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Motivations for videogame play: Predictors of time spent playing

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ABSTRACT

The aim of the current research was to identify factors that are associated with the amount of time people play videogames. The current study extends previous research by exploring this question with a variety of genres of videogames. Five hundred and seventy-three participants completed an online survey of their gaming habits, preferences and their experiences while playing. Beyond differences in hours of play associated with gender and game genres, greater time spent playing was found to be associated with playing with others and with higher experiences of competence, autonomy and relatedness during gameplay. The findings are interpreted in light of previous research and the potential implications for links between videogame play and wellbeing are considered.

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1. Introduction

As games become increasingly popular with a steadily widening demographic, concerns about their impact continue to grow (Anderson et al., 2010; Bushman & Anderson, 2015; Gentile, Anderson, & Olson, 2010). At the same time, a growing body of research suggests that videogame play can have a range of positive impacts (Ferguson, Garza, Jerabeck, Ramos, & Galindo, 2013; Przybylski, Rigby, & Ryan, 2010; Russoniello, O'Brien, & Parks, 2009; Vella & Johnson, 2012). One area of concern around videogame play is the amount of time spent playing, which can be considered in two ways. Firstly, there is the question of how the amount of time spent playing impacts the player: do the positive or negative effects of game playing increase with more play? Secondly, there is the question of the factors that influence the player to play more or less: are there features of games or gamers that influence amount of play? These questions explore related but independent components of the overall relationship between videogames and wellbeing.

Amount of play has most often been considered as an independent variable (or influencing factor) in the videogames research

literature. That is, more of the existing research examines the impact amount of play has on the player and their wellbeing. In contrast, less research has focussed on amount of play as a dependent (or outcome) variable, investigating the factors that influence the amount of time spent playing. The current research attempts to address this imbalance by focussing on the latter issue – the factors that influence the amount of time players spend playing. Regardless of this focus, it is informative to review previous key findings related to the *impact* of amount of play before moving onto consideration of the factors that *influence* amount of play.

1.1. The impact of amount of play

Allahverdipour and colleagues (Allahverdipour, Bazargan, Farhadinasab, & Moeini, 2010) conducted cross-sectional research designed to identify the correlates of videogame playing with middle-school students (12–15 years of age) in Iran. For the purposes of their study, non-gamers were defined as those who did not play at all, 'low' play was defined as 1–6 h, 'moderate' as 7–10 h and 'excessive' as more than 10 h per week. The authors found a curvilinear relationship between hours spent playing and most of their measured outcomes: moderate gamers showed the best outcomes, while non-gamers, low and excessive gamers showed relatively poorer outcomes. More specifically, while 'excessive' gamers showed mild increases in problematic behaviours (such as

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somatic symptoms, anxiety and insomnia, social dysfunction and general mental health status), non-gamers showed the poorest outcomes on these measures. Kutner and Olson (Kutner & Olson, 2008) reported a similar pattern of results with 'moderate' play being found to be associated with creative, social and emotional benefits and non-gaming being associated with the greatest risk of problems.

Durkin and Barber (2002) explored similar questions, but based their measure of amount of play on participants' subjective ranking of their frequency of play on a seven point scale (ranging from 1-never to 7-daily). Participants who responded 1 were classified into the 'never play' group, 2 through 5 were grouped as 'low play' and those choosing 6 or 7 were grouped as 'high play'. In their sample of 16-year-old North American high school students, the authors found that those who played showed more positive outcomes than those who never played on measures of family closeness, activity involvement, school engagement, mental health, substance use, self-concept, friendship network, and disobedience to parents. Additionally, for many of their measures they found a similar curvilinear pattern of results, such that those in the 'low' play group showed better outcomes than those in both the 'high' play group and the 'never' play group.

More recently, a similar pattern of results emerged for a sample of 10–15 year olds in the United Kingdom. Using a longitudinal data set, Przybylski (2014) analysed data from a nationally representative subsample of 2436 male 2463 female children. Self-report data on amount of play was categorised as none, low (less than 1 h daily), moderate (1–3 h daily), or high (more than 3 h daily). A slightly more complex picture emerged than in previous studies such that low levels of play were associated with positive outcomes, high levels of play with negative outcomes, but no significant trends emerged in terms of differences between moderate players and non-players. More specifically, compared to non-players, children playing at low levels showed higher levels of prosocial behaviour and life satisfaction and lower levels of conduct problems, hyperactivity, peer problems, and emotional symptoms. In contrast, children playing at high levels displayed higher levels of externalising and internalising problems and lower levels of prosocial behaviour and life satisfaction than non-players.

