominently than other factors. This shows that 82.17% of the total respondents answered that the period of Internet use was more than 3 years, showing that the longer the Internet use, the more difficult it is to distinguish virtual space from real space. However, the fact that deviant behavior was lower than other subtypes at 4.59% shows that teenagers' Internet use does not flow so negatively. In addition, withdrawal (10.35%), virtual interpersonal orientation (10.34%), and tolerance (12.07%) were similarly shown.

Table 2. Survey of user groups by type of internet addiction

	General user group		Potential risk user group		High-risk user group	
	students	%	students	%	students	%
daily living obstacle	128	73.56	7	4.02	39	22.41
reality discrimination obstacle	142	81.61	25	14.37	7	4.02
positive expectations	138	79.31	12	6.90	24	13.79
withdrawal	156	89.66	8	4.60	10	5.75
virtual interpersonal orientation	156	89.66	9	5.17	9	5.17
deviant behavior	166	95.40	3	1.72	5	2.87
Tolerance	153	87.93	14	8.05	7	4.02
total		87.36		9.20		3.45

As for the results of daily living disorders, as shown in Table 3, Internet addiction symptoms were slightly higher in rural areas (32.76%) than in small cities (20.69%) and large cities (25.86%). In general, there are very few students who go to private academies or receive private tutoring after school than students in small and big cities. Therefore, it is estimated that there are more opportunities to access the Internet in everyday life than small and big cities students.

Table 3. Distribution of daily living obstacle by region

	General user group		Potential risk user group		high-risk user group		Remark
	students	%	students	%	students	%	
big city	43	74.14	2	3.45	13	22.41	58
small city	46	79.31	2	3.45	10	17.24	58
rural areas	39	67.24	3	5.17	16	27.59	58
total	128	73.56	7	4.02	39	22.41	174

Table 4 shows the reality classification obstacle, and the reality classification obstacles are big cities (31.03%), rural areas (13.79%), and small cities (10.45%). In particular, students in big cities show a distinct difference between potential risk users and high risk users than other students. It is inferred that the degree of addiction is higher in the academic achievement group than other factors, so that the educational attainment and expectation of parents are overwhelmed by the burden of the students in the big cities, and the students are

immersed in the Internet due to the high stress on the students.

Table 4. Distribution by region according to reality classification disorder type

	General user group		Potential risk user group		high-risk user group		Remark
	students	%	students	%	students	%	
big city	40	68.97	13	22.41	5	8.62	58
small city	52	89.66	4	6.90	2	3.45	58
rural areas	50	86.21	7	12.07	1	1.72	58
total	142	81.61	24	13.79	8	4.60	174

According to Table 5, there is little difference between regions in positive expectations. Although there are some differences between students in urban areas and students in rural areas, it is thought that all students face stress about their career and studies.

Table 5. Distribution of positive expectations by region

	General user group		Potential risk user group		high-risk user group		Remark
	students	%	students	%	students	%	
big city	46	79.31	6	10.34	6	10.34	58
small city	47	81.03	2	3.45	9	15.52	58
rural areas	45	77.59	4	6.90	9	15.52	58
total	138	79.31	12	6.90	24	13.79	174

The results of the withdrawal phenomenon are shown in Table 6. The withdrawal symptoms were high in big cities (12.07%) and rural areas (12.07%) and low in small cities (6.89%). This means that 82.17% of the total respondents answered that they are more than three years, and the longer they use the Internet, the more they feel withdrawal symptoms. In addition, the urban areas and large cities showed higher symptoms of addiction than small cities in 'daily life obstacle' and really discrimination obstacle.

Table 6. Distribution by region for withdrawal type

	General user group		Potential risk user group		high-risk user group		Remark
	students	%	students	%	students	%	
big city	51	87.93	3	5.17	4	6.90	58
small city	54	93.10	1	1.72	3	5.17	58
rural areas	51	87.93	4	6.90	3	5.17	58
total	156	89.66	8	4.60	10	5.75	174

According to Table 7, small cities (13.79%) were slightly higher than big cities (8.62%) and rural areas (8.62%) in the orientation of hypothetical interpersonal relationships. In particular, it is considered a peculiar phenomenon that high-risk users appear higher than other regional user groups. However, when the number of potential users and high-risk users are combined, the difference in addiction symptoms is not large. Therefore, it should be seen that students are still chatting and exchanging e-mails with friend offline rather than forming new interpersonal relationships online.

