Demographics, Motivations, Addictions and Usage Patterns among Chinese College Student MMORPG Players

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Abstract

The purpose of this study is to (1) identify the extent of MMORPG addiction among Chinese college students who are heavy players of MMORPG; (2) examine the relationship between the motivations and addiction; (3) find how demographics and usage patterns can predict MMORPG motivations; (4) explore how demographics and motivation of individuals can predict MMORPG addiction; (5) and explore how demographics, motives and addiction can predict usage pattern of MMORPG.

Data were gathered from 260 college students of mainland China. By using Kimberly Young's (1998) classic definition of online game addiction, 27.4% of the college students were found addicted to MMORPG. In the motivation test, we found that female students were more likely to immerse into the game, and players who tend to play the game in Net cafes appreciate more sociability function of MMORPG. In the addiction test, it is consistent with the previous research: the higher one scored in immersion, the higher the likelihood one was addicted. In the usage pattern test, lower class and male students tend to play the game more often, and players who show more desire to acquire achievement spent longer on the game time.

Word count = 191

Key Words: MMORPG, Motivation, Addiction, Usage Pattern

Introduction

Massively multiplayer online role-playing game (MMORPG) is a kind of online game in which a large number of players interact with one another in a virtual world. As in all Role-playing games (RPGs), players assume the role of a fictional character (most commonly in a fantasy world), and take control over many of that character's actions. For example, World of Warcraft and Second Life are examples of MMORPGs.

As of December 2007, the number of online game players in China had reached 40 million, up 23% growth in 2006. According to the Chinese online game industry conference 2007, China's online game market net revenue in 2007 was $1.47 billion USD, up 61.5 % growth in 2006. And according to CNNIC (2008) survey, the use rate of online game by Chinese netizens accounts for 59.3%, even higher than e-mail use which is 56.5%. Although the above data are all about online game, different from the online card game or chess game, the MMORPG is the most important part of online game.

According to an online survey of Sina.com and QQ.com, which based on 9,915 college students in 2006, 30% people play online game every day, 29% often play, 27% play sometimes, and 14% never play. Moreover, 55% students have skipped classes because playing online game.

Nowadays, the MMORPGs have tremendous economic and social influence to the Chinese society, but the academic research of MMORPGs is very limited. Past researches of online games by the China mainland scholars suggested that China's online game industry should learn from South Korea and train Chinese own game developers (Chen, 2006; Quan, 2004; and Yao, 2005). Some scholars studied the addiction of online games among Chinese

adolescents (Liu, 2007; Wang, 2007; Yang, 2002; and Zhang, 2007) and some stated how to use online games in the field of education (Pu, 2007 and Wang, 2007).

Unfortunately, a common drawback of these studies is that most of the scholars don't play online games. Some scholars even have discrimination and bias on online games, and don't respect the players. It's just like someone who writes a TV review but never watch TV. In contrast, many Western scholars of MMORPGs play online games themselves; therefore they can understand accurately what is happening in the virtual world.

A review of the studies from other countries included (1) the four kinds of MUDs (Multiple User Dimension) players (Bartle, 1996); (2) the motivation of playing MMORPGs and the sociability in the virtual world (Yee, 2005); (3) the adoption and continuance of online game in South Korea (Chang, Lee, and Kim, 2006); (4) the social fear of online game addiction in China is not correct (Golub & Lingley, 2008); and (5) the addiction to MMORPG: Symptoms and Treatment (Young, 2006).

Base on previous research, the purpose of this study is to (1) identify the extent of MMORPG addiction among Chinese college students who play MMORPG; (2) examine the relationship between the motivations and addiction; (3) find how demographics and usage patterns can predict MMORPG motivations; (4) explore how demographics and motivation of individuals can predict MMORPG addiction; (5) and explore how demographics, motives and addiction can predict usage pattern of MMORPG.

Theoretical Frameworks

MMORPG in China

With the rapid development of Chinese Internet Technology, MMORPGs are very popular in China now. Chinese government takes the Technonationalistic policies, which aim initially to increase the competitiveness of domestic companies in specific fields in the large domestic Chinese market and thereby provide a growth environment for subsequent competition in the world market. One of the rationales behind this development is a desire to rapidly catch up with technological leaders and thus achieve the economic growth to build and sustain the political base of the CCP. One example of this strategy is the high-tech "863" program that China launched in 1986 (Ernkvist and Strom, 2008). Therefore, the government encouraged the Internet technology including MMORPG to develop very quickly in recent years. And two MMORPG technologies were incorporated into the Chinese National 863 program in 2003. At the same time, many families purchase computer for their children and connect to the Internet via broadband. Nowadays, the MMORPGs have tremendous economic and social influence to the Chinese society.

