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Research Report

Dimensions of video game behavior and their relationships with personality

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ABSTRACT

As video games become increasingly popular pastimes, it becomes more important to understand how different individuals behave when they play these games. Previous research has focused mainly on behavior in massively multiplayer online role-playing games; therefore, in the current study we sought to extend on this research by examining the connections between personality traits and behaviors in video games more generally. Two hundred and nineteen university students completed measures of personality traits, psychopathic traits, and a questionnaire regarding frequency of different behaviors during video game play. A principal components analysis of the video game behavior questionnaire revealed four factors: Aggressing, Winning, Creating, and Helping. Each behavior subscale was significantly correlated with at least one personality trait. Men reported significantly more Aggressing, Winning, and Helping behavior than women. Controlling for participant sex, Aggressing was negatively correlated with Honesty–Humility, Helping was positively correlated with Agreeableness, and Creating was negatively correlated with Conscientiousness. Aggressing was also positively correlated with all psychopathic traits, while Winning and Creating were correlated with one psychopathic trait each. Frequency of playing video games online was positively correlated with the Aggressing, Winning, and Helping scales, but not with the Creating scale. The results of the current study provide support for previous research on personality and behavior in massively multiplayer online role-playing games.

1. Introduction

1.1. Video games

Video games are becoming increasingly popular forms of entertainment. Because these games can now be played on a variety of platforms, ranging from dedicated consoles to hand-held devices and smart phones, more people can play more often than ever before. Formerly, there were few video games from which to choose, and these games were quite simple, allowing for only one action or a limited array of actions (Nielsen, Smith, & Tosca, 2008). Now, players can choose how to play, both by selecting from a wide range of video games and by deciding what to do in many of these games. Given that there are video games currently available to appeal to all different play-styles, it should be no surprise that millions of people report playing video games (Entertainment Software Association, 2014) and that many devote considerable time to playing them (Billieux et al., 2013; Griffiths, Davies, & Chappell, 2004; Williams, Yee, & Caplan, 2008; Yee, 2006a).

Individuals who play video games can choose not only which game to play but also, often, what to do while playing a particular game. While some simple games allow only one action or a limited number of actions, many complex games provide multiple paths, choices, and other options. Just as behavior in the real world is influenced by personality characteristics, so too are behaviors in video games likely to be influenced to some degree by personality. If personality and behavior in video games are related much as they are in the real world, one would expect that extraverted individuals would behave more socially, that agreeable individuals would behave more cooperatively, and that conscientious individuals would behave more diligently (in keeping with some of the defining behaviors of these traits; Lee & Ashton, 2008). On the other hand, it may be that the risk-free environment of video games allows to individuals to break free of normal behavioral constraints, thus allowing introverted individuals to be more social and agreeable individuals to express anger.

The primary goal of the current study, therefore, was to examine how personality characteristics are related to different behaviors in video games. More specifically, we addressed the

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following research problems. First, we investigated the component structure of a questionnaire measuring different behaviors in video games. Second, we investigated the correlations between these components of in-game behavior and broad personality traits (as measured by the HEXACO model of personality; Ashton & Lee, 2007; Ashton et al., 2004; Lee & Ashton, 2008) as well as the correlations between these components of in-game behavior and psychopathic personality traits. Third, we investigated the correlations between frequency of playing video games online, personality traits, and the components of in-game behaviors.

Many video games present unique environments that allow individuals to behave differently than they would in the real world. In many video games, players can perform actions and experience events that are impossible, illegal, or unlikely in the real world. In addition, players' behaviors in video games are generally free of real-world consequences. Video games that allow the player to control an avatar (i.e., a virtual character representing the player in the game world) to interact with the game also allow individuals to potentially experiment with different identities (Ducheneaut, 2010; Turkle, 1995).

In spite of the differences between video game worlds and the real world, some evidence suggests that individuals' behavior in video games is similar to their real-world behavior (e.g., Eastwick & Gardner, 2009). For example, players of the virtual world *Second Life* report doing many of the same things as they do in the real world (Bayraktar & Amca, 2012). Second Life is an online virtual world in which a variety of activities are available, and Bayraktar and Amca (2012) found that correlations between real-world and in-game behavior were generally positive, ranging from .18 for shopping to .48 for entertaining. One exception was found, however: meeting new people was not significantly related between real-world and game contexts, which may simply reflect the fact that it is easy to encounter new people in virtual worlds and other video games that take place online (Bayraktar & Amca, 2012).

