

Leadership in a Networked World: The Case of Massive Multiplayer Online Environments

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Abstract: MMOGs (Massive Multiplayer Online Games) and MMORPGs (Massive Multiplayer Online Role-Playing Games) are considered to be complex, ever increasing systems with a full range of social and material practices, where true mastery of the game can only be achieved by working collaboratively with other players. In situated learning theory, it is argued that learning, thinking and knowing emerge from a world that is socially constructed. Just as in a real world community, when newcomers enter a MMOG, they are gradually introduced to a complex social framework through the tutelage of other community member. They learn to make sense of new areas, especially by engaging with others, discussing, reflecting, and sharing. In order for players to succeed in these games, they have to self-organize and collaborate in order to form guilds; constantly improve to remain competitive, visioning the enemy's and guild's reaction. Nevertheless, these are important leadership skills for the real world as well, revealing multiple similarities that link the gaming world and the real world. In this sense, it is imperative to understand how these virtual environments can develop or enhance skills that are important for a person's life and work in the 21st century. This realization stresses the need for researching and analyzing the social structures that players create through their interactions with other players. However, despite the significant amount of educational research and the growing interest of the scientific community in MMOGs, there is a lack of empirical research considering cognitive and social aspects of these games. This paper outlines the theoretical rationale behind a doctoral research project currently in progress, which examines the leadership skills that can be developed in a self-organized community in MMOGs. In order to address these issues, this paper presents a theoretical framework for analyzing the social interactions in Multiplayer Serious Games, within the context of community of practice, activity theory, connectivism, self-organization and autopoietic theory.

Keywords: MMOGs, leadership, activity theory, connectivism, self-organization, autopoietic theory, communities of practice

1. Introduction

Online games, such as MMOGs (Massive Multiplayer Online Games) and MMORPGs (Massive Multiplayer Online Role-Playing Games), are not simply games in the traditional rules-based sense, but rather "persistent social and material worlds, loosely structured by open-ended (fantasy) narratives, where players are largely free to do as they please" (Steinkuehler, 2004). MMOGs are considered to be complex learning systems with a full range of social and material practices (Steinkuehler, 2004).

Moreover, the emergence of virtual worlds has changed the ways that business may be conducted (Fetscherin, 2008), while the relationship between gaming and real life is both socially and economically significant (Castronova, 2005; Taylor, 2006).

Lately, the scientific community focus its attention to the development of leadership skills, which can be enhanced or developed in virtual worlds and multiplayer games, and their transferability to real life and work situations. A number of researches, as the representative example of IBM, studied the identification of employees with leadership skills in virtual worlds and explored the characteristics of leadership in a popular MMOGs (IBM, 2006; DeMarco, Lesser, O'Driscoll, 2007; IBM, 2007; Kahai,

Carroll, & Jestice, 2007). According to these studies, leadership behaviors appear to be relevant in both gaming and corporate environments (IBM, 2006; 2007), and that MMORPG leadership approaches can be used to improve leadership effectiveness within the enterprise (Reeves et al., 2007). By leveraging the lessons from online gaming environments, companies can gain a better understanding of the ways in which the next generation of leaders will need to operate in the future (IBM, 2006; 2007; Reeves et al., 2007).

However, despite the significant amount of educational research and the growing interest of the scientific community in MMOGs, there is a lack of empirical research considering cognitive and social aspects of these games (Steinkuehler, 2004). This paper outlines the theoretical rationale behind a doctoral research project currently in progress, which examines the leadership skills that can be developed in a self-organized community in MMOGs.

2. Theoretical background

In situated learning theory, Lave and Wenger (1991) argue that learning, thinking and knowing emerge from a world that is socially constructed. Lave and Wenger were the first to introduce the concept of a Community-of-Practice (CoP), based on socio-cultural learning theory of Bandura (1962). In such communities, learning is not usually deliberate and happens naturally as learners become members of a community of practice, adopting the culture of the community and taking on the role of an experienced member. The key concept of learning in communities of practice is the intrinsic interest for participation in the community, which requires newcomers to move towards full participation in the community (Galarneau, 2005). Thus, the newcomers are inevitably involved in the community and the acquisition of knowledge and skills is a result of their full participation in the sociocultural practices of the community (Lave & Wenger, 2001).

