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The Impact of Motivation and Prevention Factors on Game Addiction

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ABSTRACT

Adolescents' addiction to game has a negative impact on the aberrance of adolescents. Although limited research has been done on the cause of game addiction, no research has been conducted on the effectiveness of prevention measures. In this paper, we propose a model to study the impact of both the motivation and prevention factors on game addiction. Surveys were conducted among middle school students in Shanghai, with 623 valid responses. The analysis results show that among all prevention factors, only attention switch has significant negative impact on game addiction, however, dissuasion and parental monitoring have positive correlation with game addiction. The rational, resource shortage and cost have no significant impacts on game addiction. The analysis results also show that among all motivation factors, mechanics, relationship and escapism have significant positive impact on addiction.

Keywords

Addiction, impulse control disorders, computer games, motivation, prevention.

INTRODUCTION

Game addiction is a type of behavioral addiction in the sense that playing of games causes users to act impulsively and to lose interest in other people (Griffiths et al., 2004). What's more, game addiction may also damage people's social and psychological function significantly. However, it is easy for some people to addict into game playing (Shi, 2008). Two research questions on game addiction have been studied: what is the game addiction, and what are the factors that drive people to play games. But the factors causing game addiction are still not clear.

With increased awareness of the need for educating young children about the potential dangers of game addiction, empirical study in the prevention of adolescent game addiction and its translation into science-based prevention initiatives are very much needed. The term "Prevention" can be viewed as those efforts that seek to evade the onset of a particular problem behavior, and subsequently promote outcomes that are significantly better than one might expect (Dickson et al., 2002). Jacobs (1997) has made the point that without early and appropriate prevention, intervention and treatment, adolescents will become high-risk

candidates for developing a variety of dysfunctional behaviors including a range of addictive behavior patterns.

In order to explore the reason of game addiction and evaluate the effectiveness of current or new prevention efforts which target adolescent people's game addiction problem, we want to study the motivation and prevention factors that may have direct effects on game addiction, and then to affect the game addicts' behavior.

LITERATURE REVIEW

The growing body of literature on game addiction is largely focused on the conceptualization of game addiction and the factors driving people to play games.

The conceptualization of online game addiction was rooted in that of internet addiction. Most of researchers adopt the criteria of internet addiction to diagnose the online game addiction (Shi, 2008; Yee, 2007), while they didn't distinguish the difference between the high engagement and the addiction to online game. Only Charlton and Danforth (2007) pointed out that "high engagement" is different from "addiction" in the context of online game playing. The "high engagement" involves heavy play, with some mild signs of overuse while "**addiction**" combines the signs of "high engagement" with more harmful marks of overuse.

The motivation of game player has been widely studied. One of the motivation factors to play online game is a sense of control, that is, operating as experts, gaining respect from others in online game (Chou & Tsai, 2004). The other motivation factors were recognized as the derived experiences of social interactions, emotional investment, and acquisition of social skills (Yee, 2006). Based on these previous researches, Yee (2006) presented Five Motivation factors of Massively-Multiplayer Online Game (MMO): Achievement, Relationship, Immersion, Escapism and Manipulation, and he furthered his research by putting forward the integrated Player Motivation Model (Yee, 2007).

But the factors causing people to play the online game are not the same as the factors leading to addiction. The relationships between addiction and the personality, game types and motivation factors have been studied (Griffiths & Dancaster, 1995; Yee, 2007; Shi, 2008). Students, who have personalities characterized by dependence, shyness,

depression and low self-esteem, had a high tendency to become addicted (Yang & Tung, 2007). Type A individuals might be more susceptible to computer-game addiction (Griffiths & Dancaster, 1995). Those with higher game addiction score have the lower personality of warmth (Shi, 2008).

A number of potential factors, which people could be addicted to, are identified, such as the act of typing, the medium of communication, the absence of face-to-face interaction, the information obtainable, and the activities available (Griffiths & Dancaster, 1995).

But for most of research above, the term “addiction” only means that players become aroused and perhaps for seeking this arousal they may be more likely to play games again (Lin & Tsai 2002). Shi (2008) and Yee (2007) even adopt the criteria for internet addiction to diagnose the addiction of online game. Few scholars have answered what motivation factors lead to addiction of online game, while nobody has presented how to prevent this addiction.

