THE EFFECTS OF PARENTAL MONITORING AND LEISURE BOREDOM ON ADOLESCENTS' INTERNET ADDICTION

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ABSTRACT

This study explored the effects of parental monitoring, leisure boredom, and leisure activity on Internet addiction. The sample was 1,289 adolescents from eleven senior high schools in Taiwan. Participants were asked about their perception of being monitored by their parents, leisure boredom, leisure activities, and Internet addiction behavior. Results showed that leisure boredom and involvement in Internet and social activities increase the probability of Internet addiction; however, family and outdoor activities along with participative and supportive parental monitoring decrease these tendencies. Overall evidence suggests that parental monitoring is a major inhibitor of Internet addiction. Thus, adolescents should be supervised in their daily routines and encouraged to participate in family and outdoor activities. In addition, adolescents should develop a positive attitude toward leisure and the skills to prevent overdependence on online relationships with the assistance of parents. These findings suggest the preventive strategies regarding Internet addiction.

INTRODUCTION

The Internet has become an integral part of adolescents' lives because it provides access to the world (Subrahmanyam & Lin, 2007); however, over involvement in the Internet is prevalent across different campuses (Chou, Condron, & Belland, 2005). Actually, the Internet is an environment that could be abused by anyone (Griffiths, 1998), particularly by adolescents due to their lower cognitive and self-control ability. Excessive use of the Internet is often defined as an addiction,

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a psychological dependence regardless of the type of online activity (Kandell, 1988). Overuse of the Internet may result in several negative consequences for adolescents, for example, poor school work, expulsion, social isolation, and disrupted daily routines (Brenner, 1997; Scherer, 1997; Young, 1998). Further, adolescent Internet addicts tend to have substance use experience (Ko et al., 2006) and engage in risky Internet behavior such as cybersex or face-to-face meeting with someone first encountered online (Liau, Khoo, & Ang, 2005). Therefore, identification of causes of Internet addiction is important so that preventive or remedial strategies can be developed.

In general, past studies have used social or psychological variables to explain or predict Internet addiction. For instance, novelty seeking and harm avoidance are positively correlated, and reward dependence are negatively correlated with Internet addiction (Ko et al., 2006). Sensation, adventure, and excitement seeking are negatively associated with Internet addiction (Lavin et al., 1999). Pleasure seeking is positively correlated with Internet addiction (Chou & Hsiao, 2000). Moreover, time online is also important in determining Internet addiction. Internet addicts spend much more time online than do non-addicts (Chen & Chou, 1999; Young, 1998).

Internet addicts often encounter time-management problems (Chou, Condron, & Belland, 2005), and this may be a result of unbalanced time allocation among several leisure activities—both physical and virtual. Recent leisure literature indicates that the perception of boredom is critical in predicting leisure activity involvement and satisfaction, and consequent life satisfaction (Russell, 1987). Boredom refers to a negative state of mind that reflects an inner conflict between expected optimal and perceived experiences. Boredom arises when individuals feel that they cannot escape a meaningless routine, when they are constrained by too many obligations or when leisure time is faced by those who do not have sufficient leisure skills (Iso-Ahola & Weissinger, 1990). Understanding leisure boredom during adolescence is imperative because boredom is compounded by concomitant developmental processes (Caldwell, Darling, Payne, & Dowdy, 1999). Boredom avoidance is one of the major motivations for using the Internet (Lin & Yu, 2008). Put differently, when adolescents actively participate in pleasurable leisure activities and they are satisfied with these activities, psychological needs (e.g., sensation seeking and pleasure seeking) can be fulfilled in the real world. Thus, if leisure time is perceived to be boring and fails to satisfy expected optimal experience, adolescents may be motivated to seek another alternative—the Internet.

Additionally, during the transitional and developmental period of adolescence, it is preferable that they be supervised or guided in their leisure activities time by their parents. Parents can alter maladaptive behaviors of adolescents; monitoring can play a central role in family management (Patterson & Stouthamer-Loeber, 1984). The time-disruption problem of adolescent Internet addicts may be related to the amount of unsupervised time they spend alone. Specifically, adequate parental monitoring can prevent adolescents from becoming overinvolved in the Internet and also facilitate other leisure experiences. Higher levels of adolescents' perceived monitoring by parents are associated with lower levels of boredom in leisure time (Caldwell, Darling, Payne, & Dowdy, 1999). This study explored the effects of parental monitoring, leisure boredom, and leisure activity on adolescents' Internet addiction.

