

Sensation seeking and internet dependence of Iranian high school adolescents

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Abstract: The present study examined excessive Internet use of Iranian adolescents and a psychological aspect of users, sensation seeking, thus to differentiate motivation of Internet dependents and non-dependents, Seven hundred and fifty three Iranian high school students were selected using cluster sampling and 88 of them were categorized as Internet dependent users, Results indicated that Internet dependents spent more time on-line than non-dependents. While Internet dependents perceived significantly more negative Internet influences on daily routines, school performance, and parental relation than non-dependents, both Internet dependents and non-dependents viewed Internet use as enhancing peer relations. Making friends through the Internet has become a popular activity among adolescents, potentially leading to its excessive use. Internet dependents scored significantly higher on overall sensation seeking and disinhibition than Internet non-dependents. However, both groups did not differ in the life experience seeking subscale and thrill and adventure seeking subscale.

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1. Introduction

Owing to the Internet's recent emergence as a popular media for mass and personal communications as well as its potential to enhance global competitiveness. Iranese government has strongly advocated Internet use to commercial and educational purposes. Internet use in Iran has exploded in terms of the growth rate of subscribers to Internet Service Providers (ISPs) since popular consumption took hold in 2015. An Internet survey company, Iamasia, recently estimated that 30% of the Iranian population, approximately 6.4 million people have used the Internet at least once in the past 4 weeks.

Despite the widely perceived merits of the Internet, policy makers and educators have been cautioned to realize its negative impacts, especially excessive use of the Internet, the related physical and psychological problems, and harmful consequences toward significant others. These studies adopted quantitative and qualitative methods to identify Internet addicts, sometimes used terms such as Internet dependents. Technology addicts, problematic Internet users, or pathological Internet users.

Having connected the campus computer network of universities Iran-wide, the Iran government is promoting the establishment of networks that would connect high school campuses. Despite the anticipated effects, high school students that gain more access to the Internet will possibly become more vulnerable to Internet dependence. Although excess Internet use among high school students is likely to surface, empirical evidence on Internet dependent adolescents is still lacking.

Sensation (novelty) seeking is a prominent feature of adolescence and closely related to risky or adventurous behaviors, such as drug use, diving or parachuting. Surfing the Internet or many online activities are widely viewed as a global high tech adventure and, therefore, could be considered a form of sensation seeking. In sum, exploring how sensation seeking and Internet dependence among adolescence are related is of relevant interest.

2. Related studies

Griffiths characterized Internet or computer addicts as individuals who tend to be "socially unskilled male teenagers who have little or no social life and/or self confidence, and are described by names such a nerd, geek, and/or anorak". Morahan-Martin and Schumacher indicated similar popular stereotype of Internet addicts but with detailed description about their Internet usage and psychological features. Internet addicts are "more likely to be males, technologically sophisticated, use real time interactive activities, such as on-line games and chat lines, and feel comfortable and competent on-line". Breaking this stereotype, Young described an Internet addiction case involving a middle age housewife in the United States.

However, Kandell identified college students as more vulnerable to problematic Internet use than other groups. This phenomenon can be attributed to several reasons. Most university students move away from home to a dormitory, thus allowing them to physically cut family ties if desired. Away from parents' guidance, students have more freedom in governing

their use of the Internet. During this period, university students strive to develop their personal identities as well as meaningful interpersonal relationships or even intimacy. Their personal needs may lead them to explore the enormous social network connected by the Internet. Additionally, the educational system encourages college students to use the Internet owing to its promotions as a super high way to the high tech world and innovativeness. It is reasonable to expect that this similar phenomenon will occur as the Internet become increasingly accessible to high school students.

Lin and Tsai identified a small group (N=61) of potential Internet dependents among Taiwanese high school students. These Internet dependents excessively used the Internet, approximately 20 h weekly. The most frequently used Internet applications for the young Internet dependents were listed in a descending sequence.

