

Gratifications, Loneliness, Leisure Boredom and Self-esteem as Predictors of SNS-Game Addiction and Usage Pattern among Chinese College Students

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Abstract

This study examines the effects of SNS-game gratifications, loneliness, leisure boredom, and self-esteem on SNS-game addiction and usage of SNS-game. Data were gathered using the revised Young's (1996) Internet Addiction Test (IAT), the UCLA Loneliness Scale (Version III), the Leisure Boredom Scale (LBS: Iso-Ahola & Weissinger, 1990) and the Rosenberg Self-Esteem Scale on a sample of 342 college students aged from 18 to 22 in Mainland China. As hypothesized, subjects who score higher on loneliness and leisure boredom will report more likely to be SNS-game frequent users and addicts. Results indicate that SNS-game addicts tended to be lonely, bored in leisure time, spending much more time playing SNS-game everyday, frequently log into SNS-game, and often steal products from friends. Moreover, leisure boredom was found to be a significant predictor of SNS-game addiction.

Word count: 132

Key words: Addiction; gratifications; loneliness; leisure boredom; self-esteem, SNS-games; Chinese College Students

Introduction

Social Networking Services (SNS) are developing rapidly in recent years. According to the "Survey Report on SNS Usage Pattern Among Chinese Netizen in 2009" published by CNNIC, by the end of 2009, Chinese SNS users have reached 124 million. Among which, 50.3% are students. While the number of visitors to social networking sites is increasing, so too are the numbers of new services being launched and the way we connect to social networking services. Games-based social networking service that interacts with existing web-based platform is developing rapidly.

In mainland China, many large scale SNS companies have found a market in SNS-games. SNS-game is different from traditional on-line game in several aspects. Firstly, it is free of charge and has few entry barriers for new players. Some SNS-games are as simple as just parking the cars or tending the gardens online. You do not need to read any game strategy, install any terminal application or rack your brain to find out how to enhance the game level. Secondly, since previous research has defined social network sites as a bounded system, within which the users can construct a public or semi-public profile and share a connection (Boyd & Ellison, 2007), the games in SNS platform are usually played among real life friends or at least the gamers can know each other's profile through SNS. Thus, SNS-game is more interactive than traditional online game.

SNS-Game applications are enormously popular in mainland China. Data from CNNIC shows that among people who log into SNS more than once a day, 51.7%

play SNS game. Over 27% SNS users considered the game application as the motivation of using SNS. Because of the highly appealing game applications, many SNS websites began to use them to attract more sticky users. Happy Farm is a very successful case in current SNS game market.

Happy Farm is one of the most popular SNS game first launched by a Chinese company, Five Minutes Limited, in November 2008. Nowadays, many SNS platforms such as Renren.com, Kaixin001.com, Q-zone have run the game. In this game, the player acts as the owner of a virtual farm where they plant different vegetable and fruits and raise animals as in the real farm. From seeding to maturity, the vegetable and fruits may suffer drought, plant diseases and pests in each phase. After harvest, players can sell their products to earn virtual money. Meanwhile, players could "steal" products from other farms and sell these products to earn virtual money. The longer time you played this game, the higher level you will be. Happy Farm created a large number of users. Shanghai-based consulting firm BloggerInsight estimated that total SNS farm games have at least 28 million to 30 million daily active users, including a conservative estimate of 7 million daily active users for Kaixin001 and 15-17 million daily active users for QQ's new entry.

The proliferation of SNS games also triggered many problems. Nearly all the gamers have the experience getting up at midnight to harvest or "steal" vegetables. Helping others to "steal" vegetables even becomes a popular job among college students. Considering the significant effect on the users' normal life and mental health, the government is considering to limit the use of Happy Farm.

Previous research about Internet addiction found that college students are the group which appears more vulnerable in developing a dependence on Internet than any other segment of society (Kandell, 1998). A study conducted by Chou & Hsiao (2000) also indicated that students who addict to the Internet rate Internet impacts on their studies and daily life routines significantly more negative than the non-addict group. However, little research has been done to explore the relationship between psychological traits and addictive usage. And nearly no research has discussed the special phenomenon of SNS-game in mainland China.

Therefore, based on the case study of Happy Farm, this exploratory research attempts to identify predictors of SNS-game with a focus on gratifications, loneliness, leisure boredom and self-esteem. It examined the relationship between SNS-game addiction and gratifications, loneliness, leisure boredom and self-esteem. Considering the social significance of SNS-game phenomenon in mainland China and the lack of previous study in this area, it is a meaningful study to do.

Literature Review

Uses and Gratification Theory

Uses and Gratification Theory has a long history. Wimmer and Dominick (1994) proposed that Use and Gratification theory began in the 1940s when researchers became interested in why audiences engaged in various forms of media behaviour, such as listening to radio or reading the newspaper. From 1970s, U&G theory researchers put more emphasize on examining the audiences' social and

psychological motivations. Katz, Gurevitch and Haas (1973) constructed a comprehensive list of social and psychological needs said to be satisfied by exposure to mass media including relaxation, social interaction, self-identity, escape, and inform and educate. Furthermore, Katz (1973) continued to point out that the needs and motives of choosing different media are associated with personal characteristics. In another word, audiences are goal-oriented and can state their own motives for using specific types of media. For example, Bryant and Zillmann (1984) discovered that individuals who suffer stressful life prefer more tranquil programmes.