There are numerous Net cafes in China, especially around the schools, providing good places for players to play together. On the other hand, thanks to the computer and Internet industry of China, the computer and Internet access fee are quite cheap in China now, so people also can play online games at home. Moreover, because there is no Xbox or Play Station to be sold in mainland China, there is no competition with the MMORPG. Besides there is no competition from the console game, it also has no competition from stand alone PC game. Because of the pirate game software problem, the stand alone games companies

can't earn much money by selling their game software (the best example is Shanghai Soft Star, even though this company created the best Chinese RPG "Chinese Paladin 4", it is still bankrupted). The game companies, therefore, are attracted by the business model of online games. Moreover, by the attraction of high profits, many traditional Internet companies (such as Netease and Sohu) are expanding to the online game market. In 2007, even a traditional health medicine company Giant entered the competition and achieved great success. Chinese MMORPGs are not imported from the United States or Korea any more; we can see from Table 1, most of the popular games are produced by Chinese companies.

(*Insert table 1 here*)

MMORPG developed very quickly in China now, but at the same time, it causes social fears. The online games is equated with addictive drugs, not only at the level of the individual; it is also regarded as a social problem (Golub and Lingley, 2008). In 2004, for instance, a child leaped to his death in Tianjin, leaving behind a four-page confession detailing his deeply emotional ties to the characters in Warcraft III. This event was widely reported by the television and newspaper, and in that period of time, the whole society criticized online games despite the fact that actually Warcraft III is not MMORPG, and very different from the World of Warcraft. Another example, in 2007, a student called Zhang Fei was called the "king of examination" because he enrolled in two of top universities in China, Tsinghua University and Peking University, for several times but every time he was expulsed because of his addiction in online games. There are many similar reports in Chinese news

media, and most of the adults treat the online game as E-opium.

MMORPG Addiction

Traditionally, the concept "addiction" was based on a medical model and is properly reserved for bodily and psychological dependence on a physical substance–and not a behavioral pattern. Recent research has argued that addiction should be widened to cover a broader range of behaviors (Leung, 2007). As a subset of behavioral addiction, Griffiths (1996) proposed the concept of technological addiction, which is operationally defined as human-machine interaction and is non-chemical in nature. Despite whether the excessive use of various technologies, such as Internet surfing, TV watching, and computer gaming, can be or should be called an "addiction," scholars have argued that excessive use of technology can be considered problematic (Griffiths, 1998). Today, as the capability of the MMORPG becomes more and more sophisticated and multifunctional, adolescents and young users are becoming increasingly dependent or "addicted" to this technology.

To define addictive use of the MMORPG, it is necessary to compare it against criteria for other established addictions. The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM) has established objective and measurable criteria for assessing "substance dependence" (American Psychiatric Association, 1994). The main diagnostic criterion is a maladaptive pattern of substance use, leading to significant psychological impairment. This impairment is manifested by seven symptoms from a list of conditions including withdrawal, tolerance, preoccupation with the substance, loss of control over the substance, more use of the substance than intended, continued consumption of the

substance despite adverse consequences, and loss of interest in other social, occupational, and recreational activities.

Addictive MMORPG use can be regarded as an impulse control disorder that does not involve an intoxicant and is similar to pathological gambling. Kimberly Young (2003) indicated the warning signs of a dangerous pattern of playing MMORPG. Gamers who become hooked show clear signs of addiction. Like a drug, gamers who play every day, play for extended periods of time (over 4 hours), get restless of addiction. Common warning signs include: (1) A preoccupation with gaming, (2) Lying or hiding gaming use, (3) Disobedience at time limits, (4) Loss of interest in other activities, (5) Social withdrawal from family and friends, (6) Psychological withdrawal from the game, (7) Using gaming as an escape, and (8) Continuing to game despite its consequences. This study expands the work by Young (2003) and seeks predictors from the MMORPG motivation such as achievement seeking, sociability, immersion, sensation seeking, and leisure boredom in order to differentiate the addicts and the non-addicts and to explain usage patterns of MMORPG. Therefore, at first this study asked:

RQ1: To what extent are Chinese college students addicted to MMORPG?