However, long time spent on-line is merely the surface characteristic of Internet dependence. The dependents appeared to have symptoms of non-substance addiction, following the screening criteria of Young which is in turn based on Pathological Gambling described in DSM-IV, i.e. tolerance, compulsive use and withdrawal, And some consequent problems.

The Internet dependents in Lin and Tsai admitted tolerance syndromes. Their insatiable desire to spend more time or to engage more extensively in Internet activities was the only way to reach the initial excitement they experienced when beginning to use the Internet. They also showed compulsive use of the Internet and withdrawal symptoms. Most of them urged to get on-line and easily lost track of time. They frequently attempted to reduce their Internet usage, although seldom successfully, which brought on depression, anxiety and a sense of emptiness. While recognizing the abuse of the Internet, they admitted how the Internet negatively impacts their lives, such as in school, health, and parental relations. These high school students demonstrated problematic consequences of Internet dependence similar to those found in previous literature, such as skipping meals, losing sleep and study time, increasing on-line charge, as well as rearranging daily routines or avoiding interpersonal interaction to become more involved in the Internet.

Tsai and Lin reported on Roger, a 14-year-old Internet dependent boy, who spent 3-4 h on-line daily and longer on the weekend or during vacation (more than 6 h). He used the Internet mainly to communicate with people and even admitted to have more Internet friends than real-life friends. He viewed on-line usage as a way of life. Roger's parents, who had a junior high school education, could not understand their

son's fascination with the Internet. As owners of a family business, they were frequently away from home (up to at least 12 h a day), thereby leaving Roger unattended while on-line. Roger claimed to have stayed on-line for 11 consecutive days without sleep, setting a world record. Consequently, Roger's school performance has dropped owing to his excessive time on the Internet. His teacher even once went to his house to plug off his Internet utilities from the computer and hide them away.

The parents refused to pay Roger's telephone bill incurred from Internet usage. To pay off a bill that averaged 300 US \$ monthly, Roger took several part time jobs, mainly assembling personal computers for sale or designing homepages. Although trying several times, Roger failed to control his Internet usage. However, his Internet adolescence friends admired him for breaking family rules and school discipline. This admiration enhanced his low confidence that had been damaged when failing to achieve the expectations of parents and teachers. From this case and cases studied by Griffiths, we believe that some adolescents may use Internet dependent behaviors as coping strategy for low self-esteem or other maladaptive problems. Besides, Roger did not regard the Internet as stimulating his sensations. For example, when he met new friends in IRC or chat rooms, he might feel a little bit excited but talking with familiars is nothing special. Especially, after entering the Internet world for almost 3 years, there is less chance to meet new people nowadays.

When researchers tried to link personality to television use pattern, research has found some psychological features of TV viewers may contribute to the development of a perceived dependence on TV. For example, Eysenck suggested that sensation seeking is the underlying mechanism to explain excessive television viewing. Zuckerman defined sensation seeking as a trait illustrating "the need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience". Sensation seeking has emerged as capable of explaining a variety of behaviors, such as drug use, aggression, sex, sky diving, bungee jumping, body-contact sports, hiking and camping, or playing computer and video games.

Zuckerman's sensation seeking scale measures individual differences in seeking, disinhibition, and susceptibility to boredom. While the adventure seeking dimension includes thrill-taking behaviors such as engaging in physically risky activities, the experience seeking dimension measures behaviors of pursuing new experiences through travel, music, art, and drug usage. The disinhibition dimension features behaviors that ignore social constraints such as fighting, seeking social stimulation through parties,

social drinking, and a variety of sex partners. The susceptibility to boredom subscale measures the level to avoid boredom produced by unchanging circumstances.

Eysenck, based on his famous personality model of introvert and extrovert, predicted that introverts who are more inner-oriented easier to perceive over-aroused, and may seek to reduce environmental stimulation, would be less likely to watch television excessively long. Whereas, the extroverts who tend to seek stimulation (sensation seeking) may become heavy television viewers. Unfortunately, he did not empirically examine his hypothesis.