METHOD

Participants

A paper-based survey was conducted in December, 2008 with the assistance of teachers from 11 senior or vocational high schools across Taiwan in which the students were free to choose to participate and were assured of confidentiality. Of the 1,500 questionnaires distributed, 1,289 were usable (response rate 85.9%).

Measures

Parental monitoring. Parental monitoring was measured with 4 items adapted from Patterson and Stouthamer-Loeber (1984). Participants were asked to indicate their perceptions of being monitored or supervised by their parents using a 7-point scale (1 = strongly disagree, 7 = strongly agree). Participants were asked if their parents knew the following: "their whereabouts at night," "the places they often go to after school," "how they spend their pocket money," and "how they spent their leisure time." Cronbach's alpha for parental monitoring was .87.

Leisure boredom. This construct was measured using the 16-item leisure boredom scale adopted from Iso-Ahola and Weissinger (1990). Participants were asked to indicate the degree of boredom in their leisure time on a 7-point scale (1 = strongly disagree, 7 = strongly agree). The sample items included: "For me, leisure time just drags on and on," "Leisure time is boring," "Leisure time activities do not excite me," "I do not have many leisure skills," and "In my leisure time, I

usually don't like what I'm doing, but I don't know what else to do." Cronbach's alpha for leisure boredom was .86.

Leisure activities participation. Adolescents were asked how much time per week they spent on family activities (e.g., keeping a pet, playing a musical instrument, or watching TV with family members), outdoor activities (e.g., snorkeling, hiking, or sightseeing), school activities (e.g., participating in school or extracurricular activities), social activities (e.g., going to night clubs, parties, playing cards, or shopping with friends), and Internet activities (e.g., retrieving information, reading news, chatting, playing online games).

Internet addiction. Addictive Internet use was measured using the 8-item Internet Addiction Diagnostic Questionnaire (Young, 1998), which is a set of yes/no screening questions. Adolescents were asked to indicate whether they had such Internet use disorders as "preoccupied with the Internet," "repeatedly made unsuccessful efforts to stop Internet use," "stayed online longer than originally intended," "lied to family members to conceal the extent of involvement with the Internet," and "used the Internet as a way of escaping problems." Coding was "1" for "yes", and "0" for "no."

The summary mean scores were calculated for the constructs of parental monitoring, leisure boredom, and Internet addiction for subsequent analyses. In addition, demographic data including sex and age were collected as control variables. Male and older adolescents are expected to be more Internet addicted than female and younger adolescents (Ko et al., 2006).

RESULTS

Sample Characteristics

The sample was composed of more males (52.1%) than females (47.9%), and the mean age was 17.46 (SD = 1.00) with a range from 16 to 19 years; 36% were in the first level of senior high school, 36.9% in the second level, and 27.3% in the third level. As to the school systems, 45.4% were from public schools, and 54.6% from private schools, with 44.2% from senior high schools, 42.2% from vocational high schools, and 13.6% from mixed schools (i.e., both academic- and vocation-oriented). The residential areas were 21.0% in northern Taiwan, 23.5% in central Taiwan, 33.9% in southern Taiwan, and 21.6% in eastern Taiwan. Table 1 summarizes the sample characteristics.

Table 1

Sample Characteristics

	N	%
Gender		
Female	617	47.9
Male	672	52.1
Age (in years)		
16	250	19.4
17	431	33.5
18	369	28.6
19	238	18.5
Senior high school level		
First	454	35.8
Second	467	36.9
Third	346	27.3
School system		
Public senior high school	311	24.1
Private senior high school	259	20.1
Public vocational high school	274	21.3
Private vocational high school	269	20.9
Private mixed high school	175	13.6
Residential area		
Northern Taiwan	266	21.0
Central Taiwan	298	23.5
Southern Taiwan	430	33.9
Eastern Taiwan	274	21.6

Descriptive Statistics of Variables

The sample exhibited a lower level of Internet addiction (M = 2.80), but the tendency is dispersed (SD = 2.21). When we classified respondents who answered "yes" to five or more of the screening items as dependent Internet users (Young, 1998), 23.4% were classified as addicted users; this percentage is higher than that found in similar studies, such as Yang and Tung's (2007) 13.8%. The adolescents in this

study consistently perceived that they were strictly monitored or supervised by their parents (M = 4.60; SD = 1.46). With regard to boredom in leisure time, they perceived a lower level of boredom (M = 3.04; SD = .87). Table 2 summarizes the means and standard deviations of the variables.

