Computer Gaming and Technical Communication: An Ecological Framework

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This article argues that the computer game industry offers rich opportunities for technical communicators both in terms of employment and increased professional status and that computer games are complex rhetorical spaces well suited for technical communication research and theory building. After considering the connections between technical communication activities and computer games, this article presents a five-part ecological framework for mapping game activities to technical communication practices.

GAMING AND AS SYMBOLIC-ANALYTIC WORK

In January of this year, I found myself working on a cross-functional team that had been put together to work through a fairly complicated task. The team I was working with included experts with a wide range of disciplinary perspectives and particular strengths in terms of their skills and training. I was the only member of the team that had been trained as a rhetorician, and I found myself observing the way the team leader guided each team member as we rehearsed our roles before beginning the task proper, thinking that I might find a useful case study embedded in this process. The task of the team leader and coordinator was complicated by the fact that several of the team members were telecommuting from different locations; we had to juggle the difference in time zones and did not have a teleconferencing system available for this first meeting, although we did have a real-time chat application that we used for most of our communication. Our team leader was familiar with the project, having completed many similar projects in the past, so he had a very concrete plan for accomplishing our goals and was able to clearly articulate the role each of us would play and when and where the milestones would be in the overall project structure.

As my team moved methodically through the shared virtual environment [with richly detailed three-dimensional (3D) graphics and sound effects], we used a wide range of mechanisms to communicate with each other, from real-time chat to the deployment of visual markers (assigning particular individuals to specific targets) to nonverbal communication through hand signals and body language (carried out by our on-screen avatars). In other instances, online servers also provide means by which team members can talk to each other directly, using microphones and headsets. It struck me that the work we were carrying out as part of the game was, in terms of the way a variety of communication technologies were being used to mediate goal-oriented cooperative activity, very similar to the way technical communicators work in nongame settings.

Although not all massive multiplayer online role-playing games (MMORPGs) are set in worlds of fantasy or science fiction, the majority of them are, and that makes it easier to dismiss them as mere entertainment, as games that lack the immediacy and complexity of "real life" activities, and as...
unworthy of attention. However, these games are all constructed systems that go through the same development cycles and business processes that any computer application requires; and as such, they provide the same opportunities for technical communicators to provide the skills and expertise that they bring to any systems development project. In fact, because technical communication is largely absent from the game development field, there is both an exigency and an opening for technical communicators to offer their experience as information designers, information architects, usability experts, and documentation specialists to a fast-growing industry.

Documentation and usability represent the two most immediate avenues for bringing technical communication into game design processes: technical communicators are adept at systems documentation (both in terms of how they work and how they are used) and usability. Usability, particularly if approached as recommended by Johnson, Salvo, and Zoetewey (2007) as the interpretation of human action that articulates contexts and accepts contingency, can certainly be shaped to fit the needs of game designers and gamers. Indeed, Laitinen (2006) found both that “usability expert evaluation and testing provided both novel and useful data for game development” and that “there was no significant difference in the number or the rated relevancy of the problems the gamer and non-gamer usability specialists found.” This indicates that technical communicators need not be gamers to take advantage of the opportunities available in the game design industry (but, I would argue, to avail ourselves of these opportunities, we should make an effort to understand, if not wholly embrace, computer game design principles and computer gaming culture). In addition to opening the gaming industry to technical communicators in terms of employment, I argue that computer games offer opportunities for both research and theorization that can be beneficial to the field of technical communication.

There are four primary reasons that technical communicators should embrace games as locations of research and practice:

1. The increasing economic and cultural impact of games continues to move games and gaming from a perceived fringe activity to a valued method for education, training, and social interaction.

2. The rich rhetorical spaces of games constructed through the complex interactions of users, interfaces, and digital tools places computer games solidly within the disciplinary purview of technical communication studies.

3. Games can serve as objects of study from which technical communicators can learn about interface design, interaction design, and how users engage in complex communication tasks mediated by text and data visualizations on a large scale.

4. Perhaps most importantly, mapping the ecology of game activities onto technical communication practices can provide a theoretical lens that reflects and refracts “real world” positions and problems faced by technical communicators.

Seeing the elements of computer games that can be linked to technical communication practices also provides an entry point for technical communicators to approach the game design industry and communicate the value we can offer in terms that will be readily understood. The ecological framework I propose in the second half of this article focuses on how computer game systems can serve as simulacra of the range of knowledge work activities of technical communicators and how engaging these virtual, game-based activities can serve to help build both research methods and rhetorical theories that benefit technical communicators.

