Computers in Human Behavior 55 (2016) 455–467

Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Heterogeneous knowledge distribution in MMO player behavior: Using domain knowledge to distinguish membership in a community of practice

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ARTICLE INFO

Article history:
Received 4 May 2015
Received in revised form
26 August 2015
Accepted 21 September 2015
Available online 5 November 2015

Keywords:
MMO
Community of practice
Expertise
Social learning

ABSTRACT

Current examinations of expertise in the Massively Multiplayer Online (MMO) domain focus primarily on player performance; explorations of player knowledge, however, have the opportunity to meaningfully supplement these studies. Including player knowledge in MMO studies provides the framework needed for a detailed examination of the role of experience and community membership in defining engaged MMO players within a larger population of potential players. Using the Community of Practice framework, we developed a measure of participant's knowledge of MMO specific language to identify individuals who actively engage with other players, a constantly shifting subpopulation who are meaningfully different than those who are not actively participating. We used membership in a community of practice, as determined by our knowledge assessment, to examine the effectiveness of broader demographic questions and more MMO specific demographic questions in creating a predictive model of membership. Our findings indicate that demographics specific to MMO players are more predictive of membership than those used for a general population. Consequently, we recommend that future studies use knowledge-based measures to identify a subpopulation of engaged MMO players within a larger population, allowing researchers to describe their effects with greater precision.

1. Introduction

Research into player behavior within Massively Multiplayer Online (MMO) games approaches the question of player expertise through a performance-oriented framework. While a methodology focusing on player demographics and performance—using efficiency measures, goal directed observation, server-side player statistics, and self-reported player information—is useful for the evaluation of player expertise and relevant game-related behavior, this approach neglects player specific factors that lie outside of game mechanics. In the acquisition of expertise in an MMO, players must deliberately practice skills and achieve a deep and broad knowledge of the MMO (Phillips, Klein, & Sieck, 2004; Schrader & McCreery, 2008). Unlike in single player games, players acquire both skill and knowledge by sharing information with other players and helping them complete joint activities (Ashton, 2009; Carter, Gibbs, & Harrop, 2012). Sharing both experiences and provisional understandings of the game strengthens knowledge of the game for all players. Additionally, these shared experiences establish deep connections among the players engaged (DeSanctis, Fayard, Roach, & Jiang, 2003; Stigliani & Ravasi, 2012; Wenger, 2000); these dialogic negotiations of the MMO, often recorded in online communities created to host these discussions, assist in the formation of a sense of common identity amongst these engaged players (Ashton, 2009; DeSanctis et al., 2003). MMO research that focuses exclusively on the measurement of performance outcomes does not account for the influence of this player interaction and community membership on player behavior. We seek to apply methods and theory established in research on Expertise and Communities of Practice to the MMO domain, using this approach to differentiate users based on their participation in these MMO communities and determine the predictive validity of social learning oriented questions for evaluating a player's skills, compared to the more commonly applied demographic (i.e. player characteristics) and performance based methods.

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http://dx.doi.org/10.1016/j.chb.2015.09.032
0747-5632/

1.1. What is an MMO?

The term Massively Multiplayer Online (MMO) game is defined as an online game where users interact in a persistent virtual world, using self-created digital characters known as 'avatars' (Steinkuehler, 2004). These games are complete microcosms, each with their own distinct economy, culture, and social spaces, which can extend outside the game itself (Alemi, 2007; Lin & Sun, 2005; Warner & Raiter, 2005). As players encounter new challenges, they gradually piece together an understanding of the environment and the means by which they can overcome these challenges, in a process known as *sensemaking*. Sensemaking describes the process by which individuals are confronted with an unfamiliar situation and attempt to organize the incoming stimuli into a coherent narrative (Klein, Moon, & Hoffman, 2006; Stigliani & Ravasi, 2012; Weick, Sutcliffe, & Obstfeld, 2005). By repeatedly trying new approaches to gameplay, interpreting ambiguous information received from the game, and reflecting upon the results of individual and collective actions, players create an ever-changing, shared understanding of the world (DeSanctis et al., 2003; Stigliani & Ravasi, 2012).

Players can also acquire information about the MMO playspace through interacting with other players, both within and outside the game. MMOs, by their very nature, are social experiences; players create and maintain social relationships, share strategies, and discuss myriad topics unrelated to the game (Castronova, 2001; Steinkuehler & Williams, 2006; Yee, 2006). MMOs include a feature that allows players to communicate with one another in-game, using either a text-based social interaction system or an integrated voice over internet protocol (Castronova, 2001; Wadley, Gibbs, & Benda, 2007). Through the continuously operating chat interface, players can have the dense dialogue—providing opinions, experimenting with new ideas, and reflecting upon player actions—needed to establish a collective sensemaking process (DeSanctis et al., 2003; Steinkuehler & Williams, 2006; Stigliani & Ravasi, 2012). Players can communicate with one another not only through the game itself, but also through the use of intermediary social spaces (e.g. forums, message boards), to share information within the game community (Ashton, 2009; Castronova, 2001). In these spaces, players can collaborate to explore the limits of the game, and build a coherent, shared understanding of the game and a set of practices based on that understanding (Ashton, 2009; DeSanctis et al., 2003; Kong & Kwok, 2009).