Concerning involvement in leisure activities, adolescents spent 23.96% of their time (168 hours per week) on leisure activities (M = 40.26 hours per week; SD = 42.20). Adolescents spent almost an equal amount of time on family activities (M = 10.58 hours per week; SD = 15.71) and Internet activities (M = 10.53 hours per week; SD = 15.47). Social activity participation was also frequent (M = 9.01 hours per week; SD = 13.67), whereas both outdoor (M = 5.20 hours per week; SD = 8.11) and school activities (M = 5.10 hours per week; SD = 8.95) were somewhat rare. The large standard deviations indicated that the tendencies of leisure involvement were not concentrated (i.e., the sample includes both active and passive adolescents. Further, paired-samples t tests showed adolescents' leisure activity pattern as: family = Internet > social > outdoor = school. Although adolescents' time online per week was less than the average 19 hours per week of general Taiwanese online users (Foreseeing Innovative New Digiservices, 2009), they seem to spend too much time on Internet activities (26.15% of total leisure activities).

Gender Differences in Variables

In terms of gender differences, t tests (see Table 3) indicate no differences between males and females regarding Internet addition, per-

Table 2

Variable Means and Standard Deviations

Variables	M	SD
Internet addiction	2.80	2.21
Parental monitoring	4.60	1.46
Leisure boredom	3.04	.87
Family activities (hours per week)	10.58	15.71
Outdoor activities (hours per week)	5.20	8.11
School activities (hours per week)	5.10	8.95
Social activities (hours per week)	9.01	13.67
Internet activities (hours per week)	10.53	15.47
Total leisure activities (hours per week)	40.26	42.20

Table 3

Gender Differences in Variables

	Male		Female		
	M	SD	M	SD	t-value
Internet addiction	2.88	2.29	2.72	2.13	1.36
Parental monitoring	4.61	1.39	4.60	1.54	.10
Leisure boredom	3.02	.87	3.07	.86	-1.17
Family activities	10.47	15.43	10.70	16.01	-.25
Outdoor activities	5.85	8.28	4.51	7.87	2.93**
School activities	5.28	8.66	4.90	9.25	.77
Social activities	10.09	15.55	7.84	11.17	2.92**
Internet activities	12.53	17.05	8.38	13.24	4.79***
Total leisure activities	44.10	42.76	36.12	41.22	3.36**

*$p < 0.05$ **$p < 0.01$ ***$p < 0.001$

ceived parental monitoring, leisure boredom, family activities, and school activities. However, male adolescents exhibit higher involvement in outdoor activities ($p < 0.01$), social activities ($p < 0.01$), and Internet activities ($p < 0.001$). Overall, male adolescents display a propensity for more active leisure activities.

Causes of Internet Addiction

Regression analyses were conducted to ascertain the causes of Internet addition. In Model 1 (see Table 4), Internet addiction was regressed on two control variables—gender and age. Age is significantly positively correlated with Internet addiction ($p < 0.05$), but the effect of gender is not significant. Model 2 tested the effects of parental monitoring and leisure boredom on Internet addiction. As can be seen in Table 4, parental monitoring has a significantly negative effect on Internet addiction ($p < 0.001$), and leisure boredom has a significantly positive effect on Internet addiction ($p < 0.01$). Model 3 tested the effect of leisure activity involvement on Internet addiction. Results show that family ($p < 0.05$) and outdoor ($p < 0.01$) activities have significantly negative effects, and social ($p < 0.05$) and Internet ($p < 0.001$) activities have significantly positive effects on Internet addiction. School activity participation has no effect on Internet addiction. The effects of parental monitoring and leisure boredom are also significant in Model 3, but the effect of age is reduced to nonsignificant in Model 2 and 3.

Table 4

Results of Regression Analyses

	Internet Addiction Level		
Independent variables	Model 1	Model 2	Model 3
Control variables			
Gender (male = 1)	.03	.03	.01
Age	.07*	.04	.01
Parental monitoring		-.13***	-.10***
Leisure boredom		.10**	.09**
Family activities			-.08*
Outdoor activities			-.10**
School activities			-.01
Social activities			.07*
Internet activities			.23***
Adjusted R^2	.01	.03	.09
F value	3.69*	11.86***	13.99***

Note: Coefficients are standardized beta weights.

*$p < 0.05$ **$p < 0.01$ ***$p<0.001$

DISCUSSION AND CONCLUSIONS

The purpose of this study was to explore the effects of parental monitoring, leisure boredom, and leisure activity on Internet addiction. A sample of 1,289 adolescents was obtained from 11 senior high schools across Taiwan. Results show that leisure boredom, Internet, and social activities increase the probability of Internet addiction; however, family and outdoor activities along with participative and supportive parental monitoring reduce the tendencies. Overall evidence indicates that parental monitoring is an inhibitor of adolescents' Internet addiction. Thus, adolescents should be supervised or monitored in their daily routines and encouraged to participate in family and outdoor activities. Further, adolescents should develop a positive attitude toward leisure and the skills to deter overdependence on online relationships.