Use and Gratification Theory

U&G has been used primarily to explain why individuals adopt a certain medium (Katz et al., 1974). The main question of U&G was what kinds of needs the individuals try to fulfill by using the medium (Flanagin and Metzger, 2001). Accordingly, U&G-based studies mainly stressed the importance of perceived needs fulfilled by a new medium. Blumler and

Katz (1974) highlighted four areas of gratification in media texts for audiences. These include: (1) Escapism — a media text which provides escapism when a media text temporarily and partially covers one's senses; (e.g., playing a video game); (2) Personal relationships — People create personal relationships with the characters in a media text, they start to feel they know them. This can become dangerous if people start to trust them as well; for example, if one trusted a news reporter too much they may take everything they say at face value and not question it, this trust could then be abused; (3) Personal identity — when a person creates part of their own identity from things they find attractive in people from media texts; for example, someone may have a haircut because they liked the look of a similar one in a magazine. This can go a long way in shaping people and people's ideas of values, norms, ideologies and fashions; and (4) Surveillance — the audience gains an understanding of the world around them by consuming a media text, for example, prints and broadcast news.

Motivations of Playing MMORPG

Bartle (1996) analyzed the motivation of playing MUDs, and classified the players into four kinds: Killers, Achievers, Explorers, and Socialisers. Yee (2005) stated the motivation factors of playing MMORPGs in 3 categories: The achievement component, the social component, and the immersion component (See Table 2).

(*Insert table 2 here*)

Achievement Seeking

Some players felt more confident and powerful in the game than in the reality world. They can gain power, progress rapidly, and accumulate in-game symbols of wealth or status. They also can analyze the underlying rules in order to optimize character performance. In addition, they can challenge and compete with others. All of these can fulfill human desire to acquire achievement.

H 1: The higher the level of achievement seeking, the higher the likelihood one will be addicted to MMORPG.

Sociability

Sociability is another human nature. Since MMORPGs have the features of Computer Mediated Communication (CMC), players may have an interest in helping and chatting with other players, and have the desire to form long-term meaningful relationships with others. Moreover, in order to finish a task, they have to a build a team, so they can derive satisfaction from being part of a group effort.

H 2: Subjects who score high on social relationship in MMORPG will exhibit a higher tendency to be addicted to it.

Immersion

Immersing into the game by role playing another identity of a person and escaping from the reality is also a motivation to attract people to get into the game. For instance, some people enjoy creating a person with a background story and interacting with other players to create an improvised story; some players have an interest in customizing the appearance of their character; some players enjoy discovering the maps in the game to find something that

most other players don't know about; and some players like to use the online environment to avoid thinking about real life problems.

H 3:   The higher the level of the person immersed in the game, the higher the likelihood one will be addicted to MMORPG.

Sensation seeking

In addition to Yee's three motivations to play MMORPGs, some player attracted by MMORPG because of sensation seeking, they can "kill people" or do other exciting things in the virtual world. Past research suggested that sensation seeking has emerged as being capable of explaining a variety of behaviors, such as drug use, aggression, sex, skydiving, bungee jumping, body-contact sports, hiking and camping, or playing computer and video games. Since it was already used in predicting video games, in this research, sensation seeking is used as a predictor of MMORPG addiction.

H 4:   Subjects who score high on sensation seeking will exhibit a higher tendency to be addicted to MMORPG.

Leisure boredom

Leisure boredom are associated with negative affect, and can be manifested as beliefs that available leisure experiences are not sufficiently frequent, involving, exciting, varied, or novel (Iso-Ahola and Weissinger, 1990). Leisure boredom has been implicated in deviant activity involvement, particularly drug use, and delinquency. Frequency and quantity of alcohol or smoke among college students has been found to be positively correlated with boredom. In recent years, study of leisure boredom was also related to problem use of mobile phone or playing video game. As for my own experience, students in class play MMORPGs

just because they have too much free time and don't know what to do; they play the game just to kill time.

H 5: Subjects who score high on leisure boredom, will exhibit a higher tendency to be addicted to MMORPG.

According to the MMORPG addiction and motivations we discussed above, three research questions were posed:

RQ2: How can demographics and usage patterns predict motives?

RQ3: To what extent can demographics, motives, and usage pattern predict addiction?

RQ4: To what extent can demographics, motives, and addiction predict usage pattern of MMORPG?

Methodology

Sampling

Data were gathered from Hebei University of Engineering in mainland China. Questionnaires were distributed in classrooms, dormitories, and canteens to 300 students. A total 260 pieces of questionnaire were back and the response rate was 86%.

