



## Research report

## The relationship between character identification and flow state within video games



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## ABSTRACT

Flow is a concept used to describe the pleasurable immersion that individuals experience, often in recreational activities such as video games. A key component in many video games is the player's avatar; through which the player experiences the game world and game play. Past theory suggests that flow and the identification of a player with their avatar are vital aspects of video games and it is this that differentiates them from other forms of media. However, research on the relationship between flow and avatar/character identification is in its infancy. This study aimed to further examine these two concepts and their relationship within video games. This study consisted of 306 participants, who completed a series of self-report questionnaires online. As hypothesised, it was found that character identification was strongly and positively related to flow. It was also found that only the video game specific characteristics of similarity to character and customisation were negatively and positively related to flow respectively. Furthermore, similarity but not customisation was related to character identification, and that similarity was strongly and positively related to character identification. Other findings include Openness to Experience being positively related to character identification, and Extraversion being negatively related to character identification.

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## 1. Introduction

Video games form a large and growing segment of the entertainment industry, with estimates placing total revenue for the games industry in 2013 at \$21.5 billion USD in the US (ESA, 2014) and €5.8 billion in the UK (Statista, 2014). This places the video game industry at least on par with other entertainment forms, such as music, books, and movies. Participation in this entertainment medium is high, at least in developed countries, with 67% of US households playing video games (ESRB, 2015), with similar figures in comparable markets. Furthermore, this study demonstrated that the average gamer plays for 10 h a week (ESRB, 2015). Playing a video game as a form of entertainment is a choice on the part of players, requiring a willing engagement with the game in preference of other potential choices. It therefore seems reasonable to assume that video games are seen by their players as an attractive and rewarding pastime. Games are interactive and require considerable attention from their players; this, combined with extensive

playing times, indicates that gaming can be an activity that can be pleasurable and engaging for players.

That an activity can capture and hold the attention of the person undertaking that activity is well-understood. One concept that is used to understand pleasurable engagement with an activity is flow (Csikszentmihalyi, 1990). Flow not only captures a rewarding experience, but one where the active party's attention is focussed on the activity to the exclusion of the outside world. This concept is very relevant to games and has been studied within this medium (Chen, 2007; Cowley, Charles, Black, & Hickey, 2008; Jin, 2012). In the words of Cowley et al. (2008) "Flow is a well-established construct for examining experience in any setting and its application to game-play is intuitive." While this concept is recognised, what inhibits or promotes that state while playing video games is not so well understood.

Many video games focus the players' interaction with the game world through a main character or avatar (Lin & Wang, 2014), which forms the focus of the players' attention. The avatar is constantly present, and in some games, such as third person action games, in view in the centre of the screen. Even in games where the avatar is not constantly displayed, such as a first person shooter, the player uses the avatar to interact with and affect the game world. When a player is presented with an avatar

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it may be perceived as similar or different to the player. This can be affected by the player's choices, such as if the player is allowed to customise the avatar. Research has been conducted into various aspects of avatar customisation. For example, players' motivation in customising their avatars (Lin & Wang, 2014), their use for self-expression (Sung, Moon, Kang, & Lin, 2011), and their effect on player enjoyment of a game (Trepte & Reinecke, 2010). Furthermore, customisation has been found to increase feelings of presence and immersion (Bailey, Wise, & Bolls, 2009). Customisation of the avatar and perceived similarity between player and avatar may have an effect on whether the player identifies with the avatar. Audience identification with fictional characters transports the audience into the position of that character and immerses them in the world the character inhabits (Cohen, 2001). While there has been research into avatar identification, limited work has been done on the relationship between identification and immersion in the context of video games.

Presence and immersion are concepts that have been extensively investigated and their relationship to flow has been noted (Nacke & Lindley, 2008). Given the relationship between presence, immersion, and flow and between presence, immersion, and identification with fictional characters, it appears reasonable to hypothesise a relationship between avatars and the flow state. Players may identify with their avatar (Van Looy, Courtois, De Vocht, & De Marez, 2012), and a heightened identification may then enhance the degree to which a player's attention is captured by the game, which could then result in a heightened experience of the flow state.

In a video game, the identification of a player with their avatar and the control of the player over the visual depiction of the avatar are good candidates to examine possible effects on the flow state within games. Identification with the avatar may be influenced by the perceived similarity between player and avatar and the level of customisation available. This study will examine the relationships between player/avatar identification, avatar customisation, perceived similarity between avatar and player, and the ability to enter a flow state while playing a video game.

