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Psychosocial causes and consequences of online video game play

Rachel Kowert [a,*], Jens Vogelgesang [a], Ruth Festl [b], Thorsten Quandt [a]

[a] Department of Communication, University of Münster, Germany
[b] Department of Communication, University of Hohenheim, Germany

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ABSTRACT

Due to its worldwide popularity, researchers have grown concerned as to whether or not engagement within online video gaming environments poses a threat to public health. Previous research has uncovered inverse relationships between frequency of play and a range of psychosocial outcomes, however, a reliance on cross-sectional research designs and opportunity sampling of only the most involved players has limited the broader understanding of these relationships. Enlisting a large representative sample and a longitudinal design, the current study examined these relationships and the mechanisms that underlie them to determine if poorer psychosocial outcomes are a cause (i.e., pre-existing psychosocial difficulties motivate play) or a consequence (i.e., poorer outcomes are driven by use) of online video game engagement. The results dispute previous claims that online game play has negative effects on the psychosocial well-being of its users and instead indicate that individuals play online games to compensate for pre-existing social difficulties.

1. Introduction

While video game play was once considered a niche activity, today, it is a global, multibillion-dollar, worldwide enterprise (Bacon, 2011; Cucuel, 2011; Hinkle, 2011; Johns, 2005). From a reported $200 million dollar industry in 1978 (Aoyama & Izushi, 2003), to a value of $74 billion in 2011 (Hinkle, 2011), the video game industry will likely remain the fastest growing current form of media, with projected sales figures expected to rise to $82 billion by 2015 (Bacon, 2011). These gaming environments are not only popular but also highly engaging, as representative data indicates that 21% of game players engage in daily play (Lenhart, Jones, & Macgill, 2008).

Recently, the incorporation of "real time" social services within video gaming environments (i.e., online video games) has widened this mediums scope. These new, socially interactive mediums are being consumed at a staggering rate (Cucuel, 2011). In 2008, there were a reported 1.5 billion unique registered accounts of online games worldwide (TMachine.org, 2008). This market continues to grow, as, a recent industry report indicated that more than 44% of the world's online population plays online games (SpilGames, 2013). By the end of 2013, online games are expected to constitute more than 38% of all video game software earnings (Wu, 2010). While the exact number of hours dedicated to online game play has not been assessed among representative samples, assessments conducted within opportunity samples of game players have found that users often dedicate 10–20 h a week to online game play (Griffiths, 2010; Kowert & Oldmeadow, 2013; Lemmens, Valkenburg, & Peter, 2011).

Due to its popularity and intensity of play, researchers have grown concerned as to whether or not engagement within online video gaming environments is physically, socially, and psychologically healthy. The psychosocial impact of online video games has of particular interest, with several investigations uncovering inverse links between psychosocial well-being and online video game involvement, including loneliness (Caplan, Williams, & Yee, 2009; Lemmens et al., 2011; Morahan-Martin & Schumacher, 2003; Shen & Williams, 2010), depression (Caplan et al., 2009; Williams, Yee, & Caplan, 2008), social anxiety (Lo, Wang, & Fang, 2005), self-esteem (Colwell, Grady, & Rhaiti, 1995; Griffiths, 1998; Lemmens et al., 2011), and social competence (Kowert & Oldmeadow, 2013). While these findings are often used as evidence to indicate that OVG play negatively impacts users socially and psychologically, a reliance on cross-sectional research[1] and

* Corresponding author at: The University of Münster, Westfälische Wilhelms-Universität, Department of Communication, Bispinghof 9 – 14, 48143 Münster, Germany. Tel.: +49 176 847 06874.

E-mail address: rachel.kowert@uni-muenster.de (R. Kowert).

[1] The longitudinal analysis of Lemmens and colleagues (2011) is an exception. However, this research was limited by its focus on two minority sub-groups of the game playing community: problematic players (e.g., which consistute 0.2% of the overall population; Festl, Scharkow, & Quandt, 2012) and adolescent players (e.g., recent reports indicate that only 32% of the video game playing community are under age 18; Entertainment Software Association, 2014).

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opportunity samples of only the most involved game players has generated a vague understanding of the nature of these relationships as well as the mechanisms that may drive them (e.g., Caplan et al., 2009; Cole & Griffiths, 2007; Kowert & Oldmeadow, 2013; Lo et al., 2005; Shen & Williams, 2010; Williams, 2006b; Williams et al., 2008). As such, it remains unknown whether outcomes are a direct consequence of engagement (Caplan et al., 2009; Williams, 2006a) or if they represent pre-existing differences among those who choose to engage online (Lo et al., 2005; McKenna & Bargh, 2000; Shen & Williams, 2010).

1.1. Psychosocial causes and consequences

When discussing the potential impact of video game involvement on social, psychological, or psychosocial outcomes, researchers tend to adopt one of two theoretical viewpoints. The first, referred to as the displacement hypothesis, is the idea that poorer outcomes (e.g., greater loneliness, lower sociability, fewer offline friendships) are a *consequence of engagement*. This position assumes that there is a substantial trade-off between online and offline friendships, relationships, and interactions, and that offline interactions are more socially valuable than online ones in terms of positively contributing to one's psychosocial well-being. Therefore, associations between lower psychosocial well-being and online video game involvement are attributed to the exchange, or displacement, of offline for online social contacts (Bessiere, Kiesler, Kraut, & Boneva, 2012; Blais, Craig, Pepler, & Connolly, 2008; Caplan et al., 2009; Chiu, Lee, & Huang, 2004; Morahan-Martin & Schumacher, 2003; Nie & Erbing, 2002; Williams, 2006a, 2007).

