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Abstract

Massively Multi-Member Online Worlds (MMOWs) are graphically-rich, three-dimensional (3D), electronic environments where members assume an embodied persona (i.e., avatars) and engage in socializing, competitive quests, and economic transactions with globally-distributed others. Frequently categorized as technologies of play, MMOWs range from massively multi-player online games (MMOGs) such as World of Warcraft, to virtual reality environments such as Second Life. Increasingly, educators, researchers and corporations are recognizing these 3D online spaces as legitimate communication media, thereby blurring the lines between work and play, and between reality and virtuality. Thus, a new communicative space, one of "mixed reality," is emerging. In this panel, we explore how the fluid work-play and reality-virtuality boundaries are negotiated and managed in practice. The panelists will rely on their research, conducted in educational, corporate and game environments, to address questions about learning, working and playing in these new mixed reality spaces.

Keywords: games, online games, virtual reality, synthetic worlds, three-dimensional, 3D, education, communication media, mixed reality, boundary management

MMOWs as Communication Media

Massively Multi-member Online Worlds (MMOWs) are graphically-rich, three-dimensional (3D), electronic environments where members assume an embodied persona (i.e., avatars) and engage in socializing, competitive quests, and economic transactions with globally-distributed others. MMOWs range from massively multi-player online games (MMOGs), such as *World of Warcraft,* to virtual reality environments, such as *Second Life*. Formerly the purview of a relatively small technically-savvy minority, MMOWs are now a popular source of entertainment for people with widely ranging technical skills, ages, and professional backgrounds and have attracted the attention of both educators and business executives as a new medium for learning and work.

While media and film scholars have long recognized MMOGs as a new class of media (e.g., Galloway 2006; Kline, Dyer-Witheford and De Peuter 2003), numerous games researchers (Catronova 2005; Malaby 2007) note that business researchers have been dismissive of online games, characterizing them as technologies of play and, therefore, outside the bounds of legitimate arenas of inquiry, namely, technologies of work. It would therefore appear that common notions of play and work, as well as virtuality and reality, as mutually-exclusive social arenas has held back our exploration of MMOGs as legitimate media for productive activities.

However, the strict separation between technologies of work versus play appears to be relaxing. A variety of organizations are experimenting with MMOWs or have incorporated them into their day-to-day practices (Cane, 2007). For example, educators are integrating online game environments into the classroom (e.g., ECON 201 at the University of North Carolina Greensboro), researchers are designing and using games to test social theory (e.g., Castronova, 2005), and corporations are leveraging MMOWs like *Second Life (SL)* for marketing, recruiting, and more. Many of the corporate appropriations of these 3D online worlds focus on communicating with customers and partners (e.g., IBM's press conferences in *SL*) and creating collaborative work spaces for distributed teams (e.g., Sun Microsystems virtual workplace project[1]). Indeed, Cane (2007) highlights that corporations are increasingly recognizing MMOWs as a next generation of communication media.

Rather than just being faster, providing greater bandwidth, or extending a users' information access, features that have distinguished other new media, MMOWs are distinct for the "psychological immersion" (Castronova, 2005) they promote. Participants' representation of themselves in a bodily form whose appearance they can control

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[1] http://research.sun.com/projects/dashboard.php?id=85

reintroduces embodiment (Taylor, 2006) into mediated communication. Through their avatar, participants regain access to the expressive capacities of the body including position themselves with respect to others, making gestures, and interacting with objects in the space, making the interactions feel more like "real" face-to-face interaction. In fact, Taylor (2006) found that some participants experienced their in-world representation and experience as "more real" than their corporeal, off-line life.

An additional affordance of particular interest to corporate participants in *SL* (i.e., Sun Microsystems, IBM, Reuter's) is the ability to access real-world, real-time information sources—i.e., radio, television, video—into what would otherwise be a fantasy-scape. For instance, Sun Microsystems recently demonstrated the ability to run word processing and other common office applications inside a world similar to *SL*. They envision workers sitting at their respective material-world desks working on documents that will be visible in real time both on their own desktop screen and on its "in-world" simulated screen, making it visible to distributed teammates logged into the world.