Concerning the personality of computer-game players. Griffiths and Dancaster found individuals with Type A personality experience greater psychological reaction in response to the psychologically stimulating caused by computer games. The finding suggests that computer-game players become aroused while playing and perhaps for seeking this arousal they may be more likely to play games again. Furthermore, they suggest that Type A individuals might be more susceptible to computer-game addiction for they experience greater arousal if they are willing to seek for high stimulation from computer games.

While investigating 342 undergraduates in a small American university. Lavin, Marvin, McLarney, Nola, and Scott hypothesized that the Internet

addiction is positively correlated with sensation seeking. That study identified 43 (12.6%) participants as Internet dependents. Internet dependents scored significantly lower than non-dependents in terms of overall sensation seeking, thrill and adventure seeking, as well as experience seeking that contradicted original expectations. Lavin et al, then further explained their finding by suggesting that sensation seeking of Internet dependents might not be physical, as measured by Zuckerman scale, but rather mental or virtual. Unfortunately, this study included subjects from only one institution that is underrepresented in its population, i. e. university students in the United States.

3. Methods

3.1. Subjects

Approximately 1000 Iran high school students were selected as the participants of this study using cluster sampling. The population of high school students in Iran was clustered into three demographic areas: northern, central, and southern Iran. Eight schools were selected from the three areas. For each school, two to three classes were randomly selected to from the original subject pool, i. e. of about 900 students. However, if any subject had never used the Internet, the data was excluded for further statistic analyses. Therefore, 733 subjects remained in the final sample pool.

Table 1: Frequencies and χ^2 tests of Internet dependents and non-dependents on gender, and Internet experience

Background	Internet dependents N(%)	Non-dependents N(%)	Total N(%)	χ^2	df
<i>Gender</i>					
Male	70 (80.5)	437 (65.8)	507 (67.5)	7.523**	1
Female	17 (19.5)	227 (34.2)	244 (32.5)		
<i>Grade</i>					
Grade 1 (10 th)	12 (13.6)	122 (18.4)	134 (17.8)	9.045*	2
Grade 2 (11 th)	43 (48.9)	331 (49.8)	374 (49.7)		
Grade 3 (12 th)	32 (36.4)	221 (31.8)	234 (32.3)		
<i>Internet experience</i>					
< 1 year	25 (28.4)	291 (44.2)	316 (42.4)	15.625**	4
1-2 years	33 (37.5)	234 (35.6)	267 (35.8)		
2-3 years	18 (20.5)	96 (14.6)	114 (15.3)		
3-4 years	7 (8.0)	27 (4.1)	34 (4.6)		
> 5 years	5 (5.7)	10 (1.5)	15 (2.0)		
<i>General grade point</i>					
Upper 1/3	34 (41.5)	279 (45.8)	313 (45.3)	0.589	2
Middle 1/3	29 (35.4)	204 (33.5)	233 (33.7)		
Bottom 1/3	19 (23.2)	126 (20.7)	145 (21.0)		
Total	88 (11.8)	664 (88.2)	752 (100.0)		

* $P < 0.05$; ** $P < 0.01$.

More boys remained in the final sample pool, which was roughly twice the number of girls (Table 1). The evidence that more male than female used the

Internet corresponds to Internet usage research conducted worldwide. Subjects who scored more than 80 on the Internet Addiction Scale for Iranian high

schoolers (N=88.11.69% of subject, described later) were categorized as the Internet net dependents in this study.

3.2. Measurements

Subjects completed a questionnaire encompassing three sections, basic information, Internet addiction, and sensation seeking.