As new technologies present people with more and more media choices, motivation and satisfaction become even more crucial components of audience analysis. Many previous researches have explained the involvement of computer mediated communication from the perspective of U&G. Kuehn (1994) outlined a list of U&G statements as rating scales to evaluate computer-aided programmes. Four motivations were identified including relationship development, convenience, intellectual appeal and diversion. Similarly, Papacharissi and Rubin (2000) identified companionship, action, substitution for friendship, passing time, and isolation as reasons for predicting the use of the internet.

In recent years, U&G theory was also adopted to examine a wide range of online activities. For example, Raacke and Bonds (2008) explored the use of friend-networking site. Leung (2001, 2002) examined ICQ usage, and Chang, Lee and Kim (2006) studied the adoption and continuance of online game. Corresponding motives and satisfaction such as "making new friends", "entertainment" and "passing

time" were found based on different online activities.

SNS-game is an emerging online technology and has received much attention because of the large number of users. One goal of this study is to explore a wide range of motivations in SNS-game use which users can identify as unique. As a result, the following research question is proposed:

RQ1. What kind of gratifications can users gain from SNS-game playing?

Internet and SNS game addiction

The traditional concept of "addiction" was based on a medical model and is properly reserved for bodily and physiological dependence on a physical substance-and not a behavioral pattern. Recently, Internet addiction as a new form of addiction has recently received more and more attention from researchers in sociology, psychology, psychiatry, etc. Researchers such as Young (1996) replaced the word "substance" with "Internet" in their analysis of Internet addiction, concluding that similar symptoms such as tolerance, withdrawal, craving, and negative life consequences are present in Internet addiction as well. Griffiths (1998) considered Internet addiction to be a kind of technological addiction, and one in a subset of behavioral addictions. These problematic behaviors were labeled by Walker (1989) as obsessive and compulsive based on the similarities to gambling addiction and compulsive shopping since these disorders also lack a chemical dependence.

Today, over-involvement with the Internet has been frequently observed,

especially among college students because they have a strong drive to develop a sense of identity, to develop meaningful and intimate relationships (Griffith, 1998). In most campuses, the Internet connection is convenient and free of charge. Some students remain online virtually the whole day- as long as they are awake. Many of them even reported that they could not do anything else and felt serious depression and irritability when the network connection is out (Chou & Hsiao, 2000).

Among all the Internet activities, Young (1996) found that "real time" service such as Internet relay chat (IRC, live chat where users socialize and discuss common topics) and multi-user domains (MUDS, text-based virtual worlds where social interaction is required) proved to be most addictive. SNS-game is characterized by this highly social interaction. Users of these game applications are not only players but also members of social networking site. Most of the game players are friends in reality, playing SNS-game provides them an opportunity to raise social identities and get more interaction with each other. Besides, the satisfaction of achieving higher level and more virtual money can elevate the self-esteem that they may lack in the real socialization, bring more excitement and fill the sense of emptiness.

The symptom of SNS-game addiction is similar to Internet addiction. According to Griffith (1998), there are several important signs of Internet addicts: (1) Use of Internet becomes the most important daily activities in their life; (2) Aroused and excited when online and the feeling escaped from the real world; (3) an increased tolerance to the effects of being online; (4) unpleasant feelings when offline; (5) increased conflicts with friends, and families and decrease in other activities; and (6)

incapable of reducing Internet use.

Moreover, significant correlations between Internet usage and some psychological traits were found in previous studies. Moody (2001) and Leung (2004) suggested that high Internet use (such as ICQ, e-mail and computer game) is associated with high emotional loneliness, depression, and pleasure seeking. Young (1996) claimed that Internet has a substitute for real life social interaction for individuals with low self-esteem.

Loneliness

A sense of loneliness reflects the discrepancy between the individual's expectations of interpersonal relationships and his or her actual social situation (Asher, Parkhurst, Hymel & Williams, 1990). Peplau & Perlman (1982) and Rubenstein & Shaver (1982) described loneliness as an unpleasant emotional experience which stems from the inadequate social relationships in some important ways. By this definition, loneliness may occur when people is lacking of friendship (Margalit, 1994), suffered from the absence of social support (House et al., 1988) or frustrated and dissatisfied with the existing relationship (William & Asher, 1990). To assess the sense of Loneliness, UCLA Loneliness Scale was established by as a standard instrument. Since then, more and more academic research has been devoted to this area.

John & John (1998) suggested that loneliness is associated with two factors: situational factors and personal factors. The situational factors refer that the change of situation can have a large impact on the sense of loneliness. For example, a study conducted by Shaver, Furman, and Buhrmester (1985) discovered that during the first year of college life, most students' satisfaction with their friendship network decreased and their sense of loneliness increased. The personal factor emphasized the role of social skills in determining the state of loneliness. Individuals high in self-rated social skills were least lonely. Those who have social skills inadequacies including passivity, lower self-esteem, greater shyness and self-consciousness are more likely to experience loneliness (Jones, 1981).