This paper is structured as follows. Section 2 is a review of the literature on immersion, presence, and flow generally and within the context of video games. Section 3 presents the aims of and hypotheses of this study, with section 4 detailing the method for answering these aims and hypotheses. Results are presented in section 5 and discussed in section 6.

## 2. Literature review

### 2.1. Immersion, presence, and flow

Originally conceived by Csikszentmihalyi in the 1970s, the concept of flow was created to account for the pleasurable immersion reported by individuals in everyday activities (Sherry, 2004). Csikszentmihalyi described it as an experience so rewarding that individuals participated in the activity for its own sake with little thought for what external or other reward they would get for the task (Csikszentmihalyi, 1990). Flow consists of 8 components: 1) clear goals, 2) a high degree of concentration, 3) a loss of self-reflection, 4) time distortion, 5) direct and immediate feedback, 6) sense of personal control, 7) intrinsically rewarding, and lastly 8) a balance between ability level and challenge (Jennett et al., 2008). In the past flow has been studied using self-report questionnaires designed to capture these dimensions (Jackson & Eklund, 2004; de Manzano, Theorell, Harmat, & Ullén, 2010; Ullén et al., 2012). Physiological measures of flow have begun to be developed (Nacke & Lindley, 2008); however, some argue that these are not yet able to fully describe the flow experience (Weibel, Wissmath, Habegger, Steiner, & Groner, 2008). It has been found that one's ability to

enter the flow state has been linked to a number of concepts including life-satisfaction, enjoyment, psychological well-being, and personality (Ullén et al., 2012).

There are a number of concepts which are used to describe the experiences connected with attention being concentrated on the current task. Such terms include presence, immersion, and flow, which have been given various definitions in the literature (Brockmyer et al., 2009). Presence has been described as a "multi-dimensional concept" (Bulu, 2012; Decock, Van Looy, Bleumers, & Bekaert, 2014), the primary dimensions being physical (or spatial) presence and social presence. Physical presence (which in this paper, for simplicity, we will hereafter refer to simply as presence) is defined as "the experience of being or existing in one environment even when one is physically situated in another" (Witmer & Singer, 1998). Immersion has been described by many authors, but the definitions they give are often in conflict. For example, Brockmyer et al. (2009) described immersion as "the experience of being engaged while retaining some awareness of one's surroundings". In contrast, immersion has also been described as "the sense of being wholly absorbed in an activity to the complete loss of awareness of the real world" (Cairns, Cox, Day, Martin, & Perryman, 2013). Cairns et al. (2013) further say that immersion is characterised by not only the loss of one's surroundings, but also a distorted sense of time, total involvement, and a strong sense of control. This is problematic as this later description is very similar to experiences of flow. However, research on immersion has consistently found that immersion exists on a continuum (Brown & Cairns, 2004; Jennett et al., 2008). In light of this, it appears that these authors may simply be describing different levels of immersion rather than having conflicting definitions. This is supported by studies that consider immersion as consisting of multiple levels or a continuum. As described by Jennett et al. (2008) the first level, engagement, occurs when the player overcomes the initial barriers of the game (e.g., controls and instructions), which requires time, effort, and attention. The second level, engrossment, occurs when an individual overcomes the barrier of game construction, in that the features of the game need to merge with the player so that the player becomes less self-aware and less aware of their surroundings. It is this second level that appears to match the definition of immersion given by Brockmyer et al. (2009). The next and final level is total immersion, in which the player is completely cut-off from reality. This final level is rare and fleeting, whereas the other two levels occur more frequently. It is this last level that closely matches the description of Cairns et al. (2013). In light of this research, this study will describe immersion as a continuum that increases in involvement as one becomes more immersed.

Flow is related to presence and immersion and at times the word 'immersion' has been used in describing the flow state (Sherry, 2004). In the discussion of the levels of immersion in Jennett et al. (2008) the final level (total immersion) is very similar to the commonly accepted definitions of flow. Flow occurs when a participant is so immersed within the task that they enter the flow state; because of this, flow has been characterised as the extreme highest point of immersion (Cairns et al., 2013). Furthermore, it has been stated that an individual's experience in a task can range from presence to flow (Brockmyer et al., 2009). It is clear from the literature that the three concepts (presence, immersion, and flow) are closely related. It could be that flow represents one end of a continuum, which captures the most intense experiences. The current study will examine factors contributing to this state.

### 2.2. Flow in video games

Video games differ from traditional media, such as movies, in that individuals are not simply a passive audience, instead individuals are active participants (Qin, Rau, & Salvendy, 2009). A num-

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