In MMO gameplay, the relationship between the player and the game extends beyond the designer-intended experience; the communal nature of an MMO facilitates communication between players, opening players up to play acts beyond the scope of what the game's designers originally intended (Carter et al., 2012; Steinkuehler & Williams, 2006). Player interaction, both collaborative and competitive, introduces another level of play beyond performing in-game actions in order to achieve game-related goals; consequently, a decomposition of player–player interaction and player–game interaction is pertinent when discussing player behavior in MMOs (Castronova, 2001; see Hoffman, 2013 for a detailed decomposition). We use the term *orthogame*, as established by Carter et al. (2012), to refer to the designer-intended game experience, comprised of in-game activities, challenges, and narratives (Arsenault, 2009; Carter et al., 2012; Taylor, de Castell, Jenson, & Humphrey, 2011). At this level of game experience, players achieve mastery of the game's mechanics, accomplish in-game goals, receive pieces of narrative, and engage with the game environment itself (Reeves, Brown, & Laurier, 2009; Schrader & McCreery, 2008).

We contrast these designer intended experiences with the *metagame*, in which players act or consider resources beyond the scope of the orthogame to accomplish in-game goals or to attain an advantage against other players (Carter et al., 2012; Paul, 2011). The metagame is defined as play beyond the mechanics of gameplay, consisting of opponent-centered strategy, use of out-of-game knowledge for in-game purposes, and peripheral content that facilitates alternate approaches to gameplay (Carter et al., 2012; Paul, 2011). MMO players attempt to make sense of their situations and improve their skills not just in terms of the game's mechanisms, the orthogame, but also in terms of playing with and against other players, the metagame, both of which are separate sets of skills, each with different training needs (Carter et al., 2012; Hoffman, 2013). For instance, playing poker requires learning the rules and procedures of the game (the orthogame) as well as the ability to 'play the players' (the metagame). These skills are interrelated but distinct (Carter et al., 2012).

Much like the separation between the mechanical and social play of poker, the delineation between orthogame and metagame is a critical distinction for MMO behavior research (Carter et al., 2012). Skills acquired from previous gameplay can influence users' behavior, so players' domain specific knowledge must be ascertained to avoid conflating skilled players with their less skilled counterparts (Schrader & McCreery, 2008; Phillips, Klein, Sieck, 2004). The field of research on behavior in MMOs includes a rich examination of performance-oriented research, which emphasizes orthogame skill, but does not include any metagame knowledge or accomplishments since performance alone is insufficient to measure metagame interactions among players. Orthogame measurements can be acquired from the user—through self-reports of efficiency, time-on-task, and expertise—or directly from an MMO Company's server records—noting economic status, achievements, equipment value, and other character information (Lewis & Wardrip-Fruin, 2010; Shim, Sharan, & Srivastava, 2010; Shim et al., 2011; Taylor et al., 2011; Wang et al., 2011). Even studies that discuss metagame information—i.e. Huffaker et al. (2009) evaluating the relationship between achievements and meta-expertise, Caplar, Suznjevic, and Matijasevic (2013) discussing player use of design flaws to further their in-game goals, and Reeves et al. (2009) emphasizing the importance of team-on-team strategy—focus primarily on orthogame measures and the interactions between the players and the game environment. Metagame ability, concerning interactions between players, requires the use of knowledge and skills that are not exclusively taught through the orthogame, so the assessment of this ability requires the measurement of different factors (Carter et al., 2012). This distinction between orthogame and metagame, however, is rarely discussed in MMO player behavior research and discussion about the need for non-performance-based measures is rarer still.

1.2. Data collection in the MMO behavior literature

MMOs provide an opportunity to evaluate players' progression as they learn to play the orthogame and a means to examine how they learn to interact with other players in the metagame during this time period (Carter et al., 2012; Steinkuehler, 2004). Research on MMO player behavior tends to emphasize players' orthogame experience, hence the methodologies are frequently characterized by the measurement of time spent pursuing in-game tasks that reward effort and players' performance efficiency (Bosser & Nakatsu, 2006; Reeves et al., 2009; Schrader & McCreery, 2008; Taylor et al., 2011; Wang et al., 2011). The methods by which performance and expertise are typically evaluated include time measurements during gameplay, action efficiency, exceptional combat performance, and skill and knowledge of game interfaces and mechanics (Huffaker et al., 2009; Reeves et al., 2009; Shim, Ahmad, Pathak, & Srivastava, 2009; Taylor et al., 2011).