Activity Theory extended the relationship between the individual and the community to the much more complex idea of "the dialectical relations between human agents (subjects) and that which they act upon (objects) as they are mediated by tools, language, and socio-cultural contexts." (Squire, 2002; Engeström, 1993). This is described as a constitution of Subjects, Objects, Tools, the community of a system, Rules and Division of Labor (Figure 1).

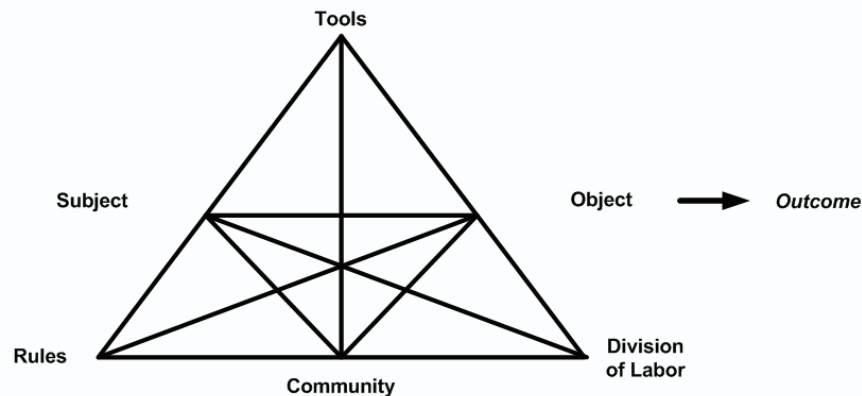


Figure 1: Activity system

Later, Connectivism thought of a community as the clustering of similar areas of interest that allows for interaction, sharing, dialoguing, and thinking together Siemens (2004). The starting point of connectivism is the individual, and while a person has its personal knowledge, this is shared through nodes - a learning community is described as a node - into a larger and ever extending network of peers, colleagues and why not players. Nodes can vary in size and strength, depending on the concentration of information and the number of individuals who are navigating through a particular node (Downes, 2006). In this sense "learning is no longer an internal, individualistic activity" (Siemens, 2005). As Siemens (2006) has suggested, "the learning is the network."

This connection of nodes and networks can be related to the theory of self-organization, which stems from the fields of biology, where the living organism spends much of its life as thousands of distinct units, each of which moves separately from the others, but then, under the right conditions, those thousands cells will be merged into a single larger organization (Wheatley, 1999). The term Self-organizing Systems refers to the systems that are able to change their internal structure and their function in response to external circumstances and have been discovered in nature, in the non-living (e.g. stars) and living world (e.g. organisms).

This analysis of living systems and cognition was the base for the development of Autopoietic theory, which provides a theoretical framework for analysing the social systems in which we, as living organisms, participate. Taking the example of autopoiesis is a cell, Maturana and Varela viewed autopoietic systems as unities, "as network of productions of components, which through their interactions generate and realize the network that produces them and constitute, in the space in which they exist, the boundaries of the network as components that participate in the realization of the network" (Maturana, 1981, p. 21).

In an attempt to analyse social systems as autopoietic systems, Luhmann studied the autopoiesis of social systems, defining communications as the basic elements of social systems. He viewed communications as the essential elements for any social system, “recursively produced and reproduced by a network of communications and which cannot exist outside of such network” (Luhmann, 1986, p.174). Later, Teubner (1988) attempted to describe law and the legal system as an autopoietic system, while Robb (1989) described the field of accounting and Zeleny and Hufford (1992) cite the family as autopoietic social systems. These studies aimed to extend the applications of Autopoietic theory, which seem to provide an interesting theoretical basis for addressing our everyday social interactions, constituting a very complex social system in which we all live and strive to survive.

2.1 The social structure of MMOGs

MMOGs are considered to be self-organized, complex learning systems with a full range of social and material practices (Steinkuehler, 2004). In MMOGs, players are part of communities within which they work together to kill enemies, exchange goods and develop their status and solidarity (Lau, 2005). Just as in a real world community, when newcomers enter the game, they are gradually introduced to a complex social framework through the tutelage of other community member. They learn to make sense of new areas, especially by engaging with others, discussing, reflecting, and sharing.