Table 7. Regional distribution of virtual interpersonal orientation types

	General user group		Potential risk user group		high-risk user group		Remark
	students	%	students	%	students	%	
big city	53	91.38	4	6.90	1	1.72	58
small city	50	86.21	1	1.72	7	12.07	58
rural areas	53	91.38	4	6.90	1	1.72	58
total	156	89.66	9	5.17	9	5.17	174

According to Table 8, deviant behavior rarely shows addiction symptoms. It is analyzed that most of teenagers' deviant behavior on the Internet is because teenagers who have difficulty socially fulfilling their needs are showing a phenomenon of being immersed in the Internet. However, it is fortunate that such deviant behavior is not clearly revealed in this survey.

Table 8. Academic achievement distribution for deviant behavior types

	General user group		Potential risk user group		high-risk user group		Remark
	students	%	students	%	students	%	
big city	54	93.10	1	1.72	3	5.17	58
small city	57	98.28	0	1.72	1	1.72	58
rural areas	55	94.83	2	3.45	1	1.72	58
total	166	95.40	3	1.72	5	2.87	174

According to Table 9, tolerance showed no difference between regions in general users. Small cities (6.90%) were low in potential users, and large cities (3.45%) and rural areas (3.45%) were low in high-risk users. Overall, the differences between regions were similar.

Table 9. Regional distribution of resistant types

	General user group		Potential risk user group		high-risk user group		Remark
	students	%	students	%	students	%	
big city	51	87.93	5	8.62	2	3.45	58
small city	51	87.93	4	6.90	3	5.17	58
rural areas	51	87.93	5	8.62	2	3.45	58
total	153	87.93	14	8.05	7	4.02	174

Table 10 shows the Internet addiction status of high, middle, and low academic achievement groups. In the general user group, it appeared low in the order of the middle group, the high group, and the low group. The number of potential risk users increased from the high group to the middle and low groups. On the other hand, high-risk users appeared higher from the middle group to the low and high groups. It is analyzed that students in the low group of academic achievement have low career consciousness and academic motivation, so their desire for academic achievement is inevitably weak, so they are at high risk of being easily immersed in the Internet. On the other hand, it is presumed that the high group with a strong desire for academic achievement is a factor in falling into the Internet due to career and academic stress.

Table 10. Status of Academic Achievement by User Group

	General user group		Potential risk user group		high-risk user group		Remark
	students	%	students	%	students	%	
High (30%)	45	88.24	3	5.88	3	5.88	51
Middle (40%)	62	90.28	6	8.33	1	1.39	72
Low (30%)	42	82.35	7	13.73	2	3.92	51
Total	152	87.38	16	9.20	6	3.45	174

4. Conclusions

In this study, a survey was conducted targeting students attending liberal high schools in a specific region to obtain basic data for establishing a desirable education plan for school education due to excessive Internet use by adolescents. In this study, the actual condition of the user group was analyzed for the items of daily living disorder, which is a subtype of Internet addiction. In addition, this study aimed to find out whether there were differences in Internet addiction by region and academic achievement.

As a result of the study, first, 12.65% of the survey subjects were included in the category of potential and high-risk users, and the average usage time per day was 3 hours or more, with 91.36% showing a high usage rate. Second, looking at the actual status of user groups by subtype of Internet addiction, 87.36% of the total was classified as normal Internet users, 9.20% were potential risk users, and 3.45% were high risk users. Third, looking at the actual state of Internet addiction by region, it was found to be low in general users in the order of 89.66% in rural area, 87.93% in small cities, and 84.48% in large cities. Finally, the actual status of Internet addiction in the high, middle, and low academic achievement groups is as follows. In the general user group, it appeared low in the order of the middle group, the high group, and the low group. The number of potential risk users increased from the high group to the middle and low groups. On the other hand, high-risk users appeared higher from the middle group to the low and high groups.

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