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MOOs to MMOs: The Internet and Virtual Worlds

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The virtual worlds *World of Warcraft* and *Habbo Hotel* claim 11 million and 7.5 million users respectively, from North America, Europe, and Asia. *Second Life*'s LindeX market reported more than 59 million LindeX dollars traded on October 10, 2008. The educationally themed *Whyville* has 60,000 new registrations each month. Clearly, virtual worlds are popular, and becoming big business. And just as virtual worlds themselves are exploding in popularity, so too is research about them. In this chapter I seek to carve a path through existing literature about such spaces, offering a history of virtual worlds, and synthesizing the growing body of scholarly work about them. In doing so, I will try to disentangle work that has been done relative to online games (covered more extensively in Chapter 17, "Internet and Games," by T. L. Taylor) from work on virtual communities, while at the same time highlighting important overlaps.

It's important to acknowledge "we have, in a sense, created virtual worlds since the invention of writing" (Jones, 1995, p. 7). Jäkälä and Pekkola point out that throughout history, immersion in different worlds and alternate roles "has been provided by literature, theatre, drama and games" (2007, p. 12).

But before exploring a piece of that history, we should define what we mean by "virtual world." Most definitions include the concept of a shared space that allows a number of people to come together from different locations to interact (Croon Fors & Jakobsson, 2002, p. 41). Users should also be able to perform a variety of actions (Bellman & Landauer, 2000, p. 98), and increasingly such worlds are conceptualized as synchronous and persistent, although some early research did refer to asynchronous sites such as The WELL as virtual worlds (as well as virtual communities: see Rheingold, 1993).

Some form of embodiment is also required for participants to interact in a virtual world. Early researchers of MUDs (multi-user dungeons) and MOOs (MUD object-oriented) believed that a textual form of embodiment was either sufficient or superior to graphical depictions; rather than having avatars, users had characters consisting of a name and a textual description of a body, rather than a visual

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image of one (Bellman & Landauer, 2000; Jacobson, 2001). As virtual worlds have developed, more recent definitions of embodiment have moved away from text-based bodies to some form of graphical avatar (Taylor, 1999; Webb, 2001). Yet even the term "avatar" is ambiguous in how it has been used. Early forms of avatars in virtual worlds consisted of static, digitally modified pictures used in spaces like *The Palace*, while contemporary virtual worlds feature a range of avatar possibilities, inclusive of the 2D faces of *Whyville*, the 2.5D menu-driven options in *Gaia Online*, and the 3D fully customizable human and non-human creations found in *Second Life*.

As with the multiplicity of types of avatars that might constitute embodiment in virtual worlds, researchers and popular writers also group together persistent worlds that do and do not have specific goals – particularly game-like goals. In using the term "virtual worlds" in the 1990s, early researchers and journalists often drew connections between game-based and non-game-based (often socially or educationally based) environments. Socially based worlds allowed for a greater number of individuals who might not have been interested in fantasy worlds, where dungeons, elves, and killing for treasure were the principle attractions. Instead, socially based virtual worlds allowed users themselves to determine their own goals, be they socializing, world-building, or perhaps simple virtual tourism.

Many contemporary scholars and journalists continue to conflate such different spaces, either under the traditional moniker of "virtual worlds" or under the newer term "massively multiplayer online role-playing games" (MMORPGs, or MMOGs), replacing MOOs and MUDS with the world-builder *Second Life* and the fantasy role-playing game *World of Warcraft*. However, those environments have very different experiences for users, different structures, and divergent user bases. The practice of conflating these very different spaces continues today, as for example, in a highly cited article on law in virtual worlds, Lastowka and Hunter (2003) use *The Sims Online* as their first example of a virtual world, and then continue with a history of virtual worlds that intertwines the game-based worlds *Ultima Online* and *EverQuest*, along with non-game-based worlds such as *There*, *LambdaMOO*, and *Project Entropia*. They also tie in a history of literary virtual worlds, offline games, and the development of electronic games (2003).