3.2.1. Basic information

The first section of the questionnaire included nine questions concerning demographic data, Internet usage, and perception of the Internet influences. Subjects were asked to report demographic data, such as gender, age year in high school, and general grade point in the last semester. For Internet usage, all subjects were asked if they had used the Internet. Those who had used the Internet needed to report how long they had used it, average weekly usage of various Internet applications, where they used the Internet, About the perception of the Internet influences, subjects were asked to rate how the Internet had influenced their various life aspects, daily routines, school performance, parental relations, health, teacher relations, and peer relations, using an eight-point Likert style scale, ranging from 1= extremely positive to 8 = extremely negative.

3.2.2. Internet addiction

The internet addiction scale for iranese high schoolers was used to collect subject's responses about problematic use of the internet. The IAST has 29 items with Likert style scale. Ranging from 1 (strongly agree) to 4 (strongly disagree). Thus indicating the degree of accuracy that the statement describes their internet use behavior.

Four dimensions were extracted and accounted for 53.7% of total variance explained. i.e. tolerance (10 item). Compulsive use and withdrawal (seven item). Related problems: family. School. And health (eight item). And related problems: interpersonal and financial (four items). Lin and Tsai and Tsai and Lin also pointed out that the reliability and validity index of IAST were both satisfactory.

Typical item of the subscale of compulsive use and withdrawal note: "although I plan to use the internet for a short time. I end up staying on line longer than originally intended" and "when I tried to reduce my internet use. I felt anxious". An example of the tolerance subscale states. "I have to search for more exciting information to achieve the original satisfaction that I found when I began using the internet. "The related problematic consequences of internet addicts included problems with family, school. And health. Atypical item is "more than once. I cut classes to use the internet for something unrelated to school learning". The fourth subscale describing interpersonal and financial problems includes items such as "Communicating with on-line friends is more interesting than with people I meet in real life".

3.2.3. Sensation seeking

Young and Chiu translated and adapted Zuckerman's original sensation seeking Scale (SSS). The original SSS was a 40_item questionnaire with four subscales. Thrill and adventure seeking. Experience seeking. Disinhibition. And boredom susceptibility.

Table 2: Means, Standard deviations. And tests on IAST subscales and overall IAST score for internet dependents (N=88) and non_dependents (N=665)

Internet dependence	Group	Mean	S.D.	T_tests
Compulsive use/withdrawal	Dependent	21.11	3.320	15.784***
	Non_dependent	15.51	3.105	
Tolerance	Dependent	31.83	3.235	18.887***
	Non_dependent	24.56	4.419	
Related problems: family. School. Health	Dependent	19.66	3.081	15.768***
	Non_dependent	14.05	3.142	
Related problems: interpersonal finance	Dependent	13.00	1.800	11.940***
	Non_dependent	10.24	2.064	
Overall score	Dependent	85.60	5.595	30.768***
	Non_dependent	64.36	8.969	

***P < 0.001

Typical item of the life experience seeking scale state "I would like a job that requires a lot of traveling" and "I get bored seeing the same old faces. "For the thrill and adventure seeking scale. The example item is "I would like to try parachute jumping. "The item of the disinhibition scale notes" I sometimes have an urge to act irresponsibly. "The

scale displayed good reliability indexes. Cronbach α from 0.61 to 0.81, and validity. Each item contained two statements from which a person had to choose. The number of chose items corresponded to each dimension was summed as dimension score and. Then. An overall score was obtained by summing up the scores of three dimensions.

4. Results

4.1. Demographic data

The backgrounds of the internet dependents (N=88) differed from those of the non_dependents (N=664, table1). The chi square analyses showed that internet dependents contained significantly more boys (ratio of 4 boys to 1 girl). More 12th graders (36.4%) while less 10th graders (13.6%) than the non_dependents (31.8%) in 12th grade and (18.4%) in 10th grade). Internet dependents had significantly longer internet experience than the non_dependents.

Thirty two percent of the dependent of the dependents had used the internet for at least 2 years while this figure was 20% among the non_dependents. However. These two groups reported they achieved roughly the same in school during the last semester.

4.2. Vulnerability of internet dependents

The internet dependents obtained a significantly higher overall IAST score and scores on four subscales (tolerance. Compulsive use and withdrawal, related problems: family, school, health, and related problems: interpersonal and finance) than the non_dependents (table 2).

