Collaboration beyond the Game: How Gamers Work Together beyond Gaming Environments to Make Their Shared Gaming Experiences Better

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Introduction

With the advent of the Internet, long distance collaboration has never been easier. A great example of this is massively multiplayer online game (MMOG) environments. This paper will discuss how gamer collaborations, both inside and outside these gaming environments, can serve as examples for business and education online collaboration used to facilitate problem-solving and decision making skills. I have conducted an in-depth literature review that demonstrates first the benefit of games as collaborative distributed cognition and learning tools; investigates the ways gamers mix the realities of multiple digital contexts to solve problems and make decisions both inside and outside of the gaming environment; and lastly explores ways these skills and methods used by gamers today can be capitalized both in business and in the classroom.

Problem Solving and Decision Making

To begin we must first consider what constitutes problem solving and decision-making. Sternberg (2009) in his text *Cognitive Psychology* defines problem solving as "an effort to overcome obstacles obstructing the path to a solution" (p. 429). Anyone who has ever been in a classroom or present in a business setting understands those contexts necessitate problem solving skills. Previously, this problem solving process was a solitary one. However, in recent years many classrooms and businesses have taken a group or team based approach. With the Internet came the need for collaboration across distances, time zones, and cultures as members of a classroom or business can now participate regardless of geographic location.

Sternberg states the benefits of collaborative problem solving by explaining "working in groups often facilitates problem solving" and "solutions reached by groups often are better than those reached by individuals" (p. 430). Additionally, "this benefit is seen most notably when the group members represent a variety of ability levels" (p. 430). Problem solving by its very nature requires judgment calls and decision-making. Sternberg defines judgment and decision making as processes that "are used to select from among choices or to evaluate opportunities" (p. 480). Groups or team-based approaches can also help facilitate decision-making.

Sternberg states:

> Working as a group can enhance the effectiveness of decision making, just as it can enhance the effectiveness of problem solving. By forming decision-making teams, the group benefits from the expertise of each of the members. There is also an increase in resources and ideas. Another benefit of group decision making is improved group memory over individual memory. (p. 486)

Considering the seven steps that make up the problem solving cycle including: 1) identifying the problem, 2) defining the problem, 3) constructing a strategy for problem solving, 4) organizing information about a problem, 5) allocating resources to solve it, 6) monitoring the solving of the problem, and 7) evaluating the solution (Sternberg 2009), group problem solving can be a difficult task. If you have ever participated in a problem solving or decision-making activity with a group of fellow students in the classroom or colleagues in the boardroom, you know just how hectic and strenuous an exercise this is.

Regarding this process from an online perspective, this situation can easily be greatly exacerbated when people are dispersed and disrupted by space, time, and even mutual understanding (especially in multi-cultural situations). The ability to successfully solve problems and make decisions through online collaborations is a goal shared by schools and business alike.

To explore new ways of collaborating online I will look toward gamers and their gaming environments both internal and external as an example because as Gee explains "video games offer people experiences in a virtual world" where "they use learning, problem solving, and mastery for engagement and pleasure" (Gee, 2008, p. 24).

Gamers

So, how can a literature review on gamer collaboration help schools and businesses enhance their own online collaboration efforts? Let me start by defining exactly whom I am talking about when I refer to gamers. You have met them before, may have children that are, or even consider yourself one. This group of people cuts across all demographics including age, race, gender, class, nationality, and education (Squire & Steinkuehler, 2005). Together they spend an average of $7.4 billion dollars a year on their hobby (Smith, 2008), they devote an average of 22 hours a week to it (Reeves et al., 2008), and 67% of American heads of households say they do it (Scordato, 2008).

Video games have become an important part of our culture. They were the first medium to transform the computer from a utilitarian device into a recreational one, thus being the instigators behind bringing computers into the home (Wolf, 2001). Can you imagine life today without home computers? Games are also considered by some to be the driving force behind improvements in computer technology (Wolf, 2001). Video games have evolved quite a bit over the last 30 years as have the cultures surrounding them. Not only are games entertaining, but they are also methods to "promote various types of information literacy, develop information seeking habits and product practices (like writing), and require good, old fashioned research skills, albeit using a wide spectrum of content" (Squire & Steinkuehler, 2005, p. 38).