Loneliness is a common problem among college students (Cutrona, 1982; Shaver, Furman, & Buhrmester, 1985). Lonely students report significantly lower intimacy of social relationship. They tend to speak less, had difficulties in maintaining stable relationships. With the advancement of technology, recent study found that students who scored significantly higher on UCLA Loneliness Scale were frequent Internet users (1996). Compared with building relationship in reality, they were more likely to go online to relax, talk to others with similar interests or find support (Morahan, 2000). The spread of loneliness feeling among Internet users have aroused much attention. In the Happy Farm game, a slogan even posed by the users as "We are not stealing vegetables, but the loneliness." Accordingly, the following hypothesis is posed.

H1a: The lonelier the SNS-game players are, the more they will play SNS-game.

H1b: The lonelier the SNS-game players are, the more the likelihood they will be addicted to SNS-game.

Leisure Boredom

Leisure boredom has been conceptualized as a subjective perception that available leisure experiences are not sufficiently frequent, involving, exciting, varied or novel (Iso-Ahola and Weissinger, 1990). Psychologists have concluded that boredom is a state of under-stimulation, under-arousal, lack of momentum or a lack of psychological involvement associated with dissatisfaction in the task situation (Brissett & Snow, 1993; Larson & Richards, 1991; Mikulas & Vodanovich, 1993). In fact, leisure and boredom have complex relationship. Susan and Keis (2000) claimed that different leisure activities can result in diverse levels of boredom. They found, for example, that young people who involved unstructured leisure activities such as peer directed socialising, watching television or videos, non-competitive sports, games and idling activities may be more prone to boredom.

The phenomenon of leisure boredom has caused much alarm and attention because many previous research have found that leisure boredom is related to other forms of addiction and has been implicated in detrimental behaviours such as delinquency, extreme sensation activity, and alcohol and drug abuse (Caldwell & Smith, 1995; Iso-Ahola & Crowley, 1991). For instance, frequency and quantity of alcohol use among female college students has been found to be positively correlated with boredom susceptibility (Orcutt, 1984). Moreover, Blaszczynski, McConaghy and Frankova (1990) report that pathological gamblers are more bored

and use gambling as a way of avoiding or reducing noxious physiological states or dysphoric mood. Kuley and Jacobs' (1988) also found that gambling addicts have elevated boredom proneness scores.

Addressing the leisure choice of college students serves an important function because they are a special group who is experiencing the transition from adolescent to young adulthood. Their lifestyle is characterized by students who have recently moved away from home, live in residence halls or with friends off-campus, and enjoy their newfound freedom. These contextual changes may have a fundamental influence on their leisure pursuits. Nowadays, the advancement of electronic media, including Internet/Web surfing and computer/video gaming, have occupied most leisure time of young people and greatly displaced other forms of social activities. Although there have been a large number of research examined psychological and sociological problems related to college students, leisure researchers have not paid adequate attention to this group thus the leisure activities of college students have not been fully understood. Since there are great numbers of college students being as SNS-game players, this research will examine the relationship between leisure boredom and SNS-game use among college students. Accordingly, the following hypothesis is posed:

H2a: The more boredom the SNS-game players are, the more they will play SNS-game.

H2b: The higher the level of leisure boredom one experiences, the higher the likelihood one will be addicted to the SNS-game.

Self-esteem

Over the years, researchers have devoted considerable attention to the term self-esteem, defined as "the evaluation which the individual makes and customarily maintains with regard to the self" (Coopersmith, 1967, pp 4-5). When individuals evaluate themselves negatively, they may have unfavorable self concept. As a result, they are less motivated to communicate because they expect to fail. A study conducted by Joiner, Alfano and Metalsky (1991) even discovered that male college students with low self-esteem are significantly associated with depression and easily be rejected.

Increases and decreases in self-esteem are often coincident with major successes and failures in life. Subjective experience creates the impression that self-esteem rises when one wins a contest, garners an award, solves a problem, or gains acceptance to a social group, and that it falls with corresponding failures (Campbell, Krueger, Vohs & Baumeister, 2003). Research also found that self-esteem is a good predictor of Internet use. Low self-esteem may drive people to using the Internet as an escape, especially for college students who may find it difficult to adapt to life away from home and fit in with others (Craig, 1995). Considering that Happy Farm is marked with the satisfaction from increased game level, harvesting vegetables and stealing friends' virtual products, it is possible that many individuals with lower self-esteem in reality enjoy the experience of high self-esteem gained by playing SNS-game. In addition, past research has found that perception of boredom

in leisure activities increased with a corresponding decrease in perceived self-esteem, social competence and leisure satisfaction (Iso-Ahoha & Weissinger, 1990). As a result, the following hypothesis and research questions are posed:

H3a: The lower self-esteem the SNS-game players are, the more they will play SNS-game.

H3b: Subjects who score low on self-esteem will demonstrate a higher tendency of one being addicted to the SNS-game.

R2: How can gratifications, loneliness, leisure boredom, self-esteem and demographics influence the use of SNS-game?

Based on the similar study and the increasing phenomenon of SNS-game addiction in mainland China, this exploratory study seeks predictors from the addiction literature and other psychological theories such as loneliness, leisure boredom, self-esteem in order to differentiate the addicts and the non-addicts and to explain usage pattern of SNS-game. Therefore, the following questions are posed as:

RQ3: To what extent are college students in Mainland China addicted to SNS-game and in what way do they differ from non-addicts in terms of demographics, loneliness, leisure boredom, and self-esteem and usage pattern?