We use the term "mixed reality" (Benford et al, 1998) to represent this increasingly intentional integration of offline and online resources and experiencees reflected in these examples.[2] In mixed reality environments, although the avatars and their environment are virtual representations, the interactions engaged in address serious goals with intended "real-world" consequences.

These mixed reality environments raise some interesting and important questions. While anthropology, film and game studies scholars have argued that work and play, and virtuality and reality are better understood as dualities, i.e., mutually constitutive social phenomena, it is unclear how these dynamic work-play and reality-virtuality boundaries are negotiated, communicated and managed in practice. In this panel we will explore the negotiation and management of the work-play and reality-virtuality boundaries that characterize the adoption of MMOWs as legitimate communication media for learning and work. Based on their empirical research, each panelist will describe how the participants' communicative practices in the online worlds of their respective studies constitute the boundaries between work and play and between reality and virtuality at the individual, group or societal level. In addition, they will challenge one another on their respective stands regarding the nature of these boundaries and whether or not it is even appropriate to describe participants' in-world experiences as "mixed reality."

Panel Outline

The panel will be organized as follows: Ulrike Schultze, an IS researcher and the panel chair, will take about 10 minutes to introduce the panel. This will include (a) an overview and a taxonomy of MMOWs, (b) an outline of the focal questions of the panel (i.e., the negotiation and management of play-work and reality-virtuality boundaries in business and educational applications of these new mixed reality spaces), (c) an introduction of the panelists, and (d) an outline of the panel agenda. Each panelist will then take about 10 minutes to present their research projects, highlighting their results. Julie Rennecker, a research scientist at Perceptive Sciences, will focus her panel segment on business uses of *SL*. Roxanne Hiltz, a Distinguished Professor of IS, who has been studying the acceptance, use and impacts of computer-mediated communication in all its forms since the 1970s, will focus her panel discussion on the use of *SL* in the educational setting. Susan Stucky, a manager in Service Design at IBM, will focus on the application of MMOWs as technologies of learning in corporate settings. Bonnie Nardi, an anthropologist, will draw on her 18 month study of *World of Warcraft* to identify the boundaries that need to be overcome to replicate the knowledge sharing successes of MMOGs in educational and business settings.

After the panelists' presentations, Ulrike Schultze will summarize the points on which the panel members agree and disagree. For instance, Nardi advances a definition of play as an activity that is associated with pleasure and separate from and incommensurate with everyday life and work. This perspective on play is challenged by not only Malaby's (2007), but also some of the other panelists. This is one of the points of disagreement that will set the stage for debate about the meaning and role of the work-play and virtuality-reality boundaries in using MMOWs for work and education. The floor will then be opened to questions, comments and debate from the audience

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[2] For additional insight on "mixed reality", see Sun Microsystem's vision for a virtual workspace: http://research.sun.com/projects/mc/mpk20.html.

Overview of Panelists' Contribution (in presentation order)

A New Medium, A New Interaction Order? – Julie Rennecker

From the origin of writing in ancient times, each new communication medium has been heralded as both the triumph over constraint and the catalyst for social decline (Standage, 1998) because the use of a new communication medium enables changes in the pattern, rate, and content of information flows and calls for a different skill set than previous media, threatening the existing social order. How do the key affordances of online worlds—embodiment, spatial orientation, persistence, and interactivity—influence one's interaction practices and experience? How do these interactions transcend, dissolve, reinforce, or create boundaries, both within the world and between the world and "real life"? Do corporations participating in these worlds appreciate the similarities and differences between social practices inside and outside the world? If so, how is their awareness reflected in their "in-world" practices?