Guilds in multiplayer are groups that have formed naturally, fulfilling the definition of collaborative groups (Siitonen, 2009). These virtual communities are formed spontaneously, and the learning processes occur naturally and continuously (Steinkuehler, 2004). In MMOGs, players self-organize into communities of practice (clans, guilds) around a game activity, yet “this self-organisation results in the development of a range of capabilities towards which the players are not directly striving, but are fundamental to mastery within the environment” (Galarneau, 2005).

This social and constantly changing collaborative world of MMOGs seem to be a good example of connectivism in full practice and an interesting field of research concerning the distribution of knowledge across the network of players. As Galarneau (2005) states “only by examining social learning in an environment where it occurs naturally through spontaneous self-organisation of participants into learning ecosystems will we gain insight into its true possibilities within an educational framework”.

The social structure of MMOGs (and MMORPGs) is thought to explain their popularity, offering opportunities for shared experience, collaboration, reward and reputation in the group members. In these complex systems the groups and communities have to fulfil increasingly complex tasks, often requiring precise coordinated effort and high levels of communication and collaboration, increased with the complexity of the tasks at hand (Siitonen, 2009). Thus, as Siitonen (2009) states “it is not surprising that leadership, both formal and emergent, is an integral element of the social organization of many player organizations”. The social organization and the dynamics of group structure and role – playing in MMOGs have been studied in previous studies (Koster, 2005; Reeves et al., 2005), stressing the importance of the community in these games and focusing on issues of leadership and leadership communication, which can have drastic effects on the operation and social cohesion of online groups.

Moreover, as Klabbers (2006, p.18) state, “free-form games are self-organising, or self-reproductive (autopoietic systems). However, these definitions of have received only minor attention in the literature”. Online games, such as MMOGs, represent an important element of a networked society and of digital culture, and the experience in games challenge many of our traditional views of game, play and society (Corneliusson & Rettberg, 2008, p. 7). Understanding these complex forms of participation in communities and environments such as MMOGs, where learning is the forerunner of the game is critical.

2.2 Leadership in virtual teams

Leadership theories have developed over the years, and various models have been applied to many domains, such as corporate organization, politics and economies. From the Blake and McCauley's Leadership Grid (1991), Robert House's path-goal theory (1971), to Bass's Transformational leader (1985) and Gerstner and Day's LMX (Leader-Member Exchange) theory (1997), researchers are trying to find out “what makes an effective leader”.

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A leader's role is to develop the members of his/her team into a coherent, seamless, and well-integrated work unit, focusing on the enactment of team orientation and coaching to establish team coherence (Kozlowski et al., 1996). However, in a more and more networked world, where "business becomes increasingly distributed and virtual in nature, what kinds of leaders might emerge and what attributes will they have?" (Reeves et al., 2005). Over the years, team-based work units have become increasingly more prevalent and, with advances in technology, there has been an emphasis on distributed, virtual teams as organizing units of work (Bell & Kozlowski, 2002).

Virtual teams are "groups of geographically and/or organizationally dispersed coworkers that are assembled using a combination of telecommunications and information technologies to accomplish an organizational task" (Townsend et al., 1998, p. 17), and as Bell and Kozlowski (2002) state they "will play an important role in shaping future organizations, we know relatively little about them".

And despite the benefits from virtually distributed work (such as high flexibility), there seem to be some difficulties associated with coordinating and controlling virtual work (Bell & Kozlowski, 2002), arising the important issues of team orientation and team coherence. Thus, leadership is thought to be an essential element for success in virtual teams (Bell & Kozlowski, 2002; Yoo & Alavi, 2004).

Yet, many unknown aspects of leadership in virtual teams seem to be unknown (Bell & Kozlowski, 2002) and more empirical studies of leadership within virtual teams are needed (Yoo & Alavi, 2004). The limited research on leadership in virtual teams suggests that a successful team needs guidance, some structure, and effective communication, but leadership is typically examined indirectly if at all (Martins, Gilson, & Maynard, 2004).

As Lisk, Kaplancali and Riggio (2011, p.2) state "by examining leadership in context, researchers can understand leadership in a specific situation, and they can use this knowledge to inform predictions in a similar situation that has not yet fallen under the lens of science".

2.2.1 Leadership in MMOGs

MMOGs are thought to enable players to self-organize, develop skills and change roles, providing opportunities for taking risks, seeking for improvement and accepting failure through collaboration and communication channels. In such collaborative environments, a leader must be able to inspire players, urging them to collaborative in order to achieve shared goals.