Table 3: Average amounts of time spent (hours per week). Standard deviations. In addition, t/tests on various internet applications for internet dependent and non_dependents.

Internet usage(h/week)	Group	Mean	S.D	T_tests
WWW	Dependent	4.727	5.208	3.139**
	Non_dependent	2.845	3.777	
Chat room/IRC	Dependent	3.079	5.880	2.908**
	Non_dependent	1.109	2.344	
BBS	Dependent	3.076	4.194	3.490**
	Non_dependent	1.409	2.701	
ftp	Dependent	2.324	4.148	3.192**
	Non_dependent	0.821	1.422	
Email	Dependent	1.604	3.570	1.786
	Non_dependent	0.995	2.473	
Internet games MUD	Dependent	2.071	3.954	1.708
	Non_dependent	1.247	2.813	
Newsgroup	Dependent	0.693	1.579	0.925
	Non_dependent	0.519	1.023	

**P < 0.01

Table 4: Means, Standard deviations and t_test on internet influences toward six life aspects

internet influence on life aspects	Group	Mean	S.D	T_tests
Daily routines	Dependent	4.965N	2.111	5.067***
	Non_dependent	3.762P	1.703	
School performance	Dependent	4.686N	2.060	4.714***
	Non_dependent	3.598P	1.601	
Parental relations	Dependent	4.570N	1.901	5.918***
	Non_dependent	3.458P	1.598	
Healt	Dependent	4.282P	1.881	3.779***
	Non_dependent	3.573P	1.589	
Teacher relations	Dependent	4.000P	1.762	3.587***
	Non_dependent	3.365P	1.512	
Peer relations	Dependent	3.221P	1.752	2.363***
	Non_dependent	2.756P	1.394	

N. negative internet influences, P. positive internet influences.

* P < 0.05. P < 0.001.

The internet dependents state that they remind on_line significantly longer and ftp than the non_dependents. However. The internet dependent and non_dependent groups spent roughly the same amount of time in using e_mail. Playing internet games/MUD. In addition, browsing Newsgroup that

are relatively not_so_popular applications of internet for iranese high school students. Although e_mail is widely used among iranese college students. Few high school computer centers in Taiwan distribute e_mail accounts to their students. In addition. Not many Taiwanese high students. About 13.1 of our

participants. Ever tried to play internet games (MUD) and newsgroup. In sum. The dependent group spent an average of 17.574 h weekly online while the ordinary people spent only an average of 8.972 h.

The internet dependents and non_dependents perceived significantly different internet influences in terms of all six aspects of life (table 4). Iranian internet dependents felt that the internet negatively influences their daily routines. School performance. In addition, parenta relations 14.965, 4.686, and 4.57 (are larger than the midpoint. 4.5 in an eight point Likert style ranging from 1 = extremely positive 10.8 = extremely negative. However they felt the internet

positively influenced their health. Teacher relations and peer relations. For the non_dependents. The internet positively influences all six aspects of their lives.

4.3. Sensation seeking and internet dependence

Results obtained from t_test indicated that internet dependent adolescents scored significantly higher in terms of overall sensation seeking and disinhibition than internet non_dependents. However. Both groups did not differ with respect to the life experience seeking subscale and the thrill and adventure seeking subscale (Table 5).

Table 5: Means. Standard deviations and t_test for internet dependent and nondependent in sensation seeking

sensation seeking	Group	n	Means	S.D	t_test
Life experience seeking	Dependent	88	8.506	2.236	1.903
	Non_dependent	665	8.263	2.525	
Thrill and adventure seeking	Dependent	88	7.617	2.356	0.418
	Non_dependent	665	7.561	2.380	
Disinhibition	Dependent	88	4.750	1.651	4.662***
	Non_dependent	665	4.348	1.518	
Overall score	Dependent	88	20.872	4.546	2.627**
	Non_dependent	665	20.171	4.773	

** P < 0.01. ***P < 0.001

Table 6: For all of the subjects (N=753) and internet dependents (N=88). The regression of sensation seeking on for dimensions of and overall internet dependence. The standardized regression coefficients and coefficient of determination.