Definitions

Before addressing the reasons for considering computer games as useful sites of inquiry and theory-building for technical communicators, it seems prudent to establish a shared vocabulary; a glossary of game types that will help distinguish the different kinds of games and virtual environments that are currently available. Robbins (2008) describes the many acronyms that describe games and gamerlike virtual spaces as “a hierarchy of environment descriptions that allows us to understand which environments are suited to specific purposes.” She identifies six key acronyms/environment descriptions: MUVE, MOO, MUD, CVE, MMORPG, FPS, and SPVE.

The first four descriptions describe systems of online collaboration that are less obviously game-like. MUVE stands for multi-user virtual environment, which Robbins describes as “a supercategory that includes any multi-user environment whether competitive or not; a content management system such as [Blackboard] could be considered a MUVE just as easily as Second Life” (Robbins 2008, n. p.). MOOs and MUDs are text-based virtual environments; whereas MOOs (multiuser domains, object oriented) tend to focus on social interaction and education, MUDs (multi-user dungeons) are traditionally role-playing game spaces. Like Second Life, which is itself a kind of MMORPG, MOOs and MUDs differ from other virtual environments by offering the user the opportunity to build architectural structures and create objects within the virtual world of the game itself. CVE stands for collaborative virtual environment and is applied to wikis, multiuser blogs, and online project management systems like Basecamp.

Many of the examples I use in this article come from MMORPGs, in part because these are the kinds of virtual environments that can at first seem most removed from the work of the technical communicator and in part because I
Economic and cultural impact
The staggering economic impact of computer and video games is indicative of the expansion of games and gaming practices into the overall social and cultural lives of Americans. In 2000, Interactive Digital Software Association reported that the computer and video game industry had created 220,000 jobs and nearly $9 billion in wages and federal and state tax (Interactive Digital Software Association 2001). In 2006, Robert Crandall and J. Gregory Sidak released a study showing that the video game industry contributed more than $18 billion to the American economy in 2004. Crandall and Sidak’s study looked at game sales, salaries paid to game developers and retail workers who sold games, sales of gaming hardware, and technology transfer from gaming to other industries (Crandall and Sidak 2006). In 2008, the Entertainment Software Association reported that computer and video game software sales reached $9.5 billion in 2007—an increase of 28% over the previous year. The same report noted that Halo 3, the best-selling game title of 2007, took in more revenue in its first day of sales than the biggest opening weekend ever for a movie (Spiderman 3) and the final Harry Potter book’s first day sales (Entertainment Software Association 2008). Film executives reportedly blamed the popularity of Halo 3 for the worst October weekend in box office sales since 1999 (Ivan 2007).

It could also be said that computer and video games are where the money is, literally. In 2001, economist Edward Castronova calculated the Gross Domestic Product (GDP) of virtual game economies at $135 million per year. In 2007, Julian Dibbell used data from the Virtual Economy Research Network to calculate the total worldwide virtual GDP as $28.215 billion (which is slightly higher than the GDP of Lebanon). Of course, this repository of wealth has not gone unnoticed: a congressional task force has announced that it is researching the feasibility of taxing in-game assets (Lederman 2007).

The economic impact of the gaming industry is mirrored by an increase in cultural visibility. Games and gaming scenarios are showing up in increasing numbers of television shows (including the parodic SouthPark “World of Warcraft” episode); Coca-Cola aired a Superbowl ad from the FPS Grand Theft Auto; and Burger King teamed up with Microsoft to produce “BK” video games. The CBS television show “CSI: New York” featured the multiuser virtual environment Second Life in an episode that aired in October 2007 (Babii 2007); CBS subsequently developed in-game murder mysteries connected to the show. And mainstream media outlets and academics alike are paying more attention to questions of gaming and violence, sex, and racial stereotypes.

What does this mean for technical communicators? First, it means more jobs: a good number of game development companies, like other software companies, employ technical communicators. However, it also means that games are becoming important locations of cultural and economic activity in need of the particular documentation and knowledge-work skills of technical communicators. In short, virtual worlds offer opportunities that should not be ignored—but the potential increase in job openings is not the only reason that technical communicators should be interested in games and game design: computer games are particularly well suited to technical communication research and theory work because they are, at both the system design layer and as enacted through interaction with players, deeply rhetorical spaces.

