

Attachment Styles, Motivations, and Problematic Use of Massively Multiplayer Online Games

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Abstract. The current study examined the relationship between different adult attachment styles, motivations, and gaming problems associated with massively multiplayer online games. Firstly, we explored the association between attachment styles and problematic online gaming use. Secondly, we explored the different motivations that people with different attachment styles have to play massively multiplayer online games. Findings indicated that participants with anxious attachment style and avoidant attachment style showed more problematic online gaming issues than participants with secure attachment style. Also, all the participants played mainly to immerse themselves into a virtual world, and not for social motivation or achievement motivation.

Keywords: Massively Multiplayer Online Games; Attachment Style; Problematic Internet Use

1. Introduction

The first aim of the current study was to explore whether attachment style is a precursor implicated in the problematic use of massively multiplayer online (MMO) games. The second aim was to study the possible motivations that players with different attachment styles have.

MMO games are very interactive games that allow players to join small communities, known as guilds, wherein gamers create a persistent world that evolves in real time [1]. A persistent world is a world that exists regardless of whether players are playing online or not. For example, a player can use a car in the game. However, the car might be destroyed by enemies while the person is offline. Gamers also take part in a virtual economy that allows the trading of virtual goods in the game. These virtual goods can also be obtained from real money.

Previous research has indicated that playing MMO games is associated with negative outcomes. For example, Smyth [2] invited participants to play computer games for one month, and compared the consequences of playing MMO games with the consequences of playing other computer games such as arcade, console, and solo play on the computer. After one month, MMO gamers reported worse health and sleep quality, more schoolwork problems, and playing games for more hours than before, in comparison to gamers of other computer games. As a result, MMO gamers' socialization in real life was negatively affected. Strikingly, the MMO group also reported greater enjoyment in the game, plans to continue playing, and more online friends than the gamers of other computer games. The power of these emotions explains why analysts predict growth of MMO games market in these coming years [3]. In consequence, we can predict an increment in the number of people affected by the negative outcomes associated with MMO gaming.

Besides, MMO gaming predicts problematic internet use (PIU) [4]. PIU is manifested in behavioral outcomes such as tolerance, withdrawal symptoms, difficulties to manage one's personal life, and compulsive internet use. Cognitive symptoms associated with PIU are obsessive thoughts about internet, inability to stop using internet, feeling good about themselves only through the use of internet, spending excessive money and time on the internet, and offline social isolation. Emotional aspects associated with PIU include deficient self-regulation, and using the internet to regulate mood. Precursors of PIU are: psychopathology, maladaptive cognitions, and lack of social support [5].

We believe that another possible precursor or distal cause of PIU, particularly problematic online gaming, could be the gamer's attachment style. There are three adult attachment styles: secure, anxious, and avoidant

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[6]. People with secure attachment style experience no discomfort with being close to other people. They seldom worry about people leaving them or people being too close to them. People with anxious attachment style often feel that others are uncomfortable with being close to them, and they worry that other people may not love them or will leave them. They try being as close as possible to others and this act may draw others away from them. Lastly, people with avoidant attachment style often experience discomfort when other people are too close to them, and hardly trust people or rely on others. Previous findings have shown a relationship between attachment styles and several addiction problems [7,8,9]. For example, people with anxious and avoidant attachment styles have a higher chance of acquiring internet addiction as compared to people with secure attachment style. Based on this, we hypothesized that gamers with anxious attachment and avoidant attachment styles would score higher on problematic online gaming than players with a secure attachment style.

Another variable related to MMO gaming is motivation. Yee (see [1]) identified three motivational factors. The first motivational factor is achievement. An achiever is a player who likes competition and aspires to gain status in the game. He or she learns the mechanics of the game thoughtfully in order to maximize performance. The second motivational factor is social. The social gamer enjoys performing tasks that involve teamwork, and is more likely to spend time establishing long-term relationships with others as well as help other online gamers. The third motivational factor is immersion. Gamers whose motivation is immersion tend to engage in role playing, explore the story behind the game, enjoy decorating their online avatar, and use online gaming as a form of escapism to avoid real-life problems and real social interactions. Immersion has been identified as the main motivational factor predicting PIU (see [4]).