The Internet provides a new perspective when it comes to gaming, that of collaborative

gameplay. What makes this interesting are the additional benefits collaborative gameplay adds to those listed above, specifically in terms of shared problem solving and decision making skills. These game experiences are unique because they offer gamers "a shared experience with their peers in a collaborative environment" and are "a platform for problem solving" (Simpson, 2005, p. 20).

Additionally they are often "the basis for the gamers' cultural and social connections" due to the "shared gaming experience", which crosses "all cultural and ethnic boundaries" (Simpson, 2005, p. 18). This is important because in a world that is becoming ever closer due to globalization gamers are "more likely to see the value in what's going on in other cultures and were more interested in living in and understanding another culture than non-gamers" (Powell, 2005, p. 323). So, how do gamers collaborate to solve problems and make decisions successfully within these shared multicultural online environments, what can we learn from them, and how can we apply these lessons learned to educational and business environments?

Gamers as Collaborators

Considering gamers as collaborators takes us beyond games themselves and into the collaborative learning, creating, sharing and seeking information culture that has emerged as a result of online gaming. This is particularly important and relevant to massively multiplayer online games (MMOG), where to play the game you are immersed in a world with millions of others and thus must navigate not only the game mechanics, but also the social sphere created out of the modes of collaboration that becomes necessary to participate in to play successfully. To illustrate these points and to narrow the scope of this ever-broadening research topic, I will focus discussion of these topics to the MMOG World of Warcraft (WoW).

What follows in this section is a synthesis of these studies as they apply to collaboration

in terms of distributed problem solving and decision making.

World of Warcraft

Over 10 million people play the massively multiplayer online game (MMOG) World of Warcraft (WoW) (Reeves et al., 2008). In the process of playing this game they must navigate a large amount of information and other people to be successful. In her paper "Mixed Realities: Information Spaces Then and Now", Bonnie Nardi explains what a person who plays WoW must do in order to successfully navigate the game space:

> Here are some details about what the players have to learn: first, you have your character and it is of a particular type. There are nine different types. A character has certain abilities and you need to learn dozens of the abilities that every character has to play the game effectively. As it is a social game, and you are playing with other people, *you also need to know a little about the abilities of their characters* [emphasis added]. In the backpack you carry some of your items: all kinds of potions, weapons, armour and so forth that you acquire to equip your character effectively.

> Your character is of a particular type, but you can customize that type and you have talents. You have to know how to arrange the talents so that your character plays well. You slay monsters and each monster behaves differently. *You have to learn how they behave to be able to defeat them* [emphasis added]. There is an enormous geography: you go out into the world that contains deserts and jungles, forests, mountains, and rivers. It is very elaborate and very exciting, but *you have to know where to go to accomplish your tasks* [emphasis added] in the game.

> Every character can have professions, like herbalism, blacksmithing, or mining, following the medieval theme. *You have to learn how to practice your professions* [emphasis added]. It is a competitive game and there are many tactics and strategies that you have to pick up: how to win, how to form good groups, run a guild, play well, etc. *As a player inside World of Warcraft you are in a constant state of learning, and you are always in need of new information* [emphasis added]. (Nardi, 2008 p. 29)

In the excerpt above I have emphasized key points that help illustrate the collaborative needs of gamers. All of these refer to the information you have to learn to play the game. So,

how do gamers go about doing this? Gee (2008) explains in his discussion of WoW that game designers have become successful where businesses have failed in that they have created ways where people "find great pleasure, excitement, and fun in organizing themselves into cross-functional teams" (p. 33). He states that this is in contrast to business where "such teams have given rise to high stress and a lot of tensions" and that in WoW "millions play on such teams for pleasure" (p. 33). Gee then goes on to clarify his reasoning:

> In World of Warcraft, a hunting group might be composed of a Hunter, Warrior, Druid, Mage, and Priest. Each of these types of characters has quite different skills and plays the game in a different way. Each group member must learn to be good at his or her special skills and also learn to integrate these skills as a team member into the performance of the group as a whole. Each team member must also share some common knowledge about the game and game play with all the other members of the group—including some understanding of the specialist skills of other player types—in order to achieve a successful integration. So each member of the group must have specialist knowledge (intensive knowledge) and general common knowledge (extensive knowledge), including knowledge of the other member's functions. (Gee, 2008, p. 33)

Groups in World of Warcraft

In addition to these hunting groups, or parties as they are called in WoW, there are two other types of groups. Parties are great for small encounters, but for larger ones these "small groups organize into larger groups to go on challenging raids in dungeons" (Gee, 2008, p. 33). These larger groups are referred to as raids. A typical raid these days consists of 10 to 25 people, but in the initial release they required 40 participants to work collectively together to accomplish a singular goal. The way these groups are organized is "each large group is composed of five-person cross-functional teams, and each of these teams has to function well as a team while also integrating quickly and smoothly with other teams in the group to produce a well-choreographed raid" (p. 33). As you can imagine, putting together a group of 10 or more people can "require

intricate preplanning, lots of practice, and skilled orchestration" (p. 33). Additionally, "they require levels of leadership from top-level planners to team leaders, and they demand both excellent vertical (top-down) and horizontal (across all participants) communication" (p. 34).

In order to form more permanent groups in game beyond parties and raids, many people choose to become a part of a guild. Guilds can range from 10 people to multiple hundreds of people. There are several benefits of guilds including the fact that they "provide the opportunity for forming such cohorts that will progress through the game at the same pace" (Ducheneaut, Yee, Nickell, & Moore, 2007, p. 847). In order to be successful they must take on the qualities of "organic, team-based organizations" (p. 847). This type of organizational structure helps "guilds orchestrate organization, planning, and the enforcement of norms and values at a high level—for example, choosing who goes on what raids and how specialized skills (like being a Priest) are to be learned and played-out in practice" (Gee, 2008, p. 34).

Another benefit of guilds is that "getting information and help from guildmates is generally easier than asking random strangers"(Ducheneaut, Yee, Nickell, & Moore, 2007, p. 847). This access to information and resources "provides an incentive for joining a large guild" (p. 847). Though some learning and sharing of information occurs in game due to exposure and experience, it is almost impossible to learn everything you need to know just by in gameknowledge and collaboration alone. Additionally, the larger the group of collective players, such as raids and guilds, the harder it is to coordinate all of the necessary learning and information entirelyin game. Gee (2008) explains that in WoW "reflection and interpretation are encouraged, not just through in game design features, but also through socially shared practices like FAQs and strategy guides, cheats, forums, and other players (in and out of multiplayer settings)" (p. 23).

Virtual Communities of Practice

WoW players have organized these socially shared practices through an extensive array of Internet based virtual communities of practice. Gee (2008) explains "gamers often organize themselves into communities of practice that create social identities with distinctive ways of talking, interacting, interpreting experiences, and applying values, knowledge, and skill to achieve goals and solve problems" (p. 24). Which is important because "these forms of collaboration go further when the player enters Web sites and chat rooms, or uses guides, as part of a community of practice built around the game" (p. 25).

Nardi(2008) explains "information becomes a tool for community building and players are creating different tools not only for gathering and accessing information, but also for sharing and communal usage" (p. 29). These virtual communities of practice "provide new opportunities for 'anytime/anywhere' social interaction, and the number of innovative curricular designs that incorporate online collaborative environments" (Medini, Miyata, &Sagsan, 2009, p. 141). Another way to think of these virtual communities of practice are as collections of people who connect through asynchronous communication tools such as "listservs, email, and discussion forums" (p. 141).The use of these tools has evolved naturally out of the need for gamers to solve problems and make decisions collaboratively outside of the time and space constraints of the game environment.