RQ4: How can demographics, gratifications, loneliness, leisure boredom, and self-esteem predict SNS-game addiction?

RQ5. How can demographics, SNS-game addiction, gratifications, loneliness,

leisure boredom, and self-esteem predict SNS-game use?

Methodology

Sample and Data Collection

The data was collected from 342 mainland college students aged between 18 and 22 who have played SNS-game. The survey method was stratified sampling. Five hundred questionnaires were distributed to Shandong Vocational-Technical College, and Xinglin College. A total 342 valid pieces of questionnaire were back and the response rate was 68.4%. All the participants were voluntary. The questionnaires were written in Chinese and then translated to English for the sake of further analysis.

Among all the respondents, 67.8% were female and 32.2% were male students. 53.2% claimed that they logged in SNS-game more than once per day. In terms of education level, 53.3% were first year students, 29.2% were second year students, 17.5% were third year students. The residence situation was that 95.9% subjects lived in school dormitory, 2.9% lived with family, and 1.2% rented house alone or with friends.

Measurement Scales

Uses and Gratifications: In the early stage, a focus group study was conducted among 20 college students aged between 18 and 22 to understand the gratifications they seek from playing SNS-game. Ambiguous and repetitive answer will be eliminated. Thus, based on the previous U&G studies (Leung, 2001, 2002; Raacke & Bonds, 2008; Chang, Lee & Kim, 2006), as well as items from the focus group. there

were ten foremost gratifications/purpose statements: (1) to enjoy the game's interface, (2) to have fun, (3) to relax from gaming, (4) to participate the traditional country life, (5) to communicate with classmates and friends, (6) to have more care and attention from friends, (7) to have a sense of belonging, (8) to pursuit more virtual money, (9) to gain gratifications from growing, and (10) to enjoy the feeling of leveling up.

The consolidated gratification statements will be used as a scale to examine the unique gratifications gained from SNS-game. A five-point Likert scale was used in rating these items. Namely "1" represented "strong disagree" and 5 meant "strongly agree".

SNS-game addiction: SNS-game addiction was measured basically by Young's Internet Addiction Test (IAT) with some necessary modifications. Eight items were adopted and modified from the 20 items according to Young's screening instrument for addictive Internet use to test their possible SNS-game addiction. A five-point Likert scale was applied in rating 8-item scale, namely "1" means "rarely" and "5" means "always". Responses were recoded "1,2" to "no" and the responses of "3,4,5" to "yes". Respondents who gave five "yes" or more were considered as "addicts". The 8 questions included: (1) Do you find that you have been playing SNS-game longer than you intended? (2) Do you block out disturbing thoughts about your life with soothing thoughts of SNS Game? (3) Do you find yourself saying "just a few more minutes" when playing SNS-game? (4) Do you feel preoccupied with SNS Game when being log-off, or fantasized about being log on? (5) Have you tried to cut down the amount of time you spend on Happy Farm but fail? (6) Do you snap, yell, or act

annoyed if someone bothers you while you are playing SNS-game? (7) Do you feel depressed, moody or nervous when you are blocked from SNS Game, which goes away when you log on it? (8) Do you try to hide how long you have been playing SNS-game?

Loneliness: To measure loneliness, the Revised UCLA Loneliness Scale(Russell, 1996) was used. In this scale, respondents were asked to self-report how they experience the emotions concerning their interpersonal relationship expressed in the 20-item measure, using a four-point scale, with 1 meaning never, 2 meaning rarely, 3 meaning sometimes, and 4 meaning often. The mean of the scale was 52 (SD=6.9), and its reliability was high, with alpha equal to 0.74.

Leisure Boredom: Leisure Boredom was measured by using Leisure Boredom Scale (LBS: Iso-Ahola & Weissinger, 1990). The LBS is a self-report questionnaire used to measure "individual differences in perceptions of boredom in leisure" (Iso-Ahola & Crowley, 1991, p.264). The LBS consists of 16 items to which subjects responded on a 1 to 5 scale ranging from strongly disagree (1) to strongly agree (5), with high scores indicating greater leisure boredom.

Self-esteem: The Rosenberg Self-Esteem Scale contained 10 items with a four-point Likert scale and provides an overall evaluation of one's worth or value. For example, items included "I feel that I have a number of good qualities", "I certainly feel useless at times," and "I am able to do things as well as most other people."

SNS-game usage pattern: Respondents will be asked the following questions regarding the SNS-game usage pattern: (1) How long in years have you played SNS

and Happy Farm (less than one year, one to two years and more than three years)? (2) Where do you play Happy Farm (dormitory, Netbar, home)? (3) How many times per day do you log in to check the status of "products" on Happy Farm (less than twice, two to three times, three to five times, more than five times)? (4) How many hours do you play Happy Farm per day (less than one hour, one to two hours, three to four hours, more than four hours)? (5) How often do you steal virtual "products" from other players (less than once, one to two times, three to five times, more than five times)? (6) Have you ever be stolen by others while playing Happy Farm (yes/no)? In this study, SNS-game using is the combine of question three, four and five.

Demographics: Demographic variables were measured in this study as control variables, including: gender (female=0), age, year in school, residence (i.e., whether the respondent lives at home or in a dormitory on campus), and family income.

