Full length article

Emotion, anthropomorphism, realism, control: Validation of a merged metric for player–avatar interaction (PAX)

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A R T I C L E I N F O	A B S T R A C T
	This article proposes a validated 15-item scale that merges theoretically divergent perspectives on player–avatar relations in extant literature (parasociality as psychological merging and sociality as psychological divergence) to measure player–avatar interaction (PAX). PAX is defined as the perceived social and functional association between an MMO player and game avatar, inclusive of four factors: emotional investment, anthropomorphic autonomy, suspension of disbelief, and sense of player control. These four factors were stable across two large multi-game (*N* = 494) and game-specific player samples (*N* = 458), in both exploratory and confirmatory factor analyses. Construct validity tests show scale dimensions have expected significant relationships with a sense of human-like relatedness and player–avatar relationship features, and predictive validity tests indicate theoretically likely and relevant factor associations with gameplay motivations and MMO genres.

1. Introduction

From the quirky, two-dimensional characters in *Maple Story* to the vivid, complex humanoid figures in *Final Fantasy XIV*, avatars in massively multiplayer online games (MMOs) in many ways moderate the ways that players experience game mechanics and narratives, social interactions, and digital environments and characters. Broadly, game avatars are understood as interactive graphical representations of the player in the gameworld (Meadows, 2008) that transmit player agency, identity, and presence into that space (Little, 1999). This psychological merging of player and avatar (Lewis, Weber, & Bowman, 2008) is a form of parasocial interaction (Horton & Wohl, 1956) and an important moderator of many gameplay experiences and effects. However, recent scholarship suggests that avatars may sometimes be experienced as mere objects or as distinct social agents rather than self-representations (Banks, 2015). The present study sought to evaluate the generalizability of the social perspective on player–avatar relations and to empirically evaluate the potential intersections of the social and parasocial perspectives, ultimately toward the development and validation of a comprehensive metric to address the full spectrum of variably social player–avatar interactions.

2. Literature review

Toward understanding the nature of avatar-moderated gameplay, scholars have taken various approaches to understanding the connection between the player and the avatar. Historically, these approaches have drawn from theories of parasocial interaction (PSI; Horton & Wohl, 1956). PSI is generally understood as the experience of a faux relationship between a media user and a media figure or character, where the user perceives and responds to the character as though they were actually in a social relationship (Horton & Wohl, 1956), ostensibly as an alternative form of companionship in the face of loneliness (Rosengren & Windahl, 1972). PSI has traditionally been engaged as monolithic construct, however some approaches encompass multiple distinct dimensions such as identification, interaction, companionship, medium or content or celebrity elements, empathic response, and mirroring everyday social interaction (see Giles, 2002; for a review).

Both unitary and multidimensional approaches point to the audience–character relation as a key mechanism underlying entertainment experiences (Conway & Rubin, 1991), and comprise impression formation followed by one or more cognitive, affective, and behavioral processes (Klimmt, Hartmann, & Schramm, 2006).

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Parasocial perspectives on player–avatar relations are strongly rooted in these notions, but have emerged somewhat differently since interactive media (including digital games) introduce features that fundamentally change the nature of audience–character interactions. In particular, new media formats provide opportunities for reciprocity (that is, the on-screen figure can provide feedback to the audience) and new media characters may appear less authentic or real than traditional media characters (as they governed by algorithms and illustrated in pixels; Hartmann, 2008). Further, the interactivity intrinsic to these media allow audiences to influence the form and content of on-screen events (Bowman, Banks, & Downs, in press; c.f. Steuer, 1992).

Considering parasociality within the context of interactive media, Lewis et al. (2008) suggested that – as with television audiences – gamers connect with game characters in relationships that are one-way, non-dialectical, and exist wholly in the mind of the players; however through game mechanisms of character feedback and player agency, a meaningful connection manifests as player and avatar become a psychologically merged monad. This "character attachment" (CA) is characterized by strong identification with the character, suspension of disbelief, sense of control over the avatar, and a sense of responsibility for the avatar's well-being (Lewis et al., 2008). Past work applying CA to gaming has found associations between CA dimensions and pro- and anti-social gaming motivations (Bowman, Schultheiss, & Schumann, 2012) as well as enjoyment and appreciation responses to gaming (Bowman, Rogers, & Sherrick, 2013).