Criterion	Predictor(s)	Beta	T	R ²	F
all subjects					
Tolerance	Disinhibition	0.201	5.636***	0.041	31.762***
Compulsive use/ withdrawal	Disinhibition	0.141	3.897***	0.020	15.190***
Related problems: family. School. Health	Disinhibition	0.200	5.580***	0.040	31.136***
Related problems: peer. Finance	Disinhibition	0.105	2.864**	0.010.20	10.478** 7.488**
	1. Disinhibition 2. Thrill/Adventure seeking	0.077	2.109*		
Overall internet dependence	Disinhibition	0.225	6.321***	0.051	39.955***
internet dependence					
Tolerance	Disinhibition	0.222	2.091*	0.49	4.452***
Compulsive use/ withdrawal	—	—	—	—	—
Related problems: family. School. Health	—	—	—	—	—
Related problems: peer. Finance	Disinhibition	0.243	3.318*	0.059	5.374*
Overall internet dependence	Disinhibition	0.220	2.091*	0.048	4.373***

*P < 0.01. **P < 0.01. ***P < 0.001

Lower on the Thrill and adventure seeking. Experience seeking and Overall score of sensation seeking. Within the entire subject pool. The regression of sensation seeking internet dependence indicated that only Disinhibition is the significant predictor on scores of three addiction subscales: compulsive use

and withdrawal. Tolerance. In addition, related problem: family. School. In addition, Health as well as the overall score of internet dependence (table6). To accurately predict the score of Related problems: interpersonal and finance. Both disinhibition and thrill

and adventure seeking entered in to regression using stepwise (forward).

Meanwhile for internet dependence disinhibition successfully predicted tolerance. Internet related problem: interpersonal and finance. And overall IAST score. However. No any sensation seeking subscale predicted the internet dependence' compulsive use and withdrawal syndromes as well as the problems of family. School. In addition, Health.

5. Conclusions and discussions

This study investigates a significant Psychological feature of adolescence. Sensation seeking as well as adolescent's vulnerability to internet dependence. The first finding indicated that the internet dependent adolescents spent excessively long online_about 18h weekly.

Traditional aged college students. Living independently away from parental monitoring. Experience a broad range of freedom to explore risky activities that might lead to addiction.

Although some researchers may contend that the most effective means of approaching a true internet addict is through on_line survey (because an addict must spend an enormous amount of time On_line). On_line research may draw only a proportion of people or addicts with certain characteristics.

The pathological On_line usage revealed by this study can be further compared with the time spent on watching TV among television addicts. In the studies of television addiction. About 10% of college students and adults labeled themselves as television addicts. Self_identified addicts watched a mean of 21h of TV weekly while the ordinary people watched an average of 13h weekly.

Unfortunately. The current study did not ask participants to report their use of other kinds of technology (e.g. television, multimedia, or video_games). Therefore a direct comparison of addiction across different media is impossible and thus left some interesting questions unanswered. Such as: for the internet addicts. Is their internet use different from the use of other kind of technology? Or is there a general tendency toward various types of addiction? The result of Greenberg, Lewis, and Dodd provided some light to this direction. They examined whether there is an addictive personality among college students and found. Contrary to previous studies, internet addiction is correlated (moderate to high) to other types of substances addition (alcohol, caffeine, chocolate, and cigarettes) as well as activities addiction (game biling, television and video games). The overlapping addictions suggest a common core of vulnerability to addictive substances and activities. However little is known about how and why such an

overlapping exists but it deserves continuous exploration for the future research.