Findings

Hypothesis Testing

H1 predicted that the lonelier a SNS-game player is, the more he/she plays the SNS-game and the likelihood will be addicted to SNS-game. As shown in Table 4, loneliness was significantly related to the use of SNS-game ($r = .30, p < 0.01$), as well as SNS-game addiction ($r = .23, p < .01$). H2 hypothesized that there was a positive relationship between leisure boredom and SNS-game usage and addiction degree. SNS-game addiction test includes 8 items, the higher the score, the higher tendency to have addictive symptoms. As shown in Table 4, a significant link was found

between leisure boredom and SNS-game usage ($r = .31, p < .001$) as well as addiction ($r = .31, p < .01$). H3 predicted that subjects who score low on self-esteem will play more SNS-game and exhibit a higher tendency of one being addicted to the SNS-game. However, no significant relationship between these three items was found. As a result, both H1 and H2 were supported, but H3 was rejected.

Gratifications of SNS-game Uses

As shown in Table 1, three major gratifications of playing SNS-game were found based on the 10 motives obtained in the focus group : (1) "Entertainment Gratifications" includes "to enjoy the game's interface", "to have fun" and "to relax from gaming". This category indicates the enjoyment, relaxation and fun the users gained from SNS-game. (Cronbach's alpha = .61). (2) "Inclusion Gratifications" includes "to participate the traditional country life", "to communicate with classmates and friends" , "to have more care and attention from friends" and "to have a sense of belonging". This category explains the gratifications the users gained from maintaining and reinforcing their established interpersonal relationship through playing SNS-game (Cronbach's alpha = .76). (3) "Achievement Gratifications" includes "to pursuit more virtual money", "to gain gratifications from growing", and "to enjoy the feeling of leveling up". This category refers to the gratifications the users gained from improving higher game level and virtual money (Cronbach's alpha = .83).

(* Insert Table 1 about here *)

Profiles of SNS-game Addicted College Students

As shown in Table 2, 36.5% of the total 342 respondents get Internet access in netbars, followed by 35.7 at dormitories, and 27.8% at home. So, dormitories and netbar are the two major places that college students play SNS-game. Most of the college students played SNS-game more than 2 hours every day ($M = 1.72$, $SD = .84$). They logged in SNS-game to check their own game status as well as stealing products from others more than two times everyday ($M = 2.00$, $SD = .85$); ($M = 2.13$, $SD = .89$) respectively. We also found that "stealing products from others" has been the most popular functions of SNS-game with 90.4% respondents claimed that they have been stolen by others.

(* Insert Table 2 about Here *)

According to Young's classic definition on Internet addiction, respondents giving five or more "yes" to eight "yes" or "no" questions were classified as addicts. In this sample, 24% ($N=82$) of the total 342 college students can be classified as SNS-game addicts ($M = 2.77$, $SD = 2.31$). A canonical discriminant analysis was conducted to examine the difference between SNS-game addicts and non-addicts with five variables of demographics, loneliness, leisure boredom, self-esteem and usage pattern of SNS-game as predictors. As shown in Table 3, the total analysis was significant ($p < .001$, Wilk's Lambda = .82). Statistics in the table revealed great importance of usage pattern, loneliness, leisure boredom, and little importance of self-esteem and demographics in predicting the discriminant function. Results

suggest that SNS-game addicts were characterized by being lonely, bored in leisure time, spending much more time playing SNS-game everyday, frequently logging-in SNS-game and often stealing products from friends.

(* Insert Table 3 about Here *)

Predicting SNS-game Addiction

In order to test the relationship between perceived gratifications, loneliness, leisure boredom, self-esteem and demographics and the SNS-game addiction, a regression analysis was conducted. Results in Table 4 show that the gratifications of "Inclusion" ($\beta = .21, p < .01$) and "Achievement" ($\beta = .46, p < .001$) were significantly related to SNS-game addiction. This result indicates that users having more intention to maintaining and enlarging their interpersonal relationship and caring more about the game money and level are more likely to be addicts of SNS-game. "Leisure boredom" was found to be quite a significant predictor to SNS-game addiction ($\beta = .21, p < .01$). The statistics again gave supports to the hypothesis, indicating that the leisure bored Chinese college students are more likely to be addicted to SNS-game. For the demographic variables, only "gender" being male was found to have significant relationship with SNS-game addiction ($\beta = .13, p < .05$). The equation explained 44% of the variance. In sum, the gratification of "Achievement" was the most influential predictor, followed by the gratification of Inclusion, leisure boredom and gender.

(* Insert Table 4 about Here *)

Predicting SNS-game Using

To access how perceived gratifications, loneliness, leisure boredom, self-esteem, SNS-game addiction, and demographics influence the SNS-game use, a simple regression analysis was run. Use of SNS-game included the length of using and the frequency of using everyday. Results in Table 4 show that the use of SNS-game was significantly predicted by SNS-game addiction ($\beta = .26, p < .05$). Entertainment ($\beta = .13, p < .05$), achievement ($\beta = .11, p < .01$), loneliness ($\beta = .17, p < .05$) and leisure boredom ($\beta = .13, p < .05$) were also found significantly related to level of SNS-game use. This indicates that frequent users of SNS-game were more likely to be addicts and had more intention to have fun and higher game level from SNS-game and being lonely and leisure bored.

To sum up, SNS-game addiction, gratifications, loneliness and leisure boredom were four important factors to explain Chinese students' use of SNS-game.