Among the 260 completed surveys, there were 57.3% male students and 42.7% female students. Age ranged from 18 to 24 (M=2.78, SD=0.94), 4.6% were between 18-19 years old, 40.8% were between 20-21 years old, 29.6% were between 22-23 years old, 22.3% were between 24-25 years old, and 2.7% were older than 25 years. The education level included four class levels, 35.8% were first year students, 21.9% were second year students,

21.5% were third year students and 20.8% were fourth year students. The median playing hours per week was 2 (2-5 hours/ week), and the median playing hours per section was 2 (1-2hours/ section). Among all the samples, 18.5% of the students played MMORPGs in their dormitory, 54% played in Net café, and 27.3% who did not play MMORPGs skipped the answer for the place where they play.

Quite different from the online survey of Sina.com and QQ.com, which based on 9,915 college students, 30% people played online game every day, 29% often played, 27% played sometimes, and 14% never played. However, results of this study were that only 2.3% played every day, 15.8% students often played, 39.6% played sometimes and 42.3% students never played. In addition, the Sina and QQ online survey reported that 55% students skipped class because of playing the online game. Such difference may be because their survey was an online survey, and the students who usually go online may have more chance to play online game.

Measurement

The questionnaire was designed in three parts: 1) personal profile and MMORPG usage patterns; 2) motivations to play MMORPG, which included achievement seeking, sociability, immersion, sensation seeking and leisure boredom; 3) 20 items from Kimberly Young's (2006) Internet addiction was modified to test the MMORPG addiction.

MMORPG Usage Patterns. Respondents were asked 4 questions regarding the MMORPG usage pattern: (1) Do you play MMORPG? (2) How many hours do you play MMORPG in one week? (2) How many minutes do you play MMORPG in one session? and

(4) Where do you play?

Achievement seeking.   Three items from Yee's (2007) MMORPG motivation about achievement seeking, such as the desire to seek higher level or stronger weapon, were used. A 5-point scale was used with 1=strongly disagree, 2=disagree, 3= somewhat agree, 4=largely agree, and 5=strongly agree. The Cronbach's alpha was remarkably high at .91.

Sociability.   Four items from Yee's (2007) MMORPG motivation about sociability, such as play MMORPG with real life friends or work together with other players to complete a mission, were used here. A 5-point scale was used with 1=strongly disagree, 2=disagree, 3=somewhat agree, 4=largely agree, and 5=strongly agree. The Cronbach's alpha was .87.

Immersion.   Three items from Yee's (2007) MMORPG motivation about Immersion, such as escape from real life or enjoy the virtual world, were used in this part. A 5-point scale was used with 1=strongly disagree, 2=disagree, 3=somewhat agree, 4=largely agree, and 5=strongly agree. The Cronbach's alpha was .72.

Sensation Seeking.   Three items were adapted from Zuckerman, Eysenck, & Eysenck (1978) to assess desire to engage in sports-related and other activities involving speed or danger, such as flying an airplane, downhill skiing, and bungee jumping, were used here. A 5-point scale was used with 1=strongly disagree, 2=disagree, 3=somewhat agree, 4=largely agree, and 5=strongly agree. The Cronbach's alpha was .68.

Leisure Boredom.   Three items to assess leisure boredom, such as watch a very bored movie, were used. A 5-point scale was used with 1=strongly disagree, 2=disagree, 3=somewhat agree, 4=largely agree, and 5=strongly agree. The Cronbach's alpha was .60.

MMORPG addiction.   In order to identify the extent of MMORPG addiction, the

20 items of Internet addiction used by Young (2006) was modified to measure in the MMORPG addiction. A 5-point scale was used with 1=strongly disagree, 2=disagree, 3=somewhat agree, 4=largely agree, and 5=strongly agree.

(*Insert table 3 here*)

Findings

The extent of MMORPG addiction

To assess the extent to which the Chinese college students are addicted to MMORPG, Young's 8 classic items from the total 20 of online game addiction was used: 1) Do you need to play online games with increasing amounts of time in order to achieve the desired excitement? 2) Are you preoccupied with gaming (thinking about it when offline, anticipating your next online session? 3) Have you lied to friends and family members to conceal extent of your online gaming? 4) Do you feel restless or irritable when attempting to cut down or stop online gaming? 5) Have you made repeated unsuccessful efforts to control, cut back, or stop online gaming? 6) Do you use gaming as a way of escaping from problems or relieve feelings of helplessness, guilt, anxiety, or depression? 7) Have you jeopardized or lost a significant relationship because of your online gaming habit? 8) Have you jeopardized a job, educational, or career opportunity because of your online gaming habit?   According to this classic measure, 27.4 percent in our sample can be classified as MMORPG addicts.

Why did so many college students addict into MMORPG in mainland China? When I lived in Hong Kong, I found that Hong Kong students didn't addict in these games so much.