Based on the characteristics of the different attachment styles and MMO-gaming motivations, we predicted that people with avoidant attachment style would play significantly more for immersion than for social or achievement purposes. In addition, avoidant participants would show more immersion motivation than participants with secure and anxious attachment. In addition, we expected participants with anxious attachment style to be motivated to play MMO games to gain online friends (social motivation) rather than for achievement or immersion. Anxious participants should also show more interest in socializing than secure and avoidant participants.

2. Method

2.1. Participants

A total of 368 participants who reported being MMO gamers took part in the study. Participants were recruited from James Cook University and game forums. They participated for course credit or for taking part in five S\$20-voucher lucky draw.

We eliminated incomplete data from the database (e.g., participants who did not complete one or more questionnaires). Also, participants who could not be classified into a particular attachment style were eliminated from the database. The final database comprised 252 participants. These were 189 male participants and 63 female participants. Participants' age ranged from 18 to 51 years old ($M = 21.86$, $SD = 4.73$). Approximately 40% of the participants reported playing MMO games for up to 10 hours a week. Approximately 41% of the participants had been playing MMO games for 3 to 6 years.

2.2. Materials

- Demographic questionnaire: It was used to obtain information about the participants' age, gender, country of residence, amount of time spent playing MMO games per week, and number of years playing MMO games .
- The Adult Attachment Scale (AAS): This scale was developed by Collins and Read [10] and was used to measure attachment styles. AAS consists of 18 items, rated on a 5-point Likert scale, ranging from 1 (*not all characteristic*) to 5 (*very characteristic*). This study followed Collins and Read's procedure of categorizing attachment styles.

- The Generalized Problematic Internet Use Scale 2 (GPIUS2): This scale was developed by Caplan (see [5]). The GPIUS2 is made up of 15 items that refer to problematic internet use or PIU. For the purposes of this study, the 15 items were reworded to refer to online gaming. For example, “I have used the internet to make myself feel better when I’ve felt upset” was changed in this study to “I have used online gaming to make myself feel better when I’ve felt upset”. The items gauge aspects such as: preference for online social interaction (rather than face-to-face communication), using online games for mood regulation, compulsive use of online games, cognitive preoccupation with online games, and negative outcomes due to online gaming. Participants rated the items on an 8-point Likert scale, ranging from 1 (*definitely disagree*) to 8 (*definitely agree*). The overall scores from the 15 items were summed up to create a total score, which could range from 15 to 120. The higher the score, the more problematic use of online gaming.
- Massively Multiplayer Online Motivations Inventory (MMI). This inventory was developed by Williams, Yee, and Caplan [11] and was used to capture the motivational factors associated with MMO gaming. It comprises 10 MMI items. These are related to achievement, social interaction, and immersion motivation. Participants rated the items on a 5-point Likert scale, ranging from 1 (*completely disagree*) to 5 (*completely agree*). Each participant scored in each of the three motivational factors of achievement, social interaction, and immersion.

Permission to use GPIUS2 and MMI was obtained from the authors.

2.3. Procedure

Data was collected in the form of online survey. The survey link was hosted in a James Cook University website and five game forums. Participants who clicked on the survey link were directed to the information page, followed by the informed consent page. At the informed consent page, participants were to give their consent by ticking of the “yes” option for both the agreement to complete four questionnaires and the acknowledgement that they were 18 years old or older. Participants who ticked off the “no” option were thanked, and the study ended immediately. Those who consented to participate completed four questionnaires about demographics, the AAS (attachment style), GPIUS2 (problematic online gaming use), and the MMI (motivation factors of MMO gaming).

The completion of the four questionnaires took 30 minutes approximately.

3. Results and Discussion

The number of participants within each attachment style was unbalanced. The anxious-attachment-style group contained 38 participants only, while the secure-attachment-group contained 157 participants (see Table 1). This resulted in violation of the assumption of sphericity necessary to run some statistical tests. To ensure that the results of the parametric tests were still reliable, we created ten random and balanced samples made of 38 participants per each attachment style (i.e., ten samples made of 38 secure, 38 anxious, and 38 avoidant participants each) and conducted the same analyses that we conducted with the whole sample for each of the ten random samples. The analyses with the ten subsamples yielded similar results to the results obtained with the whole unbalanced sample. Therefore, we report only the results of the full sample.