Conclusions and Discussions

The purpose of this study was to identify the predictors of SNS-game addiction and SNS-game use with a focus on gratifications, loneliness, leisure boredom and self-esteem.

First, most students played SNS-game in order to relax themselves, maintain interpersonal relationship, as well as to achieve to a high level in the game and to earn more virtual money. SNS-game is specialized by its high level interactive

features, such as the process of growing vegetables online and stealing products in Happy Farm. This study found that 24% college students addicted to SNS-game according to Young's 8 items Internet Addiction Test. However, we believe that the figure is much higher because this survey is conducted in class under the teacher's supervision, a large number of students may be worried about telling the truth of being addicted to SNS-game.

Second, SNS-game addiction is largely predicted by the gratifications of "Inclusion" and "Achievement". This suggests that the more interactive activity a student involved in SNS-game and the more SNS-game money he/she successfully gains, the more possible for him/her to get addicted. Since SNS users are all directly or indirectly connected, SNS website provided a platform for college students to maintain and enlarge their interpersonal relationship. In mainland China, college students are supervised by strict university discipline, many of them complained that the school life is not exciting as expected. They have limited opportunity to touch the world outside campus. Out of this, students are more likely to being immersed in the feeling of being connected and achieving gratifications through playing game that they cannot get from their study. Among demographics variables, only gender was found having influence on SNS-game addiction, which means male students are more likely to being addicted to SNS-game.

Besides, leisure boredom is another predictor to SNS-game addiction, which is consistent with the finding in previous research that "leisure boredom is related to other forms of addiction and has been implicated in detrimental behaviours" (Caldwell

& Smith, 1995; Iso-Ahola & Crowley, 1991). College student is a group of people who does not have too much pressure, just moved away from home and may have not built up a mature social group. The lack of social activities due to contextual change made them feel bored in their spare time. SNS-game provided an appropriate platform for the leisure bored students to pass time. Players need to frequently check their game status and wait for a certain time to steal or grow products. When participating in this process, students would feel they always have something to do instead of emptiness.

Finally, as for the using of SNS-game which includes the length of use and the frequency of use everyday, SNS-game addiction is the most significant predictor. Frequent players are more likely to be SNS-game addicts. The strongly positive relationship between SNS-game addiction and use calls for attention from the whole society to prevent the negative impact of SNS-game in students' academic performances or work schedule. Meanwhile, a positive relationship between loneliness and SNS-game use was also found. As previous research suggested, lonely students were more likely to go online to relax, talk to others with similar interests or find support compared with building relationship in reality (Morahan, 2000). Playing SNS-game with friends in the virtual system is an appropriate way for lonely students to alleviate lonely feelings because of its high interactive features.

Although this research has some interesting findings, there are still some limitations about this study. Firstly, there are no tested gratification items of SNS-game can follow, so the gratifications were constructed by using the responses

of the focus group. As alpha score for some factors were not exceptionally high, future study should refine the items for better reliabilities. Secondly, although 500 questionnaires were sent out, only 342 were valid. Many of them were partially finished. This maybe because that the questionnaire is too long (78 items). Many students might easily get bored with these items and might not have identified some items carefully. Thirdly, the data were gathered only in Shandong Vocational-Technical College and Xinglin College in Shandong province. The results may get some bias and not be representative enough. Forth, the scales used for designing the questionnaire were all in English, but the questionnaire for sampling was in Chinese, which may cause translation inaccuracy and disadvantageous influence on the research findings. Finally, the SNS-game usage pattern should be more diverse compared with what have been mentioned in this study. With the advancement of technology, new interactive games would be developed. Further research is required to examine the new addiction phenomenon of SNS-game and better understand the motives and predictors of SNS-game addiction and usage pattern.

References

- Asher, S., Parkhurst, J., Hymel, S., & William, G. (1990). *Peer rejection in childhood*. New York: Cambridge University Press.
- Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *American Psychological Society, 4*(1), 1-44.
- Blaszczynski, A., McConaghy, N., & Frankova, A. (1990). Boredom proneness in pathological gambling. *Psychological Reports, 67*, 35-42.
- Boyd, M. D., & Ellison, B. N. (2007). Social net work sites: Definication, history, and scholarship. *Journal of Computer-Mediated Communication, 13*(1), 11.
- Brissett, D., & Snow, P. R. (1993). Boredom: Where the future isn't. *Symbolic Interaction, 16*(3), 237-256.
- Bryant, J., & Zillmann, D. (1984). Using television to alleviate boredom and stress: Selective exposure as a function of induced excitational states. *Journal of Broadcasting & Electronic Media, 28*(1), 1-20.
- Caldwell, L. L., & Smith, E. A. (1995). Health behaviors of leisure alienated youth. *Loisir et Societe, 18*(1), 143-156.
- Chang, B. H., Lee, S. E., & Kim, B. S. (2006). Exploring factors affecting the adoption and continuance of online games among college students in South Korea. *New Media and Society, 8*(2), 295-319.
- Chou, C., & Hsiao, M. C. (2000). Internet addiction, usage, gratification, and pleasure experience: the Taiwan college students' case. *Computer & Education, 35*,

65-80.

CNNIC. (2010). The 25th Statistical Report on the Internet Development.