Perhaps the answer is that around the mainland universities, there are many Net cafes. It provided a good chance for the students to play the game together.

(*Insert table 4 here*)

Hypotheses Testing

H1 predicted that the higher the level of achievement seeking, the higher the likelihood one will be addicted to MMORPG. As expected, bivariate results in Table 5 show that achievement seeking was significantly related to the MMORPG addiction ($r = .41$, $p<.001$). Thus, H1 received strong support.

H2 hypothesized that subjects who score high on social relationship in MMORPG will exhibit a higher tendency to be addicted to it. As shown in Table 5, the relationship between sociability and MMORPG addiction ($r = .44$, $p<.001$) was significant. Thus, H2 was also supported.

Similarly, H3 predicted that the higher the level of the person immerse in the game, the higher the likelihood one will be addicted to MMORPG. Results in Table 5 indicate that Immersion and MMORPG addiction ($r = .48$, $p<.001$) were significantly linked. Therefore, H3 was confirmed.

H4 hypothesized that subjects who score high on sensation seeking will exhibit a higher tendency to be addicted to MMORPG. As shown in Table 5, the relationship between sensation seeking and MMORPG addiction ($r = .21$, $p<.01$) was significant. Therefore, H4 was also supported.

H5 predicted that subjects who score high on leisure boredom, will exhibit a higher

tendency to be addicted to MMORPG. However, no significant relationship between leisure boredom and MMORPG addiction was found in Table 5. As a result, H 5 was not supported.

In sum, correlation analysis was used to identify the relationship between MMORPG motivation and addiction. We find that achievement, sociability, immersion, and sensation seeking were significantly related to the addiction, except leisure boredom.

(*Insert table 5 here*)

Predicting the MMORPG motivation

We did a regression analysis to examine which demographic factors or usage patterns can predict the MMORPG motivation. First, we found that demographics and use pattern had no relationship with sensation seeking and leisure boredom. Second, upper class students were more likely to seek achievement, sociability and immersion in the game. Third, it is very interesting to find that female students like playing the game because they are more immersed into it. Fourth, in the usage pattern test, the more frequently the players played the game, the more they tended to seek achievement, sociability and immersion in it. Fifth, the players who usually play the game in Net cafes tend to seek more sociability. Playing a game together is becoming a kind of their way to know new friends or keep friendship.

(*Insert table 6 here*)

Predicting the MMORPG addiction

In order to test to what extent can demographics, motives, and usage pattern predict MMORPG addiction, a multiple regression with the MMORPG addiction level as the dependent variable, and the 5 motivation components, age, gender, hours played per session and per week as the independent variable was run. Among all of the demographics, motives, and usage pattern, only one factor can predict the addiction, and this factor is "Immersion" (β = .30, p<.001). This result is quite consistent to the previous research of Yee (2007), who tested the predictors of problematic usage of MMORPG among the players in America. According to Yee, "the Escapism (Immersion) component emerged as the best predictor, followed by hours played per week, and the Advancement (achievement) component". Immersion is so important may be because the MMORPG is a kind of computer game; its essential character is to give the players a chance to act like a hero, a knight, or a superman to do some exciting things and gain their self-esteems which they never get in the reality world. Thus, this will be the main reason they would like to stay in the virtual world. Other motivations, such as achievement seeking or sociability are not as significant as immersion. Perhaps this is because that people can get achievement or sociability in the reality world in other ways, not only in the online games.

(*Insert table 7 here*)

Predicting MMORPG usage pattern

We did a regression analysis to exam how can demographics, motivations, and

MMORPG addiction predict the usage patterns. Finally, we found that grade (β = -.25, p<=0.001) and gender (β = .26, p<=0.001) were significant predictors of MMORPG usage pattern. This means lower class students and male students tend to play MMORPGs more often. Moreover, students who show more desire to acquire achievement (β = .27, p<=0.001) tended to spend more time playing the game. This is understandable because they must spend enough time to acquire higher level and stronger weapon.

(*Insert table 8 here*)

Conclusions & Discussion

27.4% College students addict in MMORPG

Does the MMORPG addiction really exist among students in China? We tested it by using Young's 8 items and find that 27.4% college students addicted in MMORPG. In the online survey of Sina and QQ we mentioned above, 46% college students admitted that they addicted in the game a little, and 15% admitted seriously addicted in online game. This figure is much bigger than this research. Perhaps this is because their survey was an online survey, and the students who usually go online may have more chance to play online game. And in their survey, they only design the questionnaire to ask whether they feel they are addicted in the game, not use the Young's classic 8 items.