The contrasting view argues that online video game involvement is associated with psychosocial well-being due to the socially compensatory nature of the environment. That is, inverse relationships between psychosocial variables and use are evident because individuals with lower levels of psychosocial well-being (i.e., higher loneliness, greater social anxiety, poorer social skills) are more drawn to online gaming spaces. Often referred to as the social compensation hypothesis, this perspective stems from the suggestion that has been long held by researchers that mediated social environments, particularly online video games, appeal to those who have an unmet need for sociability in their lives and feel anxious over establishing real-world relationships (Chak & Leung, 2004; Kim, Namkoong, Ku, & Kim, 2008; Lo et al., 2005; McKenna & Bargh, 2000; Peters & Malesky, 2008; Shen & Williams, 2010). The appeal of these spaces is often attributed to their accessibility as well as their socially accommodating features (e.g., visual anonymity, few non-verbal cues, etc.), which are thought to be attractive to individuals who are lacking in social competence or social opportunity. While it is possible that displacement effects could exacerbate the user's pre-existing disposition (e.g., leading to increased rates of loneliness, depression, or social anxiety), a certain degree of inadequacy is believed to pre-exist among those who are motivated to engage within online gaming environments.

The work of Lemmens et al. (2011) provides the first empirical insight as to whether the relationships between psychosocial well-being and online video game involvement are causal or consequential. In their longitudinal analysis of adolescent video game players, Lemmens and colleagues examined the relationship between psychosocial well-being (loneliness, life satisfaction, social competence, self-esteem) and problematic video game play. Over a six month period the researchers found loneliness to emerge as a *cause and a consequence* of problematic play, indicating that lonely individuals are more likely to engage problematically, and over time, problematic use of this medium contributes to increased levels of loneliness. Low self-esteem and low social competence were also found predict later pathological gaming, indicating that these variables are motivators of problematic play rather than consequences of engagement. The researchers concluded that these findings are likely particularly applicable to online players, as multiplayer games provide an environment where users can avoid their real-life deficiencies through the attainment of virtual contacts and achievements.

While the work of Lemmens et al. (2011) provides the insight into the potential causal links between psychosocial well-being and video game play, it limited to the psychosocial causes and consequences of problematic engagement. As problematic/pathological gamers only constitute a small proportion of the video game playing community (for example, according to the large-scale representative study of Festl et al. (2012) this proportion is 0.2% of the overall German population), little remains known about the psychosocial causes and consequences of video game play among the broader, non-problematic playing community of online game players. Additionally, the work of Lemmens et al. (2011) focused on adolescent game players. While adolescents are often the focus of game-related research (e.g., Cummings & Vanderwater, 2007; Griffiths, Davies, & Chappell, 2004; Kowert, Domahidi, Festl, & Quandt, 2014; Lemmens et al., 2011), demographic studies have found constitute only a small minority of the game playing community (Entertainment Software Association, 2013; Ghuman & Griffiths, 2012; Lenhart et al., 2008; Williams et al., 2008; Yee, 2006). Additional research is needed to unravel the relationship between online video game play and psychosocial outcomes among the broader community of game players. That is, the non-problematic, adult game playing community which constitutes the vast majority of the population.

1.2. Current study

The current study will examine presence and nature of the relationships between psychosocial well-being and online video game play among a representative sample of adult online video game players over a 1- and 2-year period. By enlisting a longitudinal design, and examining the relationship between psychosocial well-being and online video game involvement within a representative, adult game-playing sample, this examination is the first of its kind. Several predictions have been made based previous research, and specifically the work of Lemmens et al. (2011).

H_1. Low social competence will emerge as a cause and a consequence of online video game play.

Researchers have long suggested that online video games appeal to those who are socially unskilled or have an unmet need for sociability in their lives (Chak & Leung, 2004; McKenna & Bargh, 2000; Peters & Malesky, 2008). The distinctive characteristics of online video games generate a highly desirable social space, as the combination of greater communicative flexibility, enhanced social presentation strategies, and shared experiences, diminish the possibility of social rejection while stimulating the formation of intimate friendships (Chan & Cheng, 2004; Joinson, 2001; Pena & Hancock, 2006; Suler, 2004; Williams, 2007; Yee, 2007). Thus, individuals who have experienced difficulties in forming interpersonal relationships in traditional contexts are thought to be drawn to engage within online video games as an alternative social outlet (Kowert & Oldmeadow, 2013, 2014). However, low social competence has also been implicated as a *consequence* of online video game play, with users experiencing a deterioration of social abilities due to their prolonged or excessive involvement within the medium (Chiu et al., 2004; Griffiths, 2010; Kim et al., 2008; Liu & Peng, 2009).

As researchers have implicated inverse relationships between social competence and video game involvement to be both causal and consequential, it is predicted that low social competence will emerge as both a *cause* and a *consequence* of online video game play. While Lemmens et al. (2011) found a causal, but not