Coopersmith, S. (1967). *The antecedents of self-esteem*. San Francisco: Freeman & Company.

Craig, R. J. (1995). The role of personality in understanding substance abuse.

Alcoholism Treatment Quarterly, 13, 17–27.

Cutrona, C. (1982). Loneliness: A sourcebook of current theory, research, and therapy.

In L. P. (Eds.), *Transition to college: Loneliness and the process of social adjustment* (pp. 291-309). New York: John Wiley & Sons.

Griffiths, M. (1998). Internet addiction: does it really exist. In J. Gackenbach,

Psychology and the Internet: intrapersonal, interpersonal, and transpersonal implications. New York: Academic Press.

House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health.

Science, 241, 540-545.

Iso-Ahola, S. E., & Crowley, E. D. (1991). Adolescent substance abuse and leisure

boredom. *Journal of Leisure Research*, 23, 260-271.

Iso-Ahola, S. E., & Weissinger, E. (1990). Receptions of boredom in

leisure: conceptualization, reliability and validity of the leisure boredom scale.

Journal of Leisure Research, 22, 1-17.

John, T. C., & Ernst, M. J. (1999). Lonely Hearts: Psychological Perspectives on

Loneliness. *Applied & Preventive Psychology*, 8, 1-22.

Jones, W. H. (1981). Loneliness and social contact. *Journal of Social Psychology*, 113,

295-296.

Jonifer, T. E., Alfano, M. S., & Metalsky, G. I. (1991). *Reaction to Dependent Others Scale*. Unpublished Manuscript.

Kandell, J. J. (1998). Internet addiction on campus: the vulnerability of college students. *CyberPsychology and Behaviour*, 1, 11-17.

Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Utilization of Mass Communication by the Individual. In J. G. Blumler, & E. Katz, *The Uses of Mass Communications: Current Perspectives on Gratifications Research* (pp. 19-32). Beverly Hills, CA: Sage.

Kuehn, S. A. (1994). Computer-mediated communication in instructional settings: A research agenda. *Communication Education*, 43, 171-183.

Kuley, N. B., & Jacobs, D. F. (1988). The relationship between dissociative-like experiences and sensation-seeking among social and problem gamblers. *Journal of Gambling Behavior*, 4, 197- 207.

Larson, R. W., & Richards, M. H. (1991). Boredom in the middle school years: Blaming schools versus blaming students. *American Journal of Education*, 418-443.

Leung, L. (2001). College student motives for chatting on ICQ. *New Media and Society*, 3(4), 483-500.

Leung, L. (2002). Loneliness, self-disclosure, and ICQ use. *CyberPsychology & Behavior*, 5(3), 241-251.

Leung, L. (2004). Net-Generation Attributes and Seductive Properties of the Internet

- as Predictors of Online Activities and Internet Addiction. *CyberPsychology & Behavior*, 7(3), 333-348.
- Margalit, M. (1994). *Loneliness among children with special needs*. New York: Springer Verlag.
- Mikulas, W., & Vodanovich, S. J. (1993). The essence of boredom. *The Psychological Record*, 43(1), 3-12.
- Moody, E. J. (2001). Internet use and its relationship to loneliness. *CyberPsychology & Behavior*, 4(3), 393-401.
- Moore, S., & Ohtsuka, K. (2000). The structure of young people's leisure and their gambling behaviour. *Behaviour Change*, 17(3), 167-177.
- Morahan-Martin, J., & Schumacher, P. (2000). Incidence and correlates of pathological Internet use among college students. *Computers in Human Behavior*, 16(1), 13-29.
- Orcutt, J. D. (1984). Contrasting effects of two kinds of boredom and the capacity for self-entertainment. *Journal of Drug Users*, 14(1), 161-73.
- Papacharissi, Z., & Rubin, A. M. (2000). Predictors of Internet Use. *Journal of Broadcasting & Electronic Media*, 44(2), 175-196.
- Peplau, L. A., & Perlman, D. (1982). *Loneliness: A sourcebook of current theory, research, and therapy*. New York: John Wiley & Sons.
- Raacke, J., & Bonds-Raacke, J. (2008). MySpace and Facebook: Applying the Uses and Gratifications Theory to Exploring Friend-Networking Sites. *CyberPsychology & Behavior*, 11(2), 169-174.

- Rosenberg, M. (n.d.). *The Rosenberg Self-Esteem Scale*. Retrieved from www.bsos.umd.edu/socy/rosenberg.html.
- Rubenstein, C., & Shaver, P. (1982). *In search of intimacy*. New York: Delacorte Press.
- Russell, D. (1996). UCLA Loneliness Scale (Version 3): reliability, validity, and factor structure. *Journal of Personality Assessment*, 66(1), 20-40.
- Russell, D. W., Peplau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment*, 42(1), 290-294.
- Shaver, P., Furman, M., & Buhrmester, D. (1985). Transition to college: Network changes, social skills, and loneliness. In S. Duck, & D. Perlman, *Understanding personal relationships: An interdisciplinary approach* (pp. 193-220). Beverly Hills, CA: Sage.
- Walker, M. B. (1989). Some problems with the concept of "gambling addiction": should theories of addiction be generalized to include excessive gambling? *Journal of Gambling Behavior*, 5(3), 179 - 200.
- Williams, G. A., & Asher, S. R. (1992). Assessment of loneliness at school among children with mild mental retardation. *American Journal on Mental Retardation*, 96(4), 373-385.
- Wimmer, R. D., & Dominick, J. R. (1994). *Mass media research: An introduction*. Belmont, CA: Wadsworth.
- Young, K. (1996). Internet addiction: the emergence of a new clinical disorder. *Cyber Psychology & Behavior*, 1(3), 237-244.