Current industry activities also blur the line between game-based and socially based worlds. The group Virtual Worlds Management, for example, reports on financing and development of both types of virtual worlds, and the professional conference Worlds in Motion likewise does little to draw hard and fast distinctions between types of worlds, although in both cases the default assumption is that such spaces are commercial and revenue-focused. Some cracks in this edifice are beginning to show, however, as groups like the Virtual Policy Network in the UK have begun to advocate for distinctions to be made in policymaking between different types of virtual worlds, to distinguish between worlds that allow for the creation of user-created content and worlds that do not (Reynolds, 2008).

And as mentioned above, with the advent of corporate investment in such spaces, there is growing commercialization of virtual worlds, even as educators and other

groups still work to maintain their own worlds, or build on sites such as the islands of *Second Life*. During the first quarter of 2008, for example, over $184 million was invested in 23 virtual-worlds-related companies, and during that same time period, over 60 virtual worlds targeted towards children under 18 were live, with more than 50 additional such spaces under development (Virtual Worlds Management, 2008). Of course non-commercial virtual worlds will continue to be built, but due to the high costs of building and maintaining such worlds, they are likely to become fewer and farther between, at least if they are very broad in scope or ambition.

To sum up and offer a definition of virtual worlds that is inclusive and somewhat timeless, I define virtual worlds as either text- or graphics-based environments that allow multiple users to come together, socialize, and interact. Virtual worlds employ some sort of spatial metaphor, and offer affordances and constraints based on the technologies and ideologies constructing the space. The goals of the world are based mostly on the interests of the users, but there may be some input from world developers. Interaction occurs online, and is persistent. Within the world, individuals are distinguished from each other based on a form of representation suitable for the built environment, which may be commercially or non-commercially based.

A Short History of Virtual Worlds

In 1978, multi-user dungeon, (or MUD1), the first networked, persistent multi-player space, came into being. Developed by Roy Trubshaw and Richard Bartle and drawing from the fantasy themes of role-playing games, the space was "filled with characters, treasures, and adventures to be shared and explored by multiple players" (Miller, 2003, p. 440). Once distributed, the game spawned many copies, and other developers began tinkering with the technology. In the late 1980s and early 1990s less competitive environments such as *TinyMUD* and *LambdaMOO* were built, with the added benefit that users themselves could now build some of the objects within the world (Jones, 2007).

Chip Morningstar and Randy Farmer developed the first graphical virtual world – *Habitat* – in 1985. Users could control and customize avatars while interacting with other users in the persistent world known as *Populus* (Morningstar & Farmer, 1990). A version of the space ran for several years, and a later version was introduced in Japan in 1990, sponsored by Fujitsu (Koster, 2002). Through *Habitat*, both developers and users learned the importance of rules (and especially code as rule) in virtual worlds, as some users started to engage in anti-social activities, including attacking other players, attempting to hack code, and exploiting bugs found in the space's code (Morningstar & Farmer, 1990).

Following *Habitat*, other virtual worlds began to emerge, including *FurryMUCK* in 1990, which allowed users to create characters that were anthropomorphic animals; *MediaMOO* in 1993, a space designed for educators; and *The*

Palace in 1998, a social world with graphical avatars (Koster, 2002). Such spaces were more and less successful, but all offered users a space that did not have predefined goals, apart from a particular theme that might attract likeminded individuals, such as an interest in using new media for educational purposes. Such worlds were revolutionary in their time for being able to gather geographically dispersed groups and allow individuals to communicate with each other, be creative in some way, and perhaps build a community. (For an excellent discussion of the ambiguities and debates about definitions of virtual or online communities and their perceived presence or absence, see Chapter 14 in this volume, Lori Kendall's "Community and the Internet.")

MOOs in particular allowed creative individuals to build their own objects and spaces within the confines of the world, often rivaling developers in their expertise and creativity. That element of user-created content would go on to become one of the most well-known features of Web 2.0 where, along with social networks, individuals are seen as the keys to creating content that attracts other users, rather than relying solely on professional world-builders to do so.

Intertwined with that history of socially based worlds was the parallel development of game-based virtual worlds, including *Meridian 59* in 1996, *Ultima Online* in 1997, and *EverQuest* in 1999. During that early phase, nearly all such worlds were fantasy-based, following in the footsteps of their text-based predecessors. They did move from private networks to the open Internet, and began charging subscription fees for participation. And they began billing themselves as "massively multiplayer," even though at the time that meant a concurrent load of about 250 players (Kent, 2003).

