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Online Game Addiction among Chinese College Students Measurement and Attribution

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Abstract. This study made an initial attempt to measure and attribute online game addiction among Chinese college students. We generated three factors of online game addiction: Control Disorder, Conflict, and Injury, as well as proposed a comprehensive model that attributed online game addiction to three groups of driving forces: environmental influences (most significant), characteristics of online games, and personal reasons.

Keywords. Addiction, Online Game, Measurement, Attribution, China

Introduction

China currently has the largest population of Internet users (298 million) and online game players (187 million) in the world [1]. Noticeably, nearly half of Internet users in China are aged below 24 and are most likely to be addicted to online games. On Nov. 8, 2008, the first Internet Addiction Disorder Diagnostic Manual was issued in China, which triggered intensive debates.

Considering online game addiction as one of the most harmful behaviors among Chinese adolescents, researchers have made great efforts to examine this issue. We reviewed 78 academic papers in Mainland China and found that previous research bears two shortcomings.

Firstly, most researchers in Mainland China simply applied Goldberg’s [2] or Young’s [3] questionnaire into Chinese context to measure online game addiction. This process ignored the fact that Goldberg and Young’s scales were originally proposed to measure Internet Addiction as a whole, while online game addiction was only one of the five types of Internet Addiction [4]. As a result, there is not a widely accepted scale to measure the degree of online game addiction in Mainland China. Furthermore, some researchers pointed out the necessity of investigating physical injuries of online game addiction but none has ever tried to include this dimension in the questionnaire.

Secondly, few empirical studies have been conducted in China to find out the underlying reasons of online-game addiction. Researchers tend to base their findings on qualitative observations to propose potential reasons, such as players’ personal reasons.

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(i.e., personality, social ability, and emotion control ability), environmental factors (i.e., influences from family and schoolmates), and characteristics of online games (e.g., anonymity, interactivity, etc.). But all these findings deserve further verification by quantitative studies.

In comparison, we reviewed English literature and found that great empirical efforts have been made to explore the reasons of online game addiction. For example, Vernberg, et al. [5] and Inderbiten, Walters & Bukowski [6] demonstrated that anxiety due to social relations would lead people to use the Internet as substitution and subject to Internet addiction. Tsai & Lin found that primary groups exert significant influences on Internet addicts and students who have classmates addicted to online games are more likely to play online games [7]. Leung argued that if parents do not play their roles well, children would turn to online games [8]. Choi & Kim [9], Noah [10] and Rouse [11] all proved that some characteristics of online games (e.g., goal, communication, beautiful images, team work, social relation, etc.) could release players from real-life pressures. At the same time, Granitz & Ward [12] and Okleshen & Grossbart [13] both indicated that the award system of online games would enhance players’ sense of achievement. As we can see from the above-mentioned studies, researchers tend to discuss one reason at one time. Now it is high time for us to examine various reasons of online game addiction altogether.

To make up for the two shortcomings, this paper aimed to: 1) develop a sophisticated scale of online game addiction; and 2) propose a comprehensive attribution model of online game addiction.

1. Methods

Based on literature reviews and pilot in-depth interviews, we firstly formulated a 2-page questionnaire. Then, we invited five online game over-users and three psychological graduate students to a focus group discussing the validity, wording, and format of the questionnaire. According to their suggestions, we revised and finalized the questionnaire, which included the following four parts: 1) a 16-item scale measuring online game addiction, which for the first time covered questions about physical injury; 2) an 11-item scale attributing online game addiction; 3) questions about online game use pattern (e.g., game genres, time, etc.); and 4) demographics (e.g., age, gender, etc.).

We followed a stratified sampling procedure and did in-home surveys in 32 student hostels at Shenzhen University, China. We finally obtained 195 valid respondents who had been playing online games over the past 6 months, aging between 18 and 24 (Mean=20.8). The first-year (32%), second-year (35%), and third-year students (33%) account for nearly equal proportions of the sample. We purposely oversampled female players (47%) to make comparison with male players (53%). Not surprisingly, arts students (43%) are less than science students (57%) in this sample. The data was then analyzed by SPSS and, in addition to descriptive analyses, we conducted a series of factor analyses and regressions to answer our research questions.
2. Results

As for the 16-item scale measuring online game addiction, 12 items survive from factor analyses and they contribute three factors (see Table 1): Control Disorder (α=.82), Conflict (α=.87), and Injury (α=.75). They totally explain 65.9% of variances. Among them, Control Disorder includes emotional and time control disorder, which can be seen as a new dimension, and Injury includes physical injury (a new sub-dimension).