In MMOGs, guild leaders seem to recruit, organize, motivate and direct large groups of players toward a common goal in a distributed, global, hyper-competitive and virtual environment (IBM, 2007). A guild leader must make decisions quickly, often based on incomplete information. These kind of qualities of gifted gaming leaders seem to be similar to those needed in a corporate setting (IBM, 2006; 2007).

In search of leadership skills in MMOGs, IBM conducted a study in a popular MMOG called World of Warcraft (WoW), taking into account the leadership behaviors described in Sloan Model (Reeves et al., 2007), in order to compare the leadership behavior in MMOGs and corporate environments. Using the Sloan Leadership Model (Malone, 2004; Ancona et al., 2007), usually applied for analyzing distributed leadership, Reeves et al. (2007) revealed that leaders in MMOGs have important leadership skills such as sensemaking, visioning, relating, and inventing. In general, good leaders have at least a minimal competence on all four capabilities, but no leaders are perfect on all dimensions.

This study revealed that leadership behaviors appear to be relevant in both gaming and corporate environments. Important skills such as self-organizing and regulating behaviors seem to be more appropriate in an increasingly flexible and virtual environment. However, collaborative behaviors were found to be vital to leadership success within MMORPGs and will be increasingly so within corporate environments, where more than ever, employees are becoming increasingly distributed and virtual, with different culture and social needs, are expected to collaborate and share their knowledge (IBM, 2006; 2007). The best gaming leaders build credibility by first creating strong personal relationships with their followers, revealing the most important skills in these games; the ability to communicate, organize and activate guild members (IBM, 2006; 2007). According to the implication of these findings, virtual leaders should focus on developing trust among the members of their team,

visioning the future and communicating with a diverse team of people, making quick decisions based on scarce information and giving immediate feedback and rewards (IBM, 2006; 2007).

Moreover, other studies highlight as important leadership skills the ability for conflict resolution, discipline, motivation, coordination, nurturing and emotional support, delegation, training, retention, recruitment, scheduling, and politicking (Castronova, 2005; IBM, 2006; IBM, 2007; Reeves et al., 2007). According to the findings of these studies, there are lessons to be learned in corporate environments from the paradigm of leadership in MMOG.

2.3 The need for research

Most players of MMOGs, usually state that the most attracting feature of this game is “the social factor” (Ducheneaut, Yee, Nickell & Moore, 2006) emphasizing the importance of joint activities and time spent in groups (Goh, 2010). As Galarneau (2005) states “MMOGs, in particular, present a tremendous opportunity to explore a nascent area of media convergence, while understanding how the naturally occurring phenomena of self-motivated social learning, sociocultural participation, and collaborative problem-solving can be leveraged into other contexts”.

According to Gee (2008, p.34), “such games hold out the potential for the discovery of new forms of social organization, new ways of solving social problems, and new ways of researching and testing collaborative learning, knowledge building, and performance.

Despite the scientific community’s focus on understanding the social interaction that occurs within the limits of virtual worlds, the majority of research focuses on using scientific methods of empirical investigation of the interaction of people with their virtual worlds, offering little empirical data to assess the social experiences of players and the social nature of virtual worlds (Steinkuehler, 2004; Bonk & Dennen, 2005; Ducheneaut, Yee, Nickell & Moore, 2006). Moreover, there is such a lack of empirical research considering cognitive and social aspects of these games (Steinkuehler, 2004; 2007).

On this basis, there is a need for researching the social structures formed in these multiplayer games through their interactions with their players. Important issues concerning MMOGs are associated with the sense of community developed in these games, the group structure, the endogenous and exogenous factors that stimulate their users, the collaboration between users, and cognitive skills such as decision making, problem solving, and develop leadership characteristics (Bonk & Dennen, 2005; Ducheneaut, Yee, Nickell, Moore, 2006; Sidorko, 2009; Papargyris & Poulymenakou, 2009; Wyld, 2010; Konetes 2010).

Such studies can shed light on the factors that enhance the effectiveness of virtual environments and promote the creation of user communities. The study of social structures and relationships between individual and social factors should reveal ways to develop cognitive, emotional skills and social skills, such as leadership skills in the context of virtual communities. These can be important life skills for surviving, living with others, and succeeding in a complex society.