In spite of the fact that is mentioned above, in the long history of human’s study on addiction prevention, there has been substantial research on the prevention of adolescent alcohol, substance abuse, and gambling, which can serve for shaping the future directions for the prevention of youth game addiction problems.

A number of prevention strategies have been outlined (Dickson et al., 2002). De Vries et al. (2003) presented a European Smoking prevention Framework Approach (EFSA). Flay and Petraitis (1991) studied the methodological issues in drug use prevention research. Some scholars have classified the prevention methods. Bnrvoid (1993) provided a framework to classify the models guiding actual interventions. Negreiros (1994) examined the most prominent theoretical developments in the area of drug education and prevention that have occurred in the past twenty years. There are two methods for alcohol abuse: public education campaigns and prevention policy (Stockwell et al., 1996). There are two most important strategies to prevent alcohol abuse: individual-level strategies and environmental approaches (Mosher, 1999). Finch (2006) pointed out that there are four strands of work on the prevention policy for drug abuse.

All above indicate the significance of the research on the prevention of human addiction, however there were no systematic attempts to study the effectiveness on game addiction prevention methods.

RESEARCH MODEL

According to the literature review, we propose our game addiction research model as shown in Figure 1. We assume that motivation factors may have positive impact on game addiction and prevention factors may have negative impact on game addiction.

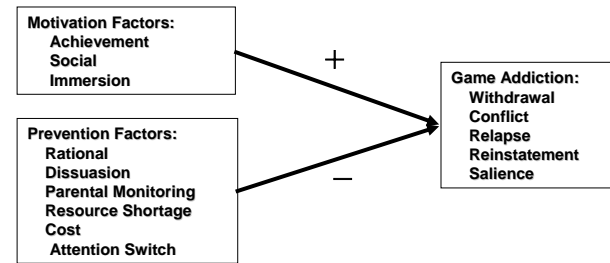


Figure 1. Research Model

Motivation factors

Three motivation factors, achievement, social, and immersion, articulate the myriad of motivations of play among MMO players according to Player Motivation Model, each of them includes 3-4 constructs as following (Yee 2007).

The Achievement Component

Advancement is the desire to gain power, progress rapidly, and accumulate in-game symbols of wealth or status.

Mechanics are defined as having an interest in analyzing the underlying rules and system in order to optimize character performance.

Competition means the desire to challenge and compete with others.

The Social Component

Socializing means having an interest in helping and chatting with other players.

Relationship is the desire to form long-term meaningful relationships with others.

Teamwork is defined as deriving satisfaction from being part of a group effort.

The Immersion Component

Discovery is to find and know things that most other players don't know about.

Role-Playing means creating a persona with a background story and interacting with other layers to create an improvised story.

Customization is defined as having an interest in customizing the appearance of their character.

Escapism is using the online environment to avoid thinking about real life problems.

Prevention factors

The prevention factors include Rational, Dissuasion, Parental Monitoring, Resource Shortage, Cost, and Attention Switch.

Attention Switch is defined as distracting the addicts' life focus from online games to other meaningful activities

which are substitutes helping to impair their intoxication on games.

Dissuasion is the extent to which an individual perceives others' efforts to prevent his/her playing online game by means of exhortation, argument, coaxing, browbeating or coercion.

Rational is the degree to which an individual understand the consequences by education, which teaches cognitive-behavioral skills for realizing the consequence of playing online game to excess, building self-esteem and personal responsibility at the right time and in the right way.

Parental monitoring is defined as the extent to which the parents or guardians of a player pay attention to and track of the child's whereabouts, activities, and adaptations.

Resource Shortage is the extent to which a player perceives the necessary condition to playing online games, such as time, money, equipment, regulation and guidance from friends.

Cost is defined as the possible expenses of playing online games, e.g., equipment cost, Internet access cost, and associated cost.

Addiction

According to Charlton and Danforth, the "engaging" qualities include tolerance, euphoria, and cognitive salience (thinking about an activity a lot). The "addictive" qualities are behavioral salience (engaging in the activity a lot), conflict (arguments within yourself and with others over the extent of your usage), withdrawal, and relapse/reinstatement (Charlton & Danforth, 2007).

Conflict is the activity which leads to conflict with others or self-conflict.

Withdrawal Symptoms mean cessation of the activity which leads to the occurrence of unpleasant emotions or physical effects.