Games as rhetorical spaces
Computer games, particularly those games that support multiplayer environments, are complex rhetorical spaces where both players and designers engage in the solving of rhetorical problems. Like Anscheutz and Rosenbaum (2002), I define technical communication (and the work of technical communicators) “more expansively, as a comprehensive network of activities, knowledge, and skills that help technologies be
useful, usable, learnable, enjoyable, memorable, marketable, competitive, and of high quality” (150). These same descriptors can just as easily be applied to the work of game designers if we replace “technologies” in the quote above with the specific set of technologies that engage computer and video games. Although I am not suggesting that technical communicators can be game designers, I do argue that games and gaming represent a specific instantiation of the rhetorical activities that technical communicators engage in and might claim as part of our practice.

Indeed, I would extend this notion further by claiming that technical communication, which takes rhetorical theory and practice as the core of its disciplinary and professional power, should take up the intertwined fields of rhetoric and design as rightfully within its purview. In Thoughtful Interaction Design, Löwgren and Stolterman (2004) take as their starting point that “[w]e live in an artificial world. It is a world made up of environments, systems, processes, and things that are imagined, formed, and produced by humans” (1); if design is rhetorical (Buchanan 1985), technical communicators can position themselves equally as rhetoricians and designers. In terms of a rich and fertile theoretical and research arena for technical communicators, MMORPGs provide a wide range of environments where rhetoric and design are made visible—perhaps more so than any other contemporary technology.

However, we can reverse this claim (that games and gaming are squarely and fittingly within the realm of technical communication research and theory) as well. Mason (2008) argued that “current video games already provide situations in which being a successful gamer entails doing technical writing” (n.p., emphasis in original). He further explains:

This is due not only to an epistemological correspondence between technical writing and video games, but because the experience of being a gamer always goes beyond the screen, engaging individuals in social practices mediated by texts that are predominantly written by gamers themselves (n.p.).

Both positions—that gamers “do” technical writing and that technical writers can (and should) “do” computer and video games—fit into an ecological framework that can be used to delineate a continuum of roles for both writers and gamers. Before I present this framework, however, I want to digress briefly to speak about how games (using MMORPGs as the primary examples) hold value as research locations for technical communicators; in part because this more practical approach (as opposed to the theoretical approach that structures the ecological framework) offers an immediate connection between game systems and the work of technical communication.

**Games as research locations for technical communication**

In the past several years, there has been a dramatic increase in research related to video and computer games; psychologists are studying the transferability of leadership skills and examining interpersonal communication and relationship issues related to online games (Yee 2003a; 2003b); sociologists are examining games as sites of social practice through ethnographic research (Harrelson 2006; Yee 2003c); scholars in cultural studies are exploring the intersections of games and identity formation (Filiciak 2003; Griebel 2006); and computer games for education and training have a long history of research (although this trend became more visible with the publication of James Gee’s *What Video Games Have to Teach Us About Learning and Literacy* in 2003). What is missing from this litany of research projects is technical communication. This is puzzling to me because computer and video games, as complex rhetorical spaces that engage interaction, pedagogy, and design in much the same way that technical communicators do, seem to me to be ripe for technical communication research. This special issue of *Technical Communication* is certainly hoping to encourage technical communicators to see games as available for research and theory building, but we are coming rather late into the game (pun intended).

As I noted in the introduction, computer games can serve as objects of study from which technical communicators can learn about interface design, interaction design, and how users engage in complex communication tasks mediated by text and data visualizations on a large scale. Online games allow researchers access to multiple observational modes, both outside of and within the games themselves. And the activities that take place within and around games are remarkably similar to the core fields of research for technical communication:

♦ Games need to be learned, so they are a useful site for studying instructional design, both provided by the game developers and resources established by users.

♦ Games have very complex interfaces, but in the case of most MMORPGs, these interfaces can be modified, rearranged, and reprogrammed by users.

♦ Games have to convey detailed—often technical—information through verbal and visual media.

The question that arises then is “why have we not already claimed games as a fitting research space for technical communication?” The work of technical communication is no longer seen as purely textual (consider the articles that have appeared in this journal on visual communication, interaction design, usability, and project management). Perhaps the problem is that technical communication takes itself too seriously to be attracted to “mere” games. Or
perhaps those gamers among us would rather keep games in the world of leisure rather than introducing them to the world of work. Or perhaps we simply have not allowed ourselves to claim game-space as an appropriate place for technical communication research. In the remainder of this article, I propose a theoretical model that links multiplayer game ecologies to the work and concerns of technical communicators.