Older adolescents appear to be more dependent on the Internet than younger adolescents; however, integrating other variables in the model reduces the effect of age. This study indicates that demographic vari-

ables such as age and gender are not main factors in explaining adolescents' Internet addiction; instead, parental monitoring, perception of boredom in leisure time, and participation in leisure activity may be more critical.

The amount of pleasure experienced in physical leisure activities reduces adolescents' participation in outdoor and family activities (Lavin et al., 1999), while Internet-dependent users find the Internet entertaining, interesting, interactive, and enjoyable (Chou & Hsiao, 2000). When adolescents' strong developmental needs, such as personal identity, autonomy, and relationships with peers may not be fulfilled through physical activities, they may then shed social inhibitions, which leads to Internet addiction (Lin & Tsai, 2002). When adolescents are bored or dissatisfied with their leisure time, they may be motivated to seek excitement and pleasure from cyberspace and therefore raise their level of Internet addiction.

Despite the limited amount of leisure time available to adolescents (physical and virtual activities should be mutually exclusive), not all physical activities prevent Internet addiction. Only active participation in family and outdoor activities reduces the level of addiction, while social and Internet activities raise the level of Internet addiction. The negative effect found for Internet activity is consistent with that of past studies—that the amount of time online is a main factor in predicting Internet addiction (Chou, Condron, & Belland, 2005; Yang & Tung, 2007). However, the positive effect may be due to the fact that Internet applications, particularly enhancing communication pleasure, fulfills adolescents' social motivation, and thus facilitates peer relationships (Lin & Tsai, 1999; Yang & Tung, 2007). Hence, it appears that physical social activities and virtual Internet activities are mutually reinforced. In summary, the results imply that decreasing adolescents' perceptions of boredom in leisure time and adequately managing leisure activities should help avoid Internet addiction.

This study also shows that parental monitoring may deter adolescents from becoming addicted to Internet use. Additional Pearson correlation analyses (detailed results not shown) indicate that parental monitoring is significantly negatively associated with adolescents' leisure boredom ($p < 0.001$), and their participation in social ($p < 0.001$) and Internet activities ($p < 0.05$), but positively associated with participation in family activities ($p < 0.001$). In fact, adolescents with family interaction problems and lack of parental support tend to be addicted to the Internet (Park, Kim, & Cho, 2008; Subrahmanyam & Lin, 2007; Yang & Tung, 2007). Since adolescents are in their developmental stage, it is advisable for parents to know what, where, and with whom

their adolescent is involved—both physically and in cyberspace. Parental monitoring may not necessarily be construed as deprivation of autonomy, but seen as supportive by adolescents (Caldwell, Darling, Payne, & Dowdy, 1999). It should be noted that school activities and Internet addiction are not associated in this study, suggesting that the roles of schools and teachers are diminished in preventing Internet addition. Although social control comes not only from parents, but from other adults (e.g., teachers) (Caldwell, Darling, Payne, & Dowdy, 1999), this study suggests that leisure management tasks are more effective when implemented by parents. Overall, this study corroborates the finding that family plays an important role in preventing Internet addiction (Park, Kim, & Cho, 2008).

In summary, leisure boredom is a motivator, and parental monitoring is an inhibitor in adolescents' Internet addiction. To reduce perceptions of leisure boredom, we can enrich the contents of leisure activities, facilitate adolescents' choice of activities, provide supportive control, and mitigate feelings of obligatory participation (Caldwell, Darling, Payne, & Dowdy, 1999). Besides merely knowing where, what, and with whom the adolescent is engaged in leisure time, parents are suggested to encourage open communication with their children regarding their Internet use, and use participative decision making to set specific rules about their online behavior, instead of trying to monitor what adolescents are doing (Liau, Khoo, & Ang, 2005). In practice, several supportive and participative guidelines are provided for parents to help adolescents avoid Internet addiction disorder (Mindprison, 2007): (a) getting involved, (b) keeping it in perspective, (c) encouraging other interests, (d) setting clear limits and rules, (e) monitoring computer use, and (f) being a good role model.

REFERENCES

Brenner, V. (1997). Psychology of computer use: XLVII. Parameters of Internet use, abuse and addiction: The first 90 days of the Internet usage survey. *Psychological Reports, 80*(3), 879–882.