Looking at these virtual communities of practice presents an "interestingly complex case in the sense that they are built upon three different dimensions; (1) the real world, (2) a fantasy or projective world, (3) an online, virtual world which blend with each other in an interesting manner" (Medini, Miyata, &Sagsan, 2009, p. 150). In this since "the term 'virtual' means the intellectual, fantasy and the online, computerized aspects together", which "while both the

fantasy and virtual worlds share the common denominator of non-reality, the online dimension provides the environment that makes this mixing of reality and non-reality possible in an unprecedented way" (p. 150).

Nardi(2008) explains "video games as information spaces are moving to mixed reality spaces that fuse the virtual and physical" and that by doing this "they accustom us to the constant monitoring that creates information and the culture that endorses freely sharing it" (p. 29). Research into this area has provided three different contexts for learning and sharing information in these virtual communities of practice. These are as follows:

Intrapersonal reflection and learning: Projective and reflective mirroring between the players and the game character created by player for learning more about one's self by experiment and discovery within the gaming groups.

Personal reflection and learning: Reflective thinking and internalizing knowledge about a specific topic acquired by experience in real offline life, or virtual online play.

Interpersonal reflection and learning: Learning transferable skills as well as externalizing and developing knowledge through reflective interactions with other players in games or other online activities like discussing about the game rules or item developments. (Medina, Miyata, &Sagsan, 2009, p. 142)

These three different contexts allow for a "reflective interaction between the fantasy and reality" which "provides various types of knowledge transfer in the form of identity and experience that occur between the different physical/real, online/virtual, and intellectual/mental dimensions" (Medina, Miyata, &Sagsan, 2009, p. 150). This combination of contexts in these virtual communities that exist to support in game groups outside the game "provide an invaluable link between learning and practice, tacit and explicit knowledge, the conceptual and the actual,

or the virtual and the real" (p. 151). These virtual communities of practice allow, "externalizing personal knowledge and constructing collective knowledge through reflective interactions with other players" which is an "important gain" (p. 156) over strictly in game interactions.

It is through the asynchronous communication methods and tools these virtual communities of practice provide that "members are given the space and time to externalize their thoughts and ideas, discuss them with each other, take time to internalize and develop their thinking and ideas that can result in interesting outcomes" (Medina, Miyata, &Sagsan, 2009, p. 156). Using the tools in this way, "to negotiate and construct knowledge is an example of using the technology as a cognitive tool to stimulate cognitive learning strategies and critical thinking" (p. 156). This is because "participants draw upon their own experiences and interpretations and share these with the group discussion", which "involves the process of reflection and the construction and re-construction of domains of knowledge" (p. 156).

Distributed Cognition / Learning

Learning in this context is a "negotiated interpretation of knowledge" which is "deeper, more long lasting and refined" (Medina, Miyata, &Sagsan, 2009, p. 156). Gee (2008) elaborates on this collaborative distributed learning environment by stating "learners need to learn from the interpreted experiences and explanations of other people, including both peers and more expert people" explaining that "social interaction, discussion, and sharing with peers, as well as mentoring from others who are more advanced, are important" (p. 21). He continues stating that "good learning requires participation—however vicarious—in some social group that helps learners understand and make sense of their experience in certain ways" suggesting that "it helps them understand the nature and purpose of the goals, interpretations, practices, explanations, debriefing, and feedback that are integral to learning" (p. 23).

This knowledge sharing, negotiating, constructing, and reconstructing that occur in these external (to the game) collaborative gamer virtual communities of practice grew naturally out of necessity to support in game groups and their shared experiences. What is interesting is that they provide a unique model for what is known as distributed cognition, or distributed learning, that is used to collaboratively solve problems and make decisions. The concepts of distributed cognition and distributed learning describe "the ways in which people can act smarter when they combine or integrate their own individual knowledge with knowledge that is built into tools, technologies, environments, or other people" stressing that "thinking and learning go beyond individuals' isolated thought processes is in regard to the social and collaborative nature of learning and knowledge building" (Gee, 2008, p. 32).