WORKING WITH/IN GAMES: AN ECOLOGICAL FRAMEWORK

When I speak to game designers at game development conferences, I have noticed that they always seem to want to talk about narrative theory. These designers, on learning that I work in an English department, assume that I will be both familiar with narrative theory and happy that they are using it in their game design process. I think they are sometimes a bit taken aback when I suggest that narrative theory is a good starting point,1 but that, considering the nature of multiplayer games, where the interaction and design are taken up by the game players themselves, they ought to be considering how rhetorical theory can help them make more persuasive experiences (as opposed to logical stories within which the users play). This has been an easier argument to sustain since the publication of Ian Bogost's Persuasive Games (2007), where he argues that computer games use a procedural rhetoric that gives them persuasive power, citing examples of games used in politics, marketing, and education.

Ecologies as metaphorical and methodological structures

I see the activities and interactions that take place in computer games in ecological terms because they engage not just "texts" but function within environments where people interact with a variety of human and nonhuman actors. I also reframe my view of games as ecologies because this view moves from games-as-objects-of-literary-study to games-as-designed-worlds, and it is in the designing(ing) that technical communicators can write themselves into the gaming industry.

A scientific term originally applied to research on interactions in specific natural environments, "ecology" as a metaphor for complex, interconnected relationships has a rich history of use in technical communication research (Blythe 2007; Nardi and O'Day 1999; Spinuzzi 2003; Spinuzzi and Zachry 2000). The basic scientific definition of ecology is "the study of the relationships of organisms to their environment and to one another. The key word is relationships." Ecology is a study of interactions" (Brewer 1988, 1). The key elements of ecological study, relationships, interaction, complexity, and community, are all present in multiplayer games (and often more explicitly available to observation than in natural environments).

For rhetoric, the audience—the living components in what might be considered a communication ecology—have always been assumed to have greater agency (and are therefore of greater concern to the rhetor) than the nonliving components such as the medium of delivery and the immediate context of the rhetorical act (although these elements do play an important role, rhetoric derives a great deal of its power from the fact that it engages medium, mode, and context). One benefit of working through an ecological metaphor is that agency can be seen in the interactions and interrelationships of any of the components of a given ecosystem. This is particularly important for digital game spaces, which feature both users and system agents (including non-player characters, the environments in which the actions take place, and the rules that govern in-game interactions).

Gaming ecologies: five relationships

I propose the following ecological framework through which we can organize the activities, both textual and trans-textual, that work in, through, and around computer games. This organization can also be mapped onto technical communication activities, thus providing a more concrete connection between the concerns and work of technical communicators and the interactions of multiplayer gaming. I situate the ecology of gaming activities within five distinct elements:

- Environmental action (what happens in the game)
- Para-textual development (game interfaces)
- Documentation (user and developer created texts about games)
- Infrastructural processes (the game design itself)
- Research (critical commentary and scholarly investigation of games and their relationship to "real life").

These elements are interrelated and in some cases may seem to overlap (for instance, documentation appears both as texts and in the infrastructure element as process—the primary difference being the contexts and actors involved); however, these ecological elements represent rhetorical situations rather than genres, so it is important to view them not as a specific taxonomy but as an organic framework designed to facilitate a view of gaming as relevant to the work and concerns of technical communicators.

Environmental action takes place through in-game activities, which can be mapped onto technical communication practices that include procedural documentation, project management, and leadership skills training. In-game activities can also be recorded and distributed, thus creating relationships between environmental actions and para-textual developments. Perhaps the most famous such recording is a guild-produced video clip of a team of players preparing to take on a difficult task (similar to the
one described at the beginning of this article); the careful planning is interrupted when one player, who was clearly not paying attention, screams his name and rushes into the dragon's den, which precipitates an epic failure on the part of the team (the video is available on YouTube: http://www.youtube.com/watch?v=LkCNjRfSZBU). This player is Leeroy Jenkins who became an internet meme in his own right and eventually went as far as becoming an answer on the television gameshow Jeopardy! Although a rhetorical analysis of the video shows the event as one that was staged and used as a marketing tool by the player guild that filmed it (Davis 2008), it is a relatively clear example of how players negotiate complex tasks through audio, visual, and textual interactions.