Table 1. Mean scores for piu and motivation (+SDs) for each attachment style

Attachment Style	No. Participants	Problematic Online Gaming	Motivation		
			Achievement	Social	Immersion
Secure	157	50.12 (19.61)	11.32 (2.64)	11.06 (2.55)	13.97 (3.30)
Anxious	38	65.45 (17.93)	12.05 (2.65)	11.29 (2.38)	15.66 (3.40)
Avoidant	57	58.51 (20.19)	12.09 (2.08)	10.16 (2.58)	14.19 (3.41)

3.1. Attachment Styles and PIU

We hypothesized that gamers with anxious and avoidant attachment styles would score higher on problematic online gaming (modified GPIUS2) than gamers with secure attachment. A one-way between-

subjects analysis of variance (ANOVA) was conducted to explore attachment-styles differences on problematic online gaming. The omnibus ANOVA showed significant differences between the different attachment style groups, $F(2, 249) = 11.24, p < 0.001$. Table 1 shows exact values.

The first orthogonal planned comparison showed that problematic online gaming scores of people with secure attachment were significantly lower than the average score for anxious and avoidant participants, $p < 0.001$. The second orthogonal planned comparison revealed that people with anxious attachment style scored higher than participants with avoidant attachment style, although the difference was marginally significant, $p = 0.09$. The results confirmed that gamers with anxious and avoidant attachment styles scored higher on problematic online gaming than secure gamers. These findings suggest that attachment styles are pre-existing characteristics of MMO gamers that are associated with social, cognitive, and emotional online gaming problems.

3.2. Attachment Styles and Motivations

A 3 x 3 mixed ANOVA was conducted to test the association between attachment styles and gaming motivations. Attachment style (secure, anxious, and avoidant) was the between-subjects measure while motivational factor (achievement, social, and immersion) was the within-subjects measure. Due to space constraints, we only report critical interactions, main effects, simple main effects, and orthogonal comparisons that test critical hypotheses.

The omnibus 3 x 3 ANOVA showed a marginal main effect of attachment style, $F(2, 249) = 2.60, p = 0.08$. The main effect of motivation reached significance, $F(2, 498) = 136.48, p < 0.001$. These were qualified by an interaction, $F(4, 498) = 4.40, p = 0.002$, indicating differences between groups and motivations. Table 1 shows exact values.

We hypothesized that avoidant participants would play to immerse themselves in a virtual world and escape from reality rather than for social or achievement purposes. Simple main effects of avoidant attachment style on the three motivational factors showed significant differences between motivations, $F(2, 112) = 45.33, p < 0.001$. The critical orthogonal planned comparison showed that avoidant participants played mainly for immersion than for the other two motivational factors (social and achievement), $p < 0.001$. The hypothesis was confirmed.

We also predicted that avoidant participants would play more than secure and anxious participants for immersion. Simple main effects comparing the three attachment styles on immersion showed differences between groups, $F(2, 249) = 3.84, p = 0.02$. However, the critical orthogonal planned comparison comparing avoidant participants to the other two groups showed that avoidant participants did not score higher in immersion than the average score of the other two groups, $p = 0.25$. Overall, the results indicated that all the gamers played for immersion.

Regarding participants with anxious attachment style, we predicted that they would play for social purposes rather than for achievement or immersion. Simple main effects showed differences between motivations, $F(2, 74) = 50.65, p < 0.001$. Orthogonal planned comparisons showed that social motivation was the lowest, and marginally different from achievement, $p = 0.07$. Also, immersion was significantly higher than the average score of the other two motivations (achievement and social), $p < 0.001$. We suggested that people with anxious attachment style sought relationships and were more interested in the social aspect of the game. However, the results suggest that anxious MMO gamers play to immerse themselves in a virtual world and escape from reality.

We also predicted that anxious participants should also show more interest in socializing than secure and avoidant participants. Simple main effects showed differences between groups, $F(2, 249) = 3.17, p = 0.04$. The critical orthogonal planned comparison showed that anxious participants did not score higher than the average of the other two groups (secure and avoidant), $p = 0.14$, suggesting that the level of social motivation was equal (and the lowest) among all three groups.

Overall, the results showed that gamers with a secure attachment style express less problematic online gaming use than participants with anxious and avoidant attachment styles. This indicates that attachment could be considered a distal cause of PIU (and probably problematic online gaming) together with others

factors such as psychopathology and reinforcement patterns [12]. Also, all the participants played to immerse themselves in a virtual world, role-playing, and escape from reality, independently from their attachment style. This finding indicates that the most attractive feature of MMO games is being involved in a virtual world rather than engaging in new friendships or gaining status in the game.

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