Recent scholarship, however, challenges the assumptions of parasociality in the player–avatar relation (PAR), instead suggesting that the connection may be two-way and dialectical (Banks, 2015; Banks & Bowman, 2014), since the avatar is sometimes engaged as a distinct social actor "capable of changing [its] environment and reinforcing [its] autonomy" (Touraine, 2000, p. 902). That is, the avatar functions autonomously according to its governing mechanics and exists legitimately in the gameworld environment and narrative (cf. Bogost, 2012; Harman, 2005); the avatar influences the player through social mechanisms, just as the player influences the avatar. In these ways, the connection between player and avatar sometimes meet more traditional definitions of human social relationship: a valenced connection between two people in which each influences the other (Berscheid & Peplau, 1983; Harvey & Pauwels, 2009).

Exploratory studies of players' subjective experiences (Banks, 2015) show that avatars are indeed engaged as variably social, with the degree of sociality dependent on three relational patterns: variations in a) self-identification and self-differentiation (the degree to which the avatar is experienced as something existing legitimately apart from and differently from the player), b) emotional intimacy (deep affective attachment manifesting in language of care and senses of shared experience), and c) senses of shared or distinct agency (moral decision-making and responsibility-taking, and the functional abilities to carry out those decisions). Low sociality, then, is characterized as seeing the avatar as a mere object or gamepiece, with high self-differentiation (it is not 'me'), low emotional intimacy, and high player agency. Moderate sociality is more akin to parasociality in seeing the avatar as an extension of the player, with high self-identification, moderate to high emotional intimacy, and a shared or merged sense of agency. Finally, high sociality is characterized by seeing the avatar as a distinct social agent or as existing symbiotically with the player, featuring high self-differentiation, high emotional intimacy, and either distinct or shifting agencies (Banks, 2015; Banks & Bowman, 2014). In this framework, player–avatar relations exist along a continuum of sociality.

Although it could be argued that it is the perception of the avatar that constitutes the degree of sociality and so the interaction is still parasocial, it has been conversely posited that perception and imagination play an important role in interactions of *any* kind (e.g., Goffman, 1959; Honeycutt, 1993), so interaction with media characters may simply be considered permutation of everyday social cognition (Giles, 2002). Even live human beings are subject to different degrees of perceived autonomy and personhood at individual and social group levels, leading to variations in how they may be perceived as social agents (see Haslam, 2006). Following, the degree to which an on-screen agent is anthropomorphized – through the assignment of perceived humanness and/or through the perception of inherent, human-like properties or of semantic indicators (Giard & Guitton, 2010; Nowak & Rauh, 2005) – may influence the degree to which the avatar is actively, socially engaged according to the norms emerging from everyday human interactions (e.g., Lortie & Guitton, 2011; Reeves & Nass, 1996).

As the sociality-continuum approach to player–avatar relations emerges from limited, interpretive scholarship, the present study seeks to first to evaluate the model's generalizability. We ask:

RQ1: Can exploratory indicators of player–avatar relationships be translated to a meaningful survey instrument to measure PAR sociality?

This nascent body of work also suggests that although the two approaches are theoretically divergent – with parasociality operationalized as psychological merging and sociality proposed as psychological divergence – there is conceptual overlap in many of their constitutive factors. In particular, PAR's self-differentiation, functional agency, and emotional intimacy dimensions are respectively related to CA's identification, sense of control, and responsibility dimensions (Banks & Bowman, 2014). However, highly social and highly parasocial relations have been shown to be associated with the *same* gaming experience effects: heightened prosocial gaming motivations, heightened narrative involvement, and more eudaimonic entertainment experiences (Banks, 2013; Bowman, Rogers, & Sherrick,; Bowman et al., 2012). To explore these tensions and to evaluate the degree to which the two theoretically distinct perspectives on player–avatar relations may converge or diverge, we ask:

RQ2: Are dimensions of PAR sociality and CA empirically distinct?

Analyses of parasocial and social dimensions of player–avatar relations reveals that blending the two perspectives provides a more comprehensive model of the full range of relational possibilities – parasocial character attachment addresses ludo-narrative dimensions of gameplay and social perspective addresses interpersonal relationship dimensions (Banks & Bowman, 2014). In particular, an integrated model should incorporate from both perspectives relationship features of a) self-identification/ differentiation, b) perceived anthropomorphism c) suspension of disbelief, d) sense of care/emotion/responsibility, e) senses of player/avatar agency. Following Horton and Wohl's (1956) call for an understanding of how PSI (here, as the prevailing perspective on player avatar relations) may be integrated into a broader matrix of social activity, we ask:

RQ3: Can PAR sociality and CA dimensions be synthesized into a survey with (a) predictive and (b) convergent validity?