Game-based virtual worlds differed from the social worlds of the time in two key aspects. First, as previously mentioned, they had clearly defined goals – to play and advance in a game atmosphere (kill or be killed, by monsters, other players, or both). Second, they generally did not permit the same type of world-building by players that the social spaces allowed. Such an approach made sense, as players intent on advancing or leveling up a character might then easily build themselves all-powerful weapons that could dispatch the toughest enemies with a single blow. Instead, developers of game-based worlds carefully controlled what individuals in those worlds might be able to do, or how they could achieve their goals. Players who enjoyed such worlds thrived under the game-based rules and constraints, and likewise socialized and perhaps engaged in non-game activities within the worlds, such as exploring or experimenting with the boundaries of code.

Development of graphically based virtual worlds has primarily come from commercial endeavors, due to their high costs and extensive resource demands. Yet text-based non-commercial worlds continue to proliferate, simply flying below the radar of popular media attention. Marketing and advertising has made commercial spaces known to a wider audience, and now estimates are that tens of millions of people are enjoying interactions in some form of virtual world globally (Reynolds, 2008).

The contemporary landscape of virtual worlds is shifting constantly, as new entrants emerge and others shut down their servers. Spaces such as *Active Worlds* and *Second Life* receive a great share of popular media attention, primarily due to their multiple uses as educational, healthcare and social spaces, as well as their extensive world-building opportunities. Other spaces have gained visibility due to their marketing to very young users, including Disney's *Club Penguin*, Sulake's *Habbo Hotel*, and the Korean-based Nexon's *Maple Story*, all with more than 5 million registered users (Reynolds, 2008).

Overall, the future of virtual worlds looks quite bright. There is still a range of worlds to be found online, and they are used for an array of purposes, as individuals and groups continue investigating their affordances and constraints. While graphical virtual worlds and game-based worlds capture most of the popular attention, non-commercial and textual spaces are still operating, and offering users opportunities to create, socialize, learn, and have fun. Along each step of this history, virtual-world researchers have investigated how individuals and groups use those places, and how they approximate to or deviate from offline life. Their areas of focus and key findings are examined next.

Research on Virtual Worlds

Virtual worlds and space

One of the key elements of virtual worlds is the "worldness" or spaces they create for participants. More than webpages, email text, or photo albums, virtual worlds attempt to create geographies, lands, or experiential spaces for us to explore and populate. Whether it has been via text, or 2D or 3D graphics, virtual worlds have been most memorable for how they construct space, and how we co-construct it via our imaginations. As Flanagan argues, "one cannot seem to avoid using metaphors of space to describe computer activities" (2000, p. 74). Thus it is critical that we keep aware of our discourse, and how we choose the words, descriptions, and metaphors that seem to "fit" our new experiences.

And our imaginations have had priming in envisioning such spaces, primarily through early discourses related to cyberspace and virtual reality. The work of cyberpunk authors such as William Gibson and Neil Stephenson has shaped our understandings of what virtual worlds might entail, if we dared to imagine worlds decoupled from our bodies. In *Neuromancer*, for example, Gibson coined the term "cyberspace" and painted it as a matrix of colored lights that console cowboys "jack in" to, where data was conceptualized as "city lights, receding." By leaving the body or flesh behind, Gibson's vision re-inscribed a Cartesian dualism of mind–body split, and with most console cowboys being male, the privilege of abandoning the body and becoming "pure mind" was acceded to men (Consalvo, 2000).

Stephenson's conception of a Metaverse in his 1992 novel *Snow Crash* was likewise influential, as it offered a vision of not only an imaginary world, but also one

where we could employ avatars that expertly simulated human facial expressions, giving the space enough bandwidth so that it could be a space for pleasure, business, and almost anything else. His vision has been instrumental in encouraging the creation of graphical virtual worlds, most explicitly *Second Life*, which is referred to in many places as the realization of the Metaverse.