MMORPG motivations

In the motivation test, we found that female students were more likely to immerse into the game, and players who tend to play the game in Net cafes have more desire for

sociability.

Female students were more likely to immerse into the game, maybe because women like the fantasy, beautiful and virtual world more than men. We usually heard of that some girls cried when they watch a moving love movie. Similarly, girls may be easier to immerse into the story of MMORPG.

Playing the game together in a Net café is becoming one way of sociability for Chinese college students. When I was an undergraduate student in mainland, my classmates usually like to play basketball or football together. Besides these, we also like to play MMORPG in a net café together. When I was hurt, my classmates rescued me; when I lacked money, my classmates gave me money. We must help each other to guarantee our survival. When we finished a mission together after a long way of struggle, we found that our friendship was really enhanced.

Immersion and MMORPG addiction

From the previous research, some scholars indicated that although MMORPG players tended to spend far more time playing, much of that time is spent socializing. Some MMORPG players who showed long hours of playtime are just doing sociability rather than addicted in the game (Ahn & Randall, 2007). However, in this study, sociability is not a predictor of MMORPG addiction, but immersion is. Immersion means escape from the real world, this may have bad results: the more energy and time you spend in the virtual world, the less you will spend in the reality world. The more achievement you got in the virtual, the more you will lose in the real. The more friends you get in the virtual, the more you may lose

in the real, even jeopardize the relationships between you and your parents. To the players, they must always warn themselves to find the balance between virtual and real. Otherwise, it will be like in the movie "Matrix", someone abandoned his identity in the real world, only because there are more money and delicious foods in the virtual one.

On the other hand, because immersion is more significant than achievement seeking, sociability or sensation seeking, the game companies should spend more time to develop more interesting story background, and to use more 3D technology to make the virtual characters and the world more beautiful. Moreover, we found that some popular MMORPGs in China, such as 'Magic Journey to the West', 'Heaven Dragon the Eighth Episode', 'The Warlords', and 'The War of the Red Cliff', are all from famous novels or movies. This media convergence shows us that perhaps people who usually immerse in the novels or movies are more likely to play MMORPGs.

Who play the game longer time?

In the usage pattern test, we found that lower class students and male students tended to play MMORPGs more time. Perhaps this is because the lower class students have more free time, not like the upper class students who need to face the serious pressure of finding a job or the pressure from the postgraduate entrance examination. Male students spend more time to play the game is understandable because boys are more familiar with computer.

In addition, students who show more desire to acquire achievement tended to play the game longer time, because they must spend enough time to acquire higher level and strong weapon. This is also can explain why boys play the game longer time.

Limitations & Suggestions for Future Research

First, at the beginning, in order to reach a sample of students who play the game, I put the questionnaire in the MMORPG's BBS, such as the 17173 or Duowan, but there are only few responses. This may be because my questionnaire was too long (50 items). Thus, I suggest that the future researchers who want to do online survey to make their questionnaire shorter. Second, since the questionnaires were designed for the people who play MMORPGs at the beginning, but failed in the online survey and finally were randomly distributed in the campus, and both the people who play the game and never play the game all became one sample. Therefore, some respondents who never play the game may not understand some questions, such as "eager to acquire a unique weapon or equipment". Third, the samples were gathered from Hebei University of engineering. Hebei Province's economy ranked the 6th among the total 31 Provinces and Autonomous Regions in China in 2007; so in other richer or poorer colleges, the extent of MMORPGs' addiction may be different. Future studies should focus on the identification the MMORPG addiction symptoms such as 'losing control and receiving complaints,' 'anxiety and craving,' or 'productivity loss.' Productivity loss is especially important because it is a popular phenomenon in Chinese colleges that students absent from class because of online game addiction.

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Table1: Top 10 MMORPG in mainland China 2007

Rank	Name of the game
1	梦幻西游 Magic Journey to the West
2	征途 ZT online
3	魔兽世界 World of Warcraft
4	劲舞团 Audition
5	跑跑卡丁车 Crazy racing Kart rider
6	热血传奇 MIR
7	天龙八部 Heaven Dragon The Eight Episode
8	诛仙 ZX online
9	魔域 MY online
10	街头篮球 Street Basketball

Table 2:   Motivation of playing MMORPGs (Yee 2004)

Achievement	Social	Immersion
Advancement Progress, Power, Accumulation, Status	**Socializing** Casual Chat, Helping Others, Making Friends	**Discovery** Exploration, Lore, Finding Hidden Things
Mechanics Numbers, Optimization, Templating, Analysis	**Relationship** Personal, Self-Disclosure, Find and Give Support	**Role-Playing** Story Line, Character History, Roles, Fantasy
Competition Challenging Others, Provocation, Domination	**Teamwork** Collaboration, Groups Group Achievements	**Customization** Appearance, Accessories, Style, Color Schemes
		Escapism Relax, Escape from RL, Avoid RL Problems