The potential of these popular environments should be studied in order to exploit and enhance the capabilities of educational and training virtual environments. It is important to understand how to achieve the development of skills in unconventional environments, in contrast to the conventional classroom environment to promote educational theory and practice beyond the preset limits and stereotypes (Lave & Wenger, 1991, in Steinkuehler, 2004). Scientific results in view of these skills in MMOGs and MMORPGs can be used to improve leadership effectiveness in real life, enterprise and training settings, and revealing ways to educate the next generation of life leaders.

3. Research method and approach

This paper outlines the theoretical rationale behind a doctoral research project currently in progress, which examines the leadership skills that can be developed in a self-organized community in MMOGs.

The main questions that this project attempts to address are:

- What characteristics, related to the social nature of MMOGs, activate leadership skills?
- Do these leadership skills activate teamwork and sense of community?

- What MMOGs can teach us about the design of successful online social spaces and activities for teaching leadership skills?

Moreover, it is noted that “researchers interested in pursuing leadership in games would be well served to start by seeing if the foundation is strong, as there are evidences that leading a virtual team has many differences that using leadership techniques when leading a traditional team” (Lisk, Kaplancali & Riggio, 2011, p.12).

Thus, the first stage of this research approach is an in depth exploration of the basic leadership theory models, in order to assess their suitability for analyzing the virtual teams of MMOG players. This project aims at highlighting the characteristics of these social massive gaming communities that foster leadership skills and activate team work, offering design principles and educational activities for teaching leadership skills to virtual teams.

Online gaming environments offer an opportunity to gather data remotely and anonymously (Wood, Griffiths, & Eatough, 2004), either by the environments itself, or using self-reports from the players. And while ethnographic research has the benefit of understanding true depth and context, this can never be fully captured by survey or experimental methods (Ducheneaut, Yee, Nickell, Moore, 2006). In this project a multi-method approach will be used to take advantage of ethnographic work (depth) and combining it with the advantages of most survey-based work (breadth and representativeness) (Ducheneaut, Yee, Nickell, Moore, 2006) in order to bring together the strengths of both forms of research to validate results.

The unit of analysis for this PhD project will be the individual leader of a guild in a MMOG. The individual analysis was chosen since this project aims at focusing on the leaders' skills (Subject) and their affect to the guild's teamwork and sense of community (Community), according to Activity Theory, which will be the main framework of this study.

3.1 Preliminary findings and research contribution

In order to investigate the relationship of MMOGs' players, a preliminary study was conducted in a population of 64 guild members, playing a MMOG called World of Warcraft (WoW). The research focused on this MMOG, due to its popularity across the globe. The preliminary work of this thesis focused more on the investigation of the relationship between physiological factors in MMOGs, such as sense of belonging in a group (McMillan & Chavis, 1986) and intrinsic motivation (Malone & Lepper, 1987). The research hypotheses where:

Ho1: *Is there a relationship between the sense of community and performance in the game?*

Ho2: *Is there a relationship between the sense of community and intrinsic motivation in playing the game?*

The reliability of the instrument used in this research (Cronbach's Alpha) was $\alpha=0,736$. Pearson correlation analysis indicated a strong positive relationship between sense of community and intrinsic motivation ($r=0.479^{**}$) and between sense of community and game performance (0.298^{*}) (Mysirlaki & Paraskeva, 2010). The findings of the research imply that the development of communities in a game is possible to increase intrinsic motivation to players and enhance their performance in the game.

For the purposes of this PhD thesis, the activity system theory will be used to analyze MMOGs (such as the game WoW) not as just games, but as complex systems that have characteristics that can be useful for other domains, such as enterprise and training settings, by exploring players' leadership skills and their effect on their team.

In a multiplayer game, an activity theory system would represent the interactions among the Subjects, the Objects, the Tools, the Rules, the Community and the Division of Labor as they appear in a game, forming large communities in an expanded and more complex socio-cultural context. Thus, Activity theory could be an interesting theoretical framework for analyzing these communities of practices, where numerous players interact with others (subject), using the tools of the game (object), under specified rules and create communities, in order to win (outcome) through certain game activities (division of labor). This framework aims at examining the creation of communities and the development of leadership skills in MMOGs, in order to explore and validate factors that could

strengthen or undermine the relationships between players in Multiplayer Serious Games. The study of the social structures of a group and the leadership skills that can be developed in a MMOG, should result to specific design principles that could be used as design methods for developing Multiplayer Serious Games.

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