Young, K. (1996). What makes the Internet addictive? Potential explanations for pathological Internet use. *Presented at the 105th Annual Conference of the American Psychological Association*. Chicago.

Table 1: Analysis of Perceived Gratifications of SNS-games (N=342)

| I play SNS-game: | Mean | SD | Alpha |
|---|-------------|-----------|--------------|
| Entertainment | | | .61 |
| 1. to enjoy the game's interface | 2.58 | .75 | |
| 2. to have fun | 3.07 | .78 | |
| 3. to relax from gaming | 3.00 | .71 | |
| Inclusion | | | .76 |
| 1. to participate the traditional country life | 2.56 | .98 | |
| 2. to communicate with classmates and friends | 2.83 | .86 | |
| 3. to have more care and attention from friends | 3.02 | .91 | |
| 4. to have a sense of belonging | 2.58 | .93 | |
| Achievement | | | .83 |
| 1. to pursuit more virtual money | 3.47 | .98 | |
| 2. to gain gratifications from growing | 3.43 | .95 | |
| 3. to enjoy the feeling of leveling up | 2.80 | 1.00 | |

Notes: Scale used: 1=strongly disagree, 2=disagree, 3=somewhat agree, 4=largely agree, 5=strongly agree

Table 2: Usage Attributes of SNS-game Summary (N=342)

| | Mean | SD |
|---|------|------------------|
| How often do you play SNS-game everyday? | | |
| Frequency of use ^a | 1.72 | .84 |
| Check own status ^b | 1.84 | .95 |
| Steal others' products ^c | 2.13 | .89 |
| | | % for yes |
| Have you ever played SNS-game at? | | |
| In netbar | | 36.5% |
| In dorm | | 35.7% |
| At home | | 27.8% |
| Have you ever been stolen in game? | | 90.4% |

Notes:

- How often do you play SNS-game everyday? was coded 1=less than one hour, 2=one hour to two hours, 3=three to four hours, and 4=more than four hours
- Frequency of checking own status was coded 1= less than twice, 2=two to three times, 3=four to five times, and 4=more than five times.
- Frequency of stealing others' products was coded 1= less than once, 2=once to twice, 3=three to four times, and 4=more than four times.

Table3: Discriminant Analysis of SNS-game Addiction with Demographics, Loneliness, Leisure Boredom, Self-Esteem and Usage Pattern of SNS-game as Predictors^a (N=342)

| Predictor | Structure Correlations |
|----------------------------------|------------------------|
| Demographics | |
| Gender (male=1) | 0.11 |
| Age | -0.18 |
| Year in school | -0.04 |
| Residence | 0.14 |
| Family income | -0.20 |
| Loneliness | 0.35*** |
| Leisure Boredom | 0.63*** |
| Self-esteem | 0.26 |
| Usage Pattern^b | 0.81*** |
| <hr/> | |
| Eigenvalue | 0.23 |
| Canonical correlation | 0.43 |
| Wilk's Lambda | 0.82 |
| Significance | p < .001 |
| Group centroids | |
| Addicts | 0.84 |
| Non-addicts | -0.27 |

Notes:

- SNS-game addicts were coded 1 and non-addicts were coded 0.
- Usage pattern of SNS-game was the length of time and the frequency of playing SNS-game everyday.

Table 4: Regression Analysis of Demographics, Gratifications, Loneliness, Leisure Boredom, and Self-esteem as Predictors of SNS-game Addiction and SNS-game Use (N=342)

| Predictors | SNS-game addiction | | SNS-game use | |
|---------------------------|--------------------|---------|--------------|---------|
| | r | β | r | β |
| Demographics | | | | |
| Gender (male=1) | 0.15 | 0.13* | 0.09 | 0.08 |
| Age | -0.05 | -0.04 | -0.06 | -0.02 |
| Year in school | 0.03 | 0.09 | -0.05 | -0.05 |
| Residence | 0.04 | -0.06 | 0.02 | -0.01 |
| Family income | -0.08 | -0.03 | -0.01 | -0.03 |
| Gratifications | | | | |
| Entertainment | 0.34*** | -0.16 | 0.29** | 0.13* |
| Inclusion | 0.43*** | 0.21** | 0.23** | -0.04 |
| Achievement | 0.58*** | 0.46*** | 0.35*** | 0.11* |
| Loneliness | 0.23** | 0.08 | 0.30*** | 0.17* |
| Leisure Boredom | 0.31*** | 0.21** | 0.30*** | 0.13* |
| Self-esteem | 0.08 | -0.01 | 0.09 | -0.02 |
| SNS-game addiction | -- | -- | 0.44*** | 0.26** |
| R ² | | 0.45 | | 0.28 |
| Adjusted R ² | | 0.44 | | 0.25 |

Notes: Figures are Pearson coefficients and standardized beta coefficients.

p <= .1, *p <= .05, **p <= .01, ***p <= .001, N = 342