Table 3: Reliable Analysis of the Motivations of MMORPG players among Chinese College Students

Motivations of Playing MMORPGs	Mean	Cronbach's Alpha
Achievement		.906
I believe it is very important to get higher level	2.53	
I want to acquire great equipment in the game	2.86	
I enjoy the feeling of level up	2.71	
Sociability		.868
I enjoy playing the game with my real life friends	2.73	
I want to know new friend in the game	2.57	
I prefer to finish a mission in a group with others	2.69	
I always help people in the game	2.72	
Immersion		.722
I think the background story of the game is important	3.07	
I always forget the troubles in the real life when I am playing the game	2.63	
I like staying in the fantasy virtual world	2.46	
Sensation seeking		.680
I want to parachute from sky	2.73	
I like downhill skiing	3.58	
I like bungee jumping	3.58	
Leisure Boredom		.601
I can't bear to watch a movie which I have already watched	2.63	
I don't like to watch a movie which I can predict the sequel	3.47	
I don't like to watch the family or travel videos of others	2.48	

Note: The scale used:1=Strongly disagree; 2=Disagree; 3=Somewhat agree; 4=Largely agree; 5=Strongly agree. n=260

Table 4: Frequency analysis of MMORPG Addiction among Chinese College Students MMORPG Players

Valid of the 8 questions	Frequency	Valid Percent	Cumulative Percent
0	66	25. 5%	25. 5%
1	36	13. 9%	39. 4%
2	48	18. 5%	57. 9%
3	13	5. 0%	62. 9%
4	25	9. 7%	**72. 6%**
5	18	6. 9%	79. 5%
6	27	10. 4%	90. 0%
7	10	3. 9%	93. 8%
8	16	6. 2%	100. 0%
Total	259	100. 0%	
Missing	1		
Total	260		

Notes: The classification of subjects into being addicts or non-addicts was carried out according to the Young's 8 items of online game addiction. The 5 scale item was transformed to "No" 0 =1-2 and "Yes" 1=3-5. Respondents were considered "addicted" to the MMORPG when answering "yes=1" to five (or more) of the eight "yes" or "no" questions for MMORPG addictive.   n=260

Table5: Correlations between MMORPG Addiction and Achievement, Sociability, Immersion, Sensation Seeking, and Leisure Boredom

Motivations	**Addiction**	
	Pearson Correlation	Sig.
Achievement	.410***	.000
Sociability	.435***	.000
Immersion	.480***	.000
Sensation Seeking	.208**	.001
Leisure Boredom	-.019	.766

Notes: * $p <=.05$; ** $p <=.01$;*** $p <=.001$; n=260

Table 6: Regression Analysis of Demographics and Use Patterns on Motivations

Predictors	Achievement	sociability	Immersion	Sensation Seeking	Leisure Boredom
Demographics					
Age	-.181*	-.083	-.146	.005	.036
Grade	.301***	.226 **	.298***	.042	.012
Gender (male=1)	.037	.005	-.150**	.001	.115
Usage Pattern					
Frequency of playing	.443***	.349***	.441***	.193	.098
Playing hours per week	.138	-.004	.117	-.026	.123
Playing hours per section	-.024	.140	.025	.050	-.168
Place to play the game (net café=1)	.078	.117*	.023	-.056	-.117
R square	.395	.320	.332	.044	.032
Adjusted R square	.378	.301	.314	.017	.005

Notes: * $p <=.05$; ** $p <=.01$;*** $p <=.001$; n=260

Table 7: Regression Analysis of Motivations, Use Patterns, and Demographics on MMORPG addiction

Predictors	MMORPG Addiction	
	β	Sig.
Motivations:		
Achieve	-.013	n.s.
Sociability	.131	n.s.
Immersion	.296***	.001***
Sensation seeking	.081	n.s.
Leisure boredom	-.040	n.s.
Use Patterns:		
Level of Playing MMORPG	.178	n.s.
Playing Hours Per Week	-.036	n.s.
Playing Hours Per Section	.025	n.s.
Place of Playing	.032	n.s.
Demographic:		
Age	-.055	n.s.
Grade	-.028	n.s.
Gender	-.065	n.s.
R Square	.265	
Adjust R Square	.250	