In order to answer these questions, this panelist will report on her research on five organizations', representing different industries, use of *SL*. Drawing on Goffman's (1963) notion of "the interaction order" the analysis presented will describe "residents'" enactment of online-offline boundaries and of in-world boundaries, then contrast these with those of the corporate participants.

Key Takeaways: The research results will highlight the challenges and opportunities posed by the accelerating integration of virtual and real worlds in the accomplishment of business communication.

Can "Serious Learning" Occur in a Game-Like Environment? -- Starr Roxanne Hiltz

The "Internet Generation" came of age in the new millennium. They have been immersed in information technology for their whole lives, take the Internet for granted as part of the 'natural order of things,' and are avid users of services such as computer games, MySpace, and YouTube. Given the blurring of play and learning boundaries among the "Internet Generation," might they be more engaged in learning conducted in MMOWs like *SL* than in text based forums or classroom sessions?

To address this question, we are currently studying the use of *SL* as a setting for team based projects in several Information System courses at NJIT, observing a corporate use of *SL*, and collecting the opinions of other educators who are using or planning to use *SL*. What problems do students and faculty encounter in trying to organize "classes" or group work on projects within this environment, and what norms do they develop to make their interactions both enjoyable and productive? Using observation, questionnaires, and interviews, we are determining whether the students exhibit "serious learning" or whether the environment proves too distracting, too limited or too difficult to access and use for some types of subject matter.

Key Takeaways: The audience will learn about the pros and cons of using *SL* now for university and continuing education. What technical and social barriers to the successful adoption of MMOWs in education have to be overcome? What types of subject matter are MMOWs best suited for? And what do students think?

Can Play be Rescued in Corporate Learning Technologies? - Susan U. Stucky

It seems that MMOWs are being 'colonized' as technologies of work in the corporate world. Irving Wladisky Berger, formerly at IBM, observed that "...meetings and learning and training may very well be the killer apps of virtual worlds" (http://irvingwb.typepad.com/blog). Furthermore, a key player in IBM's virtual world business opportunity group has said: "no games!" This raises important questions about the place of play and fantasy in corporation's adoption of MMOWs for communicating and learning. Is the corporate world drawing the boundaries around MMOWs too tightly? What are we losing by excluding play and fantasy from institutional adaptations of MMOWs? For instance, in IBM, there is active and lively discussion as to whether participants in a business meeting held in *SL* can show up as a rabbit, for instance.

To address these and other questions, IBM research is developing and conducting research on MMOW environments such as Rehearsal Studio, a *SL*-like setting, in which participants are asked to play given roles, e.g., a touch CIO or a sales person, in simulated settings. These enacted scenarios can be filmed and used for training, as well as learning through self-reflection. In this panel segment, the Rehearsal Studio research project will be

described and results related to the questions of how people use the degree of freedom (or space of play) between their avatar and themselves as a learning scaffold, will be discussed.

Key Takeways: This segment will provide a demonstration of "Rehearsal Studio" and the innovative approaches to training and learning possible through MMOWs. Furthermore, the description of the research project will highlight the challenges of doing research in MMOW settings.

Making Work More Like Play – *Bonnie Nardi*

Educators and managers have noticed the seemingly effortless ways in which players in MMOGs train and support one another, manage knowledge through FAQs, forums, and wikis, and self-organize almost entirely in virtual space. But can these practices be brought to education and business? MMOGs are successful because play (1) makes people feel good in some way, (2) is voluntary, (3) takes place in a space separate from the stresses of real life, and (4) involves known, repeated, ritualistic activities. Furthermore, as a particular form of play, games are loved because they provide a sense of mastery with continued challenge. Since most education and business environments do not reflect these characteristics, how can the desirable behaviors associated with gaming environments be promulgated in more work-like settings?

Key Takeaways: In order to address this question of how the boundaries between technologies of work and technologies of play might be overcome, this panelist will rely on her empirical research on the communicative practices in *World of Warcraft*.

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