Caldwell, L. L., Darling, N., Payne, L. L., & Dowdy, B. (1999). "Why are you bored?": An examination of psychological and social control causes of boredom among adolescents. *Journal of Leisure Research, 31*(2), 103–121.

Chen, S. H., & Chou, C. (1999, August). *Development of the Chinese Internet addiction scale in Taiwan.* Poster session presented at the 107th American Psychology Association (APA) Annual Convention, Boston.

Chou, C., Condron, L., & Belland, J. C. (2005). A review of the research on Internet addiction. *Educational Psychology Review, 17*(4), 363–388.

Chou, C., & Hsiao, M. C. (2000). Internet addiction, usage, gratifications, and pleasure experience—The Taiwan college students' case. *Computers and Education, 35*(1), 65–80.

Foreseeing Innovative New Digiservices. (2007). *Household broadband, mobile, and wireless usage survey.* Retrieved April 20, 2009, from Foreseeing Innovative New Digiservices Web site: http://www.find.org.tw/find/home.aspx?page=many&page=many&id=170

Griffiths, M. D. (1998). Internet addiction: Does it really exist? In J. Gackenbach (Ed.), *Psychology and the Internet: Intrapersonal, interpersonal, and transpersonal implications.* NY: Academic Press.

Iso-Ahola, S. E., & Weissinger, E. (1990). Perceptions of boredom in leisure: Conceptualization, reliability and validity of the leisure boredom scale. *Journal of Leisure Research, 22*(1), 1–17.

Kandell, J. J. (1998). Internet addiction on campus: The vulnerability of college students. *CyberPsychology & Behavior, 1*(1), 11–17.

Ko, C. H., Yen, J. Y., Chen, C. C., Chen, S. H., Wu, K., & Yen, C. F. (2006). Tridimensional personality of adolescents with Internet addiction and substance use experience. *The Canadian Journal of Psychiatry, 51*(14), 887–894.

Lavin, M., Marvin, K., McLarney, A., Nola, V., & Scott, L. (1999). Sensation seeking and collegiate vulnerability to Internet dependence. *CyberPsychology & Behavior, 2*(5), 425–430.

Liau, A. K., Khoo, A., & Ang, P. H. (2005). Factors influencing adolescents engagement in risky Internet behavior. *CyberPsychology & Behavior, 8*(6), 513–520.

Lin, S. S. J., & Tsai, C. C. (1999, August). *Internet Addiction among High Schoolers in Taiwan.* Poster session presented at the 107th American Psychology Association (APA) Annual Convention, Boston.

Lin, S. S. J., & Tsai, C. C. (2002). Sensation seeking and Internet dependence of Taiwanese high school adolescents. *Computers in Human Behavior, 18*(4), 411–426.

Lin, C. H., & Yu, S. F. (2008). Adolescent Internet usage in Taiwan: Exploring gender differences. *Adolescence, 43*(170), 317–331.

Mindprison. (2007). *Guidelines for parents to prevent Internet addiction.* Retrieved from February 25, 2009 from Mind prison: Internet addiction disorder Web site: http://library.thinkquest.org/06aug/02049/treatments_1_1.htm

Park, S. K., Kim, J. Y., & Cho, C. B. (2008). Prevalence of Internet addiction and correlations with family factors among South Korean adolescents. *Adolescence, 43*(172), 895–909.

Patterson, G. R., & Stouthamer-Loeber, M. (1984). The correlation of family management practices and delinquency. *Child Development, 55,* 1299–1307.

Russell, R. V. (1987). The relative contribution of recreation satisfaction and activity participation to the life satisfaction of retirees. *Journal of Leisure Research, 19,* 329–340.

Scherer, K. (1997). College life online: Healthy and unhealthy Internet use. *Journal of College Student Development, 38*(6), 655–665.

Subrahmanyam, K., & Lin, G. (2007). Adolescents on the net: Internet use and well-being. *Adolescence, 42*(168), 659–677.

Yang, S. C., & Tung, C. J. (2007). Comparison of Internet addicts and non-addicts in Taiwanese high school. *Computers in Human Behavior, 23,* 79–96.

Young, K. S. (1998). Internet addiction: The emergence of a new disorder. *CyberPsychology & Behavior, 1*(3), 237–244.

Young, K. S. (1999). Internet addiction: Symptoms, evaluation, and treatment. In L. VandeCreek & T. Jackson (Eds.), *Innovations in clinical practice:* A source book (Vol. 17, pp. 19–31). Sarasota, FL: Professional Resource Press.