Notes: *** $p <= 0.001$; n=260

Table 8: Regression Analysis of Demographics, Motivations, and MMORPG Addiction on Usage Patterns of MMORPG

Predictors	**Usage pattern of MMORPG**
	Beta
Demographics	
Age	.150
Grade	-.248***
Gender (male=1)	.257***
Motivations	
Achievement	.265***
Sociability	.123
Immersion	.179
Sensation Seeking	.012
Leisure Boredom	.003
Addictions	.116
R Square	.448
Adjusted R Square	.428

Notes: ***$p<=0.001$; n=260

Appendix: 角色扮演类大型网游（MMORPG）的动机与上瘾情况问卷

第一部分 个人信息 （请在选项的方格内打勾）

性别： 1.男 □ 2.女 □
年龄： 1. 18-19 □ 2. 20-21 □ 3. 22-23 □ 4. 24-25 □ 5. 25 以上□
年级： 1.大一 □ 2.大二 □ 3. 大三□ 4. 大四 □
你平时玩 MMORPG 角色扮演类网游（魔兽世界，传奇， 征途等）吗？
　　 1. 从来不玩 □ 2. 偶尔玩□ 3. 经常玩□ 4. 天天玩□
你每周在网游（以下的网游都指 MMORPG 角色扮演类网游）上花多长时间？
　　 1. 少于 2 小时□ 2. 2-5 小时□ 3. 6-10 小时 □ 4. 11-15 小时□ 5. 15 小时以上□
你每次打网游一般用几个小时？
　　 1. 少于 1 小时 □ 2. 1-2 小时□ 3. 3-4 小时□ 4. 5-6 小时□ 5. 6 小时以上□
你玩游戏的场所？ 1. 宿舍□ 2. 网吧□ 3. 不玩 □

第二部分 MMORPG 角色扮演类网游动机调查 （请在空格内打勾）

MMORPG 角色扮演类网游动机：	绝不同意	不同意	同意	很同意	非常同意
1 我认为尽快达到高的等级很重要					
2 我很渴望在游戏里得到稀有装备					
3 玩了几个小时的游戏后，我有很强的成就感					
4 我很享受升级的感觉					
5 我很喜欢和现实生活中认识的人一起玩网游					
6 我喜欢在游戏里交朋友					
7 我喜欢组队完成任务					
8 我喜欢在游戏里帮助别人					
9 我很在乎我游戏角色的外观					
10 我认为游戏的故事背景和剧情重要					
11 玩网游时，我会忘了现实生活中的苦恼					
12 我很享受待在这样一个奇幻世界里的感觉					
13 我想学习驾驶飞机					
14 我想尝试跳降落伞					
15 我享受极速滑雪下山的刺激感觉					
16 我喜欢玩蹦极跳楼游戏					
17 我不能忍受再看一遍已经看过的电影					
18 我通常不爱看一些能够预测剧情的电影					
19 看别人的家庭录影带或旅行幻灯片会把我闷死					
20 不管留在家中有多长时间，我都会不停地找事情做					

第三部分　MMORPG 角色扮演类网游上瘾情况调查（请在空格内打勾）

MMORPG 角色扮演类网游上瘾情况：	绝不同意	不同意	同意	很同意	非常同意
1　你会发现玩网游时间超过原先预计的时间吗？					
2　你会放下该完成或执行的事而将时间用来网游吗？					
3　你对网游的兴奋感或期待远胜于其他人际互动吗？					
4　你会在网游里结交新朋友吗？					
5　你会因为网游而被他人抱怨或指责吗？					
6　你会因为玩网游而上学或上班迟到早退或缺勤吗？					
7　你会不自主的登陆帐号进去游戏里看看吗？					
8　你会因为玩网游而使得工作表现失常或成绩退步吗？					
9　当有人问你在网游里做些什么时，会有所防卫或隐瞒吗？					
10　你会在网游里寻求情感支持或社交慰藉吗？					
11　你会迫不及待的提前玩网游或一有机会就玩网游吗？					
12　你会觉得少了网游，人生是黑白的吗？					
13　若有人在你玩网游时打扰你，你会愤怒吗？					
14　你会因为网游而牺牲晚上睡眠吗？					
15　你会在离线时仍然对网游活动的内容念念不忘吗？					
16　当你玩网游后会一再延长自己游戏的时间吗？					
17　你曾尝试缩减网游时间却失败的经验吗？					
18　你会试着隐瞒自己的网游时间数吗？					
19　你会选择把时间花在网游上而不想出门吗？					
20　你会因为没玩网游而心情郁闷、易怒或心神不宁吗？					

非常感谢您的参与！