While the previous research has examined amount of play across a variety of videogame genres, other research has focussed specifically on Massively Multiplayer Online (MMO) games; a genre that has attracted a great deal of attention both in the media and among researchers. Shen and Williams (2011) conducted a large scale survey ($n > 5000$) among players of a single MMO game (*Everquest II*; 2004). They explored the impact of a large variety of predictors (both game and non-game related) on a range of psychosocial outcomes. Overall they found that time spent playing the game had only a very small impact on these outcomes. Rather, the impacts of play depended more on people's purposes, personalities, and the context of use. For example, those motivated to play by a desire for feelings of achievement showed an overall positive impact of play, while those motivated by a desire to become immersed showed greater loneliness. It is worth noting that the impact of time spent playing the game on various outcome measures was found to be substantially smaller than the impact of various demographic and personality variables.

1.2. Factors influencing amount of play

Cole and Griffiths (2007) explored the factors influencing amount of play among 912 players of Massively Multiplayer Online Role Playing Games (MMORPG) drawn largely from the United States and the United Kingdom. The sample had a mean age of 23.6 years ($SD = 7.55$ years) and reported playing an average of 22.85 h

per week ($SD = 17.95$). These figures suggest a wide range of weekly playing times between individuals, with a portion of the sample reporting a fairly high level of play. The most commonly played games were *World of Warcraft* (48.9%; 2004), *City of Heroes* (7.6%; 2004) and *Ultima Online* (4.5%; 1997). Cole and Griffiths identified four types of gamers in their sample, based on Utz's typology of players (Utz, 2000; cited in Cole & Griffiths, 2007). They found that the players characterised as "Virtuals" (those interested in the social aspects of play such as meeting with other players and communicating) reported greater hours of play than other player types. Further supporting this finding was a positive correlation between hours played and number of friends within the game. The authors also found that players motivated by "therapeutic refreshment" tended to play less than those motivated to play by other factors such as curiosity, creativity, problem-solving or enjoying a different lifestyle in the game world.

Williams, Yee, and Caplan (2008) explored the predictors of hours of play specifically among *Everquest II* players. Their sample was older than that recruited by Cole and Griffiths, but with similar reported hours of play. They received responses from 7000 players with an average age of 31.16 years ($SD = 9.65$) and an average reported playing time of 25.86 h per week ($SD = 19.06$). The study focussed on the extent to which the motivations for play of MMORPGs (achievement, sociability and immersion) previously identified by Yee (2006a, 2006b) predicted hours of play. Williams and colleagues established that Yee's three factors accounted for 60% of the variance in hours of play and that sociability (the desire to spend time with others) and achievement (the desire to get ahead) motivations were associated with more play, while immersion motivations were associated with less play. Additionally, older players and female players were found to play more.

Teng (2010) looked at a slightly broader range of games than either Cole and Griffiths (2007) or Williams et al. (2008), recruiting players of various online games and not just MMORPGs. Teng's study also differed from other studies in the space by exploring issues of customisation and gamer loyalty (or the extent to which a player will play a game repetitively). Additionally, rather than looking at immersion (the strength of the sense of "being there" experienced by the player), Teng measured immersion satisfaction, defined as the extent to which immersion-related user needs are satisfied. In a survey of 865 players (average age not reported) they found that greater hours of play were associated with higher levels of immersion satisfaction. This result appears inconsistent with the findings of Williams et al. (2008), who found the opposite relationship when measuring the immersion motivation for play. It may be that those players motivated by a *desire* to experience immersion do not always experience *satisfaction* of that need, and hence only show an increase in time spent playing when that need is satisfied. This interpretation is partly supported by Williams and colleagues, who suggest that players who enjoy game-play elements such as exploration or role-playing may not necessarily find these aspects of the games satisfying or compelling.

In contrast, other researchers have focussed specifically on the factors influencing problematic or pathological amounts of play. Research with a small, predominantly male sample of patients in a mental health institute suggested that personality factors, including sources of stress and interest in others, were associated with excessive amounts of play (Leones do Couto & Cruz, 2014). Focussing instead on broader contextual factors (as opposed to personality), Rehbein and Baier (2013) found that pathological patterns of play were more likely among 15 year old players from single-parent families, low levels of school wellbeing and weaker social integration. Finally, exploring a broad range of potential influences, King and Delfabbro (2016), found that excessive play was more likely among adolescents who overvalued gaming rewards,

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