Synopsis

In summary, gamers of the massively multiplayer online game World of Warcraft have by necessity of in game mechanics created large groups of players called guilds that are used to provide infrastructure and organization for forming smaller in game groups such as raids and parties. Due to the amount of work necessary to organize people and information to successfully support these in game groups, gamers have created virtual communities of practice that are external to the game where they collaborate through the creating and sharing of information using asynchronous communication tools consisting of websites, discussion forums, listservs, email and what ever other tools they deem necessary to fulfill their needs.

It is within these virtual communities of practice and through these tools that these groups engage in distributed cognition, also known as distributed learning, where they can combine their individual knowledge collectively to solve problems and make decisions smarter than they could alone. What makes this unique is that it is an organically grown method of online collaboration

that people have voluntarily contributed their money and time to beyond the video game environment in order to successfully play the game and make their shared gaming experiences better.

The question is, what can businesses and schools learn from gamers' experiences via organically created virtual communities of practice to enhance their own online collaboration needs?The following section will elaborate on the information uncovered in this literature to answer this question.

Needs

One unique aspect of these organically grown communities is that they were developed to scratch an itch, or in other words, to satisfy a need. Without the necessity to have a space outside of the game to organize the people within itboth due to the lack of in game tools to do this and because community members are geographically dispersed, it is likely that these virtual communities of practice would have never have been created, or at the very least become as extensive as they are today. So, it stands to reason that there should first be a need to collaborate virtually on which all parties involved understand and agree.

Roles

While it is through the combined efforts of these virtual communities that they are able collectively solve problems and make decisions, each person who participates, by virtue of their in game characters' capabilities and experiences, has a unique roll to play both in game and in the virtual community of practice. For these communities to be successful, each member must bring their own experience and understanding to share with the community. It is only by combining together all of the singular experiences of each community participant that these communities are able foster the distributed cognition and learning that enables them the ability to

solve problems and make decisions better as a collective group than the individuals who make up the group could do on their own.

These rolls can fluctuate depending on the experience of the person and the needs of the group, but it is important that each participant realizes they have a unique roll to fill and it is necessary for them to fulfill this roll for the group to succeed. Virtual communities of practice not only benefit by each person fulfilling their particular role, but alsoby each person using the collective intelligence of the community to learn more about their role and the roles of others.

Teams

Teams depend on people to fulfill their rolls to be successful and teams play a vital roll to the success of virtual communities of practice and the gaming environments these communities support. What helps make these teams successful is that all of the membersshare common goals and understand they must work together to achieve what they could not each achieve on their own. In essence these teams are an interdependent group where each person plays a unique roll, while at the same time they share communal knowledge with and about each other needed to reach a common goal.

Tools

By virtue of these virtual communities of practice being organically grown, they each provide the tools necessary to their participants in order for their participants and the community to succeed. That means if the team/raid/guild believes they need a website in order to have a calendar where they can schedule meetings and group encounters, then they will create one, have one created for them, or find an already existing tool that fills this need. This goes for any other tool they feel they need. This means that while no two virtual communities of practice may be exactly alike, you can be sure they can fulfill what ever their unique needs are through a myriad

of homegrown, sponsored, or borrowed tools. Contrast that to what schools can provide to students, or businesses to employees.

Friends

Via my own research (Harrelson, 2006), I can confirm that the glue that makes these communities stick together is the social perspective. The most successful virtual communities of practice, while there to fulfill a need and created for a specific purpose, all in their own way support some form of socialization intermingled with the problem solving and decision making. In fact, when you have this social context you learn more about the people with whom you work, how they work, and how to work with them. This enables community participants the ability to grow strong bonds and a deeper trust in their fellow community members and teammates, which in turn lends itself to the problem solving and decision making process.

Conclusion

Using the organically created virtual communities of practice players of the massively multiplayer online game World of Warcraft have created as an example, this literature review has uncovered potential opportunities for schools and businesses to learn from and adapt for their own online collaborative environments. While looking toward a gaming community as an example for schools and businesses may seem unconventional, it is important to realize that those who play this game are students and employees themselves. Therefore, I propose that utilizing these people within the classroom and business setting to help initiate online collaboration to solve problems and make decisions is perhaps the first step in creating successful virtual communities of practice.

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