The internet dependents were characterized as more boys than girls. In higher grades and obtaining longer internet experience (32% of them had used The internet at least 2 years). Almost 14% of The internet dependents had used The internet more than 3 years. At the time when they were still in junior high school (9th_11th grades as in the American high school). This demographic data either suggests the younger the individuals began to use The internet the easier they were dependent or The dependents found lure of the internet earlier than the non_dependents. This finding provided some evidences to support the results of Kraut et al. In a longitudinal investigation. Kraut at al. (1998) found that longer use of the internet was related to declines in user communication with family members, in the size of their social circle. And in psychological wellbeing.

The dependents expressed that the internet negatively influences many aspects of their lives. While they perceived significantly stronger negative internet influences on daily routines. School performance. And parental relations than the nondependent, both internet dependents and non_dependents regarded internet. Use as positively affecting peer relations. This finding confirmed Kandell's suggestion that the internet can be used to enhance the developmental needs as to obtain and maintain meaningful interpersonal relationships and intimacy. Unexpectedly. All of the subjects. Internet dependent or not. Reported that internet usage positively influenced teacher relations. Apparently. Taiwanese high school teachers have not yet realized the problems that their students may encounter in using the internet. Perhaps they value the internet as the flawless super highway and underestimated its negative effects on adolescents as ordinary people.

Consider a situation in which various subgroups of Internet dependents are categorized by the most intensive activities they have engaged. Such as Internet games, discussion about certain themes (Star Trek). Pornography. Alternatively, virtual sex. One of the Internet activities, establishing non-face-to-face social network, might be a fascinating and demanding pitfall leading to problematic Internet use for many adolescents because such activity helps fulfill their developmental needs. However, this study did not ask participants to specify the websites they visit and so the contents of the sites that adolescent visit are still unclear. Future study is needed before further conclusion can be made.

Besides, our results indicate that Internet dependents obtained significantly higher scores of disinhibition and overall sensation seeking than the

Internet non-dependents' meanwhile they obtained similar scores on life experience seeking, as well as thrill and adventure seeking. Regression analyses revealed parallel results. Disinhibition is the most important predictor of Internet dependence for either the entire subject group or the Internet dependents. It is obvious that seeking thrill or novelty experiences cannot explain why Taiwanese high school students excessively use the Internet.

The personality study about TV addicts may provide a broader view on technology addicts and help us to understand Internet abuse or misuse. Mellwraith reported that adult self-labeled TV addicts tend to be more neurotic, introverted, and easily feel bored. They are more likely using TV to distract themselves from unpleasant thoughts, regulate moods, and fill time. For the high school Internet dependents in the current study, the adolescent strive of ignoring or against social constraints explain the underlying motivation in hanging around online: whereas for the adult TV addicts in Mellwraith's study, less willing to tolerate boredom leads to viewing more television.

Inhibition regards behavioral constraints produced through inner self-conscious states such as anxiety about social situations or worries about public evaluation. Disinhibition is then the reverse term of the same factor describing how people reduce public self-awareness, less concern about the judgement of others. Thus, doing so involves ignoring conventional constraints.

Non-face-to-face and anonymity characterize the Internet's interactive environment. In such an environment, social cues are easily removed. Moreover, a nickname provides Internet users a way to create new social cues. Therefore, Joinson stated that normal constraints and rules of social interaction might not exist on the Internet. Excessive Internet use among Taiwanese high school adolescents may reflect their motivation to strive for personal identity through breaking social inhibition. In adolescent ages, youth who strive for independence may struggle too hard and reach the fringes of anti-establishment. We believe that such developmental need is an important reason that Taiwanese high school adolescents become Internet dependent. With the very same motivation, previous studies have demonstrated many adolescents engaging in risks, such as taking drugs, alcohol, or engaging in unsafe sex.

We therefore suggest future study use content analysis or interview to identify whether Internet dependents and ordinary users visit different sites, whether they browse or search for messages with various degree of stimulation. The differential findings of these two studies may be attributed to either age of cultural differences. Further studies are needed to clarify this issue.

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