However, because Second Life is an online virtual world, which involves less emphasis on "gaming" than most true video games, it is not clear how this finding might apply to other video games. Further, unlike Second Life, many video games do not allow such direct comparisons between in-game and real-world activities, primarily because many in-game activities have no direct real-world equivalent. An examination of the correlations between personality traits and behaviors in video games is therefore needed, to help determine whether players behave in video games much as they do in real life, or quite differently, as compared to other players.

1.2. Personality and behavior in an online video game

Several studies have examined the connections between personality and behavior in a popular video game, the Massively Multiplayer Online Role-playing Game (MMORPG) *World of Warcraft*. World of Warcraft allows players to create an avatar and use this avatar to perform many different activities in a fantasy-type world (What is World of Warcraft?, n.d.). Because the game is played entirely online, players can interact with other players in a variety of ways. For example, players can cooperate with each other to defeat difficult game-generated opponents in *raids*, or attack and kill each others' avatars in player-versus-player activities like *battlegrounds*. World of Warcraft reported a subscriber-base of over 7 million players in 2014, just prior to its 10th anniversary (Makuch, 2014) and allows a diversity of behaviors that has made it ideal for studies of in-game behavior.

Previous research has shown that personality is related to behavior in World of Warcraft, and that many of the correlations are consistent with real-world personality-behavior relationships (e.g., Worth & Book, 2014). For example, player-versus-player behaviors (activities that involve attacking and killing other players' avatars) have been found to be negatively correlated with Honesty–Humility, Agreeableness, and Conscientiousness, and positively correlated with psychopathic traits (Worth & Book, 2014; Yee, Ducheneaut, Nelson, & Likarish, 2011). In addition, behaviors that require persistence and diligence, like collecting pets and working on in-game professions, are positively correlated with Conscientiousness. Behaviors involving exploration and immersion within the game-world were positively correlated with Openness to Experience. Finally, positive social interactions, specifically helping other players and using friendly interactive emotes like /hug and /wave, were associated with high levels of both Agreeableness and Openness to Experience (Worth & Book, 2014; Yee, Ducheneaut, et al., 2011).

The results of the studies by Worth and Book (2014) and Yee, Ducheneaut, et al. (2011) provide some support for research on personality and motivations for playing World of Warcraft. For example, social motivations for playing World of Warcraft were related to Agreeableness and Extraversion, and immersive motivations were related to Openness to Experience (Graham & Gosling, 2013). Thus, in-game behaviors and motivations for play are related to personality traits in predictable ways.

However, another study did not find support for these results. McCreery, Krach, Schrader, and Boone (2012) examined the connections between (player and avatar) personality traits and pre-defined sets of behaviors in World of Warcraft, and found no significant correlations between player personality and behavior. However, it is possible that this study underestimates the true correlations between personality and behavior, due either to issues with the behavioral sets used (i.e., the behavioral sets created for the study may not have been properly reliable or representative of the personality traits they were designed to reflect), or to a relatively small sample size. Nevertheless, it points to the need for further research on personality-behavior connections in video games.

1.3. Personality and behavior in other video games

The need for further research is also indicated by the fact that World of Warcraft and other MMORPGs are not representative of video games more generally. Many video games are not played online and do not offer the range of choices offered in World of Warcraft. It is therefore not clear if the results of the previous studies of behavior in World of Warcraft will generalize to other video games.

Previous research examining the connections between personality and behavior in video games other than World of Warcraft has been rather limited. In a study of behavior in Second Life, Yee, Harris, Jabon, and Bailenson (2011) found that personality traits were correlated with certain exploration behaviors. For example, Conscientiousness was related to walking more often and visiting more zones (Yee, Harris, et al., 2011). However, it is not clear how these particular correlations should be interpreted in terms of correspondence with real-world personality-behavior correlations, or whether these results are likely to be replicated in other video games.

However, some research has suggested that personality and behavior in video games might be related in predictable ways. A study focusing on two violent action video games found that individuals with more aggressive personalities engaged in more aggressive acts in the video games than individuals with less aggressive personalities (Peng, Liu, & Mou, 2008). Similarly, those who are low in Agreeableness play violent video games more often (Chory & Goodboy, 2011), and certainly violent video games permit more aggressive behaviors than less violent video games.