Combining the above questions into an Online Game Addiction Index (OGAI, Mean=28.2, SD=8.4), we then divided respondents into three groups: 14.3% of online game addicts (OGAI>37), 27.2% of dependents (28≤OGAI≤37), and 58.4% of normal users (OGAI<28). Most addicts are male (88.5%). Addicts dedicate more than half of their online time to game playing and prefer role-playing games (57.7%) to other online games.

Table 1. Rotated component matrix of online game addiction scale

<table>
<thead>
<tr>
<th>Items</th>
<th>Extraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would rather play online games than do other things, such as outside trip.</td>
<td>0.75</td>
</tr>
<tr>
<td>I would neglect household activities to spend more time on online games.</td>
<td>0.84</td>
</tr>
<tr>
<td>I would cut down the time with my friends and schoolmates to play online games.</td>
<td>0.79</td>
</tr>
<tr>
<td>I have tried to cut down the amount of time on online games but failed.</td>
<td>0.73</td>
</tr>
<tr>
<td>I repeatedly failed to control or stop playing online games.</td>
<td>0.71</td>
</tr>
<tr>
<td>I spend longer time than originally intended when playing online games.</td>
<td>0.63</td>
</tr>
<tr>
<td>The more I play online games, the more my attention is highly concentrated and deeply involved.</td>
<td>0.73</td>
</tr>
<tr>
<td>I feel depressed whenever I need to stop playing online games.</td>
<td>0.76</td>
</tr>
<tr>
<td>I feel deep sadness when I fail in online games.</td>
<td>0.75</td>
</tr>
<tr>
<td>I will get angry and yell if anyone bothers me while I am playing online games.</td>
<td>0.81</td>
</tr>
<tr>
<td>I feel exhausted and my eyes feel tired very often.</td>
<td>0.86</td>
</tr>
<tr>
<td>I lost sleep because of playing online games and this destroyed my health.</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Eigenvalues: 5.06, 1.71, 1.14
Percentage of variance explained: 26.61, 25.02, 14.28
Factor name: Conflict, Control disorder, Injury
α: 0.87, 0.82, 0.75
Mean: 9.73, 13.46, 5.31
Standard Deviation: 4.33, 4.16, 2.13


Table 2. Rotated component matrix of driving forces of online game playing

<table>
<thead>
<tr>
<th>Items</th>
<th>Extraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can express my feelings and opinions freely when playing online games.</td>
<td>.76</td>
</tr>
<tr>
<td>I feel excited when playing online games.</td>
<td>.77</td>
</tr>
<tr>
<td>I want to play more after being awarded for accomplishing tasks in online games.</td>
<td>.79</td>
</tr>
<tr>
<td>I feel greater self-efficacy in online games than in real life.</td>
<td>.64</td>
</tr>
<tr>
<td>I have few friends so I play online games to kill time.</td>
<td>.78</td>
</tr>
<tr>
<td>I often feel depressed and unhappy, and playing</td>
<td>.50</td>
</tr>
</tbody>
</table>
online games can help me relieve such feelings.

I am a certain kind of introverted, and want to make more friends by playing online games.

My parents don’t have time to communicate with me and I feel friends from online games are more close to me than real family members.

Almost all of my classmates and friends play online games.

My parents do not live with me so they cannot control my game playing.

As for the 11-item scale measuring driving forces of online game playing, 10 items survive from factor analyses and they contribute three factors (see Table 2): 1) personal reasons (α=.58), 2) environmental influences (α=.56), and 3) characteristics of online games (α=.77), which completely explained 58% of variances of the 11-item scale. Finally, we took Online Game Addiction Index as the dependent variable and regressed it with independent variables, including the driving forces of online game playing (i.e., personal reasons, environmental influences and characteristics of online games).
As a result, we got a comprehensive attribution model of online game addiction as above (see Figure 1), in which environmental factors are most significant.

### 3. Conclusion and Discussion

This study made an initial attempt to measure and attribute online game addiction among Chinese college students. It has two academic contributions: 1) we developed a sophisticated scale of online game addiction and tested its validity and reliability; 2) we proposed a comprehensive attribution model illustrating that online game addiction is not only due to personal reasons, but also to environmental influences and online game characteristics. In fact, environmental influences are most significant in the attribution model.

There is a longstanding belief among Chinese adults (including researchers) that adolescents themselves should be responsible for their misdoing (including online game addiction). But our research proves that environmental influences are more powerful than personal reasons. Therefore, adults (parents in particular) should play a more active role in guiding and supervising adolescents’ online game use. Although this study is conducted in China, we have developed a rather sophisticated scale of online game addiction that could be applied to other societies and our attribution model could be conducive to the intervention of online game addicts.

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### References