Mary Flanagan and others have agreed that such early discourses began the process of gendering our ideas about the virtual, where "the mythos of cyberspace as a place begins by being depicted as a permeable, 'feminine place' that must be categorized, controlled, and conquered" (Flanagan, 2000, p. 77). She also believes the interface is a prime site for how we come to understand our place within virtual worlds, and that our current interfaces also reflect a masculine bias in their privileging of usefulness, information and status, as well as constructing a subject that is unified and individual, in control of all he surveys (p. 79).

Scholars also suggest that the idea of a computer being conceptualized as a space pre-dates virtual worlds, going back to Douglas Englebart's early work developing computer screens that could visualize information, drawn from his work with radar systems in World War Two (Bardini, 2000), as well as his 1968 invention of the mouse, which "transformed the computer screen into a new three-dimensional 'informationscape' " (Berland, 2000, p. 253). Johnson elaborates that because of that invention, "for the first time, a machine was imagined not as an attachment to our bodies, but as an environment, a space to be explored" (1997, p. 24). Thus, because of the mouse, the conceptual logics that computers made possible were transformed into potential spaces, spaces that awaited construction and definition by developers and users.

Early virtual worlds were limited to text, yet that constraint did not diminish creativity or users' sense of presence or interest in interacting in such spaces. Researchers investigating the first MUDs and MOOs found places that were fantastical, as well as places that sought to replicate the familiar. For example, upon entering the popular *LambdaMOO*, visitors found themselves within a coat closet, and after exiting the closet encountered the living room of a large and comfy (yet expanding) house, which formed a hub for much social interaction in the world (Dibbell, 1993). Reid found that such entry points were common and useful in orienting individuals to virtual worlds, as "MUD anterooms typically contain pointers to helpful information and rules" (Reid, 1995, p. 168).

Likewise, MOOs allow users to build spaces of their own choosing. In documenting various examples, Bellman and Landauer write of one small girl who "built a 30-room mansion with garden and pools" (2000, p. 101). Such creations speak to users' desires to build the familiar as well as the novel, and, overall, to the importance of locating the self within some sort of landscape, in order to be able to make sense of an experience. As Reid concludes, "physical context is a dimension of social context – place and time are as much loaded with cultural meaning as are dress and gesture" (1995, p. 169).

Seeking to understand how written text could create such dynamic systems, Bellman and Landauer argue, "text-based MUDs allow people the freedom and

richness of word pictures, something that we can't imitate with graphical environments. Text-based MUDs have a much richer and more dynamic visual imagery than, say, movies or games, because it is customized to each player's imagination" (2000, p. 101). Other scholars have agreed with that formulation, choosing to highlight the superior qualities of text-based worlds (McRae, 1996). But Reid suggests a way of thinking of virtual worlds and their construction that supersedes any particular technological form, to instead focus on how users actually engage with a world, writing "virtual worlds exist not in the technology used to represent them nor purely in the mind of the user, but in the relationship between internal mental constructs and technologically generated representations of these constructs" (1995, p. 166). Thus, it is the relationships formed between the world and its users that are key.

But inevitably, graphical virtual worlds appeared, and scholars and users found them equally – if not more – rich in possibilities Steven Johnson wrote that *The Palace* interface added an entirely new dimension to the experience of being in virtual worlds, suggestive of "the more visual, improvised theater of town squares and urban parks, pickup softball games and water cooler banter" (1997, p. 67). He felt that the visuality of such a space lent itself to approximating "the thrill, the unpredictability, of casual encounters in a more textured space, shaped by the physical presence of those around you" (pp. 67–8). Yet at the same time he also acknowledged that "you don't really see a community in these exchanges" and that for *The Palace* at least, at that moment, there were limits to how much of a community or world it might be. Further development of graphics and graphical systems led to the belief that virtual worlds could be "enablers of or tools for simulation, visualization, or rehearsing unique circumstances" (Jäkälä & Pekkola, 2007, p. 12). And the ability to more concretely simulate both real and fantasy worlds kept developers constantly creating advanced versions of virtual worlds.

However, the terminology used to discuss activities within the spaces of virtual worlds often evokes discourses of colonization, which have a fraught history. In the mid-1990s, Laura Miller examined the metaphor of the Internet as a "wild west" or "frontier" space that needed law and order to settle it and thus make it safe for women (1995). I added to that examination, arguing that although such frontier and wild-west rhetorics seemed to imply the necessity of law and order to protect women, that protection was actually needed to create a safe space for business and commerce – women in this case were a valuable purchasing group, so it was easy to couch rhetorics of safety as being about them (2002).