A more recent example, and one that, like the Leeroy video, has been often remixed and remediated is the “More Dots” video (DOT stands for “Damage over Time.” This is also available on YouTube, but seriously NSFW—not suitable for work—so you should search for it at home). This clip also shows a team in the process of planning and executing a complex task, but the leader is very forceful (to the point of being abusive) and effectively represents an example of failed leadership caused by a rhetorical style at odds with the team’s goals. Perhaps learning from others’ mistakes, many guilds run “boot camps” within the game to prepare the teams to work well together (see, for example, this video on the Sunder Guild site: http://www.sunderguild.com/archives/000,088.html).

Para-textual development takes place outside of the game worlds themselves but build on the environmental actions (for example, through the guild websites, gaming communities, and character development blogs); these activities also have technical communication counterparts, such as the development of user profiles through focus groups and role playing. Para-textual development occurs within communities of practice, whereas documentation (described below) is primarily textual in nature.

The official World of Warcraft community site provides Blizzard corporate news, information about upcoming game patches and events, and forums for users to discuss strategies, debate the histories of the many cultures and subcultures included in the game, and complain about game and interface mechanics that the players find broken or unusable. Although there is a great deal of activity on these forums, perhaps more interesting are the guild websites: most MMORPGs provide mechanisms for players to work together as a team, sharing communication and in-game economic resources; in game parlance, these official and explicitly declared teams of co-players are called guilds.

Outside of the game, most guilds have developed guild websites, which serve as community resources outside of the official corporate rendering of extra-game activities. Guild sites take on a variety of rhetorical tasks, including the support of existing players and the recruitment of additional guild members (the Leeroy Jenkins video mentioned above is presumed to be a recruitment tool for the guild “Pals for Life,” for example). Perhaps more interesting from a technical communication standpoint are the many companies that have developed content management systems specifically designed to support guild websites (see, for example, GuildPortal, http://www.guildportal.com).

Documentation, a resource that is often found on both corporate and user community sites, includes writing about the gaming world, including how-to guides, tips, and reports on in-game economic development; documentation is the element that most explicitly relates to the typical practices of technical communicators. There is a certain amount of cross-over between the socially motivated para-texts and documentation: online documentation sites such as www.wowhead.com and www.thottbot.com use a database system and World of Warcraft API to make the listing of all objects in the game available for inspection by players. Attached to each object is a discussion forum where users can contribute notes, information, and narratives of their experiences interacting with these objects. Other documentation examples include sites such as bosskillers.com and killerguides.com, both of which sell guides to completing the most difficult tasks in the game (these tasks, known as raids, nearly all require teams of 15–40 players working together to succeed). Bosskillers.com even offers small monetary rewards (between $30 and $50) for users who submit well-written guides (the site provides a specification document, a warning against plagiarism, and a 30-day period of user testing of the guides that the editors deem worthy of the award).

One of the questions raised by this wealth of documentation is whether the availability of such guides blurs the line between playing and working; if users are playing the game, the documentation may be seen as a form of cheating, but if they are working within the game, documentation is a vital component of success for game users (for more on “cheating” and game guides, see Mia Consalvo’s (2007) Cheating: Gaining Advantage in Videogames, which explores the complex relationship between game structures and official and user-developed documentation).

Infrastructural processes include the underlying narratives and systems development of the game worlds themselves. These processes invoke spatial metaphors and require awareness of many actors within a specific organizational framework, so this element both maps onto and suggests avenues of development for technical communication practices. The most obvious opportunity re-
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Computer games offer three important opportunities for technical communicators. First, they offer job opportunities. The computer game industry is growing at a very fast pace; if we position ourselves to provide technical communication expertise to computer game design just as we do for other technologies, from mobile communications to automotive to web-based application, we can expand our employment options and also make sure that rhetoric, design, and usability have their place alongside narrative and theories of playability.

The second opportunity is the availability of computer games for technical communication research, ranging from interface and interaction design to documentation practices of users. Although we can see similar employment opportunities when considering game development as akin to any other technology with which technical communicators work, in the research arena, computer games offer unique opportunities for qualitative studies and technical communication research.

The third and final opportunity that I see is that computer game environments and gaming ecologies offer theory-building opportunities for technical communication. The ecological framework I have set out in the latter half of this article provides a possible heuristic for situating technical communication theory (that is, theories of rhetoric, design, interaction, and usability) within the complex interrelationships surfaced within and around games.

My goal here is to offer a tool with which to consider the usefulness of computer games for technical communication research and theory; I hope that many of the readers of this issue of Technical Communication will consider the benefits of engaging computer game ecologies as opportunities for such work.

REFERENCES


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