Relapse/ Reinstatement is defined as the resumption of the activity with the same vigor subsequent to attempts to abstain.

Behavioral Salience means domination of a person's life by the activity.

We make the following hypotheses for the impact of prevention factors and some motivation factors:

H1: Prevention Factors have negative impact on adolescents' addiction to online game.

H2: Motivation factors have positive impact on adolescents' addiction to online game.

INSTRUMENT DEVELOPMENT

A step-by-step process was used to develop new instruments with high reliability and validity. Six prevention factors, "Attention Switch", "Dissuasion",

"Rational", "Parental Monitoring", "Resource Shortage" and "Cost", were scaled by 5, 7, 4, 8, 9, 5 items respectively. Motivation factors and addiction generated 44 and 13 candidate items respectively with reference to prior research. The questionnaire also contained items requesting gender, age, the number of hours spent playing in total per week, the number of hours spent playing continuously, and the percentage of spare time spent playing. To increase variability, we adopt seven-point Likert-type format, with responses ranging from completely disagree to completely agree. Both pretest and pilot studies were employed.

Content validity was established through literature reviews and panel discussion. A pilot test is carried out to assess the construct reliability and validity with the effective samples of 163 adolescent online game players ranging from 13 to 15 years old from the middle school in Shanghai. The internal reliability of constructs was measured by Cronbach's alpha. "Attention Switch," "Dissuasion," "Rational", "Parental Monitoring," "Resource Shortage" and "Cost" achieved the Cronbach's alpha 0.847, 0.708, 0.810, 0.827, 0.823 and 0.677 respectively. These 6 constructs were extracted with Eigen values greater than 1, accounting for 52% of the overall variance. The correlation exam was conducted, 6 items were deleted because of lack of correlation.

The ten subcomponents of motivation factors obtained Cronbach's alphas of 0.954, 0.710, 0.942, 0.905, 0.871, 0.917, 0.839, 0.866, 0.880, and 0.699 respectively.

DATA COLLECTION AND RELIABILITY TESTING

We collected data from adolescent online game players using paper questionnaires distributed at several middle schools in Shanghai over a period of 2 months. Random sampling investigation was carried out. Of the 682 responses, 623 valid responses ranging from 13 to 18 years old were obtained. Among all subjects, 21.5% (134 people) would be classified as addicted.

The reliability of each construct ranged from 0.741 to 0.938, exceeding the 0.70 acceptable threshold value. This shows that most of the constructs exhibited a high internal consistency with their corresponding measurement indicators.

The items of prevention constructs were tested for validity using principal components analysis and varimax rotation, while the items of motivation factors were tested using principle components analysis and oblique rotation (Promax, kappa=4) so to reflect the inherent correlations between the components (Yee, 2007). The items with low correlations amongst other items belonging to the same construct were dropped, and then almost all the factor loadings were greater than 0.62, indicating adequate convergent validity. Factor analysis for six sets of prevention items reveals six clearly distinct factors with Eigen values over 1, corresponding to 6 constructs. The

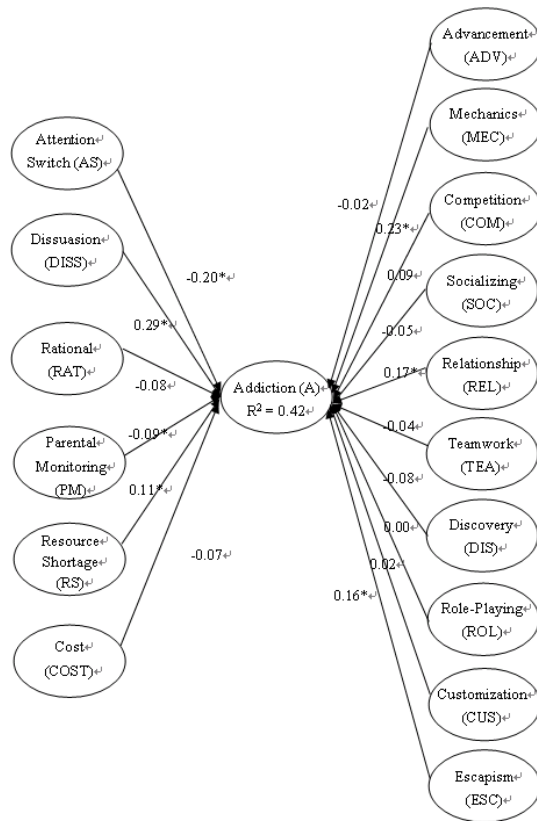


Figure 2. Structural equation modeling testing results

factor analysis of motivation factors supported the previous findings.

MODEL TESTING AND DISCUSSION

A Structural Equation Modeling technique was employed to test the model using the LISREL 8.7 program. The model testing results are shown in figure 2, which indicate that our model have good fit indices ([RMSEA]=0.038, [NNFI]=0.97, and [CFI]= 0.98). Thus, the overall absolute fit of the model is good, as judged by the Standardized RMR = 0.048.

Effect of Motivation Factors

We found that only few motivation factors have positive impact on addiction. In the Achievement component, only one of three constructs, Mechanics, has a significant positive impact on Addiction (coefficient = 0.23). While two other constructs, Advancement and Competition, almost have no significant effect on Addiction. Also, in the Social component, Relationship positively affects the Addiction (coefficient = 0.17), while Socializing and Teamwork almost have no effect on Addiction. Escapism (subcomponent of Immersion) significantly affects Addiction (coefficient = 0.16). The other three immersion subcomponents (Discovery, Role-Playing and Customization) also have no significant influence on Addiction. This result is not surprising. As we have mentioned, most motivation factors were investigated in the

context of motivating people to play games but not necessary to lead to game addiction. In fact, among the 10 motivation factors for game playing in Yee’s study (Yee 2007), only the Escapism component emerged as the best predictor ($b = .31, p < .001$) for problematic usage (addiction), followed by hours played per week ($b = .30, p < .001$), and the Advancement component ($b = .17, p < .01$) in the same study. Since in our study, we have identified the same impact factor, that is, Escapism, a partially same impact factor as Advancement, that is, Mechanics, and a new impact factor, that is, Relationship. These factors seem to have strong impact on addiction beyond the attraction of normal or energetic game playing.

Effect of Prevention Factors

It was found that Attention Switch has a significant negative impact on Addiction, indicating that alternative activities could attract adolescents’ attention from online games and thus reduce their risk of addiction. The negative relationship between Parental Monitoring and Addiction is also supported by the statistical results. It seems that parental monitoring can help children avoid spending too much time playing games and thus become less likely to be addicted. However, contrary to the expectation, Dissuasion has positive correlation with Addiction. It seems that Dissuasion is hoped to serve as prevention factor but it turns out as a remedy. The teachers or parents might find some children have played online game too much, and they tried to dissuade them from addicting into the game. If the adolescents didn’t have tendency of addiction, they might not receive much dissuasion. Thus, Dissuasion can be positively related to Addiction but it is that Addiction causes Dissuasion. The more addiction, the more dissuasion received. We also found that Resource Shortage has a positive correlation with Addiction. It seems contradictory to our expectation. We hoped when less resource is available, people will be less likely to be addicted. But on the contrary, if a person is addicted, he or she may need more resource thus to have a stronger feeling of resource shortage. Resource Shortage doesn’t seem to serve the purpose of prevention.

We found that Cost and Rational do not have significant influence on addiction. A possible reason for this may be due to the fact that the cost of playing games is generally low nowadays and financial support is easy to be obtained. The Rational can be attributed to the responses’ confusion of perceived rational and the rational teachers or parents exerted, and the fact that little attention has been paid to the education.

CONCLUSION

In this paper, a game addiction model has been proposed to explore the impact of motivation and prevention factors on adolescent’s game addiction. There are some interesting findings. Not all motivation factors will contribute to game addiction. Only a few may have impact on game addiction

beyond normal or energetic game playing. Attention Switch and Parental Monitoring are found to be effective in preventing adolescent from addiction. We suspect that Dissuasion might serve as a remedy rather than prevention from an unexpected positive correlation with Addiction. Further evidence need to be collected to verify this proposition.

Our model is by no means complete. Many positive and negative factors on game addiction have not been included in our model, such as personality. There are also other prevention factors, such as government regulation policy, which are not included.

Addiction is an evolutionary process. A player could get addicted gradually instead of suddenly. Different prevention and behavior correction strategies should be adopted at different stages of addiction. Further research should investigate the process and levels of game addiction, and identify what factors may help to prevent or reverse the addiction progress at different stages.

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