And frontiers and lawless spaces also articulate with colonization and the settling of new lands. As Flanagan reports, such spatial rhetorics often are accompanied by imperialist overtones, as "worlds are gridded and parceled out to users in a system reminiscent of activities during a nineteenth-century land rush" (2000, p. 72). Taking the critique another step further, Gunkel and Gunkel (2009) demonstrate how virtual-world researchers have themselves imbued ideas about such spaces with a colonization rhetoric, one which either intentionally or unintentionally "forgets" past histories of colonization, where already-present native

peoples were often forcibly removed. While they remind us that there are no "real people" to be displaced in the newly developed virtual worlds, there are those who will never get the chance to "settle" in such lands, those for whom such opportunities are either beyond their reach, or may come as part of work-related activities such as gold-farming in an MMOG.

Space is a vital element in virtual worlds, and researchers have examined its importance, and how it comes to matter, in textual as well as graphical virtual environments. That space signifies so much cannot be over-emphasized, as it provides a framework, literally structuring all the encounters that take place.

Community in virtual spaces

Due to being public spaces, early virtual worlds were populated by various groups, and so researchers perhaps logically began to search for evidence of community. One of the best-known popular accounts investigated the role of community in users' responses to a virtual crime – a "rape" in cyberspace (Dibbell, 1993). In *LambdaMOO*, Julian Dibbell reported that one user (Mr Bungle) had virtually assaulted another through the use of a voodoo doll used to broadcast lewd acts performed on the other player, without her consent. After much discussion among residents, an administrator ended up "toading" (permanently deleting) Mr Bungle and his account, an action that led to a system of democracy being installed in the MOO, where residents debated and enacted the rules that would govern subsequent interactions. The case is important to the history of virtual worlds and the development of communities within them for acknowledging the importance of self-governance, and the role that individual inhabitants could play in running virtual worlds. It is also important as an indicator of the turn away from early techno-utopian libertarianism that was so prevalent even in early business discourses. Sadly, that sort of system has remained only within non-commercial virtual worlds, as commercial ones give inhabitants few if any "rights" to governance or rule making.

Howard Rheingold furthered the investigation of virtual communities, writing about San Francisco's Whole Earth 'Lectronic Link (WELL). Rheingold's early spaces did seem at the time to be "spaces apart" where individuals could come together in much the same way that users of virtual worlds do today. While Dibbell's work dealt with what seemed the seamier side of virtual world life, Rheingold's work normalized the activity of going online to socialize, and suggested that more could be done online than slaying dragons for treasure in a virtual dungeon, or worrying about evil clowns with voodoo dolls and rape on their minds.

While researchers working in this area were often interested in studying community formation online, that work led to speculation and debate over how to actually define the term "community." Some writers drew sharp lines between online and offline communities, and as Wellman explains, "they insisted on looking at online phenomena in isolation. They assumed that only things that happened on the Internet were relevant to understanding the Internet" (2004, p. 124). In

contrast, Wellman pointed to successful experiments such as Netville outside of Toronto, where Internet users were *more* likely to know their neighbors' name than non-users (2004).

Beyond Dibbell, early research on persistent virtual worlds did not take community or democracy as a central focus. But Tari Lin Fanderclai, writing on the media education space *MediaMOO*, did report that the attraction of the place was the conversation it afforded with likeminded others, and that "like the informal settings and interactions of those real-life hallways and coffee shops, MUDs provide a sense of belonging to a community and encourage collaboration among participants, closing geographical distances among potential colleagues and collaborators" (1996, p. 229).

Virtual worlds and identity

An important aspect of virtual worlds is the ability to craft a persona with which to navigate the world – an avatar or textual description of the self that can persist over time. That persona could represent one aspect of a person's identity, be it a faithful reproduction, or be it an alternate self, and it could also build a reputation that could be altered over the avatar's history. The emergence of such personas led to research concerning them, and that work was often tied to matters of identity, including how individuals related their real-life identities to their created identities.

Just as some early studies of virtual communities often tried to draw lines between online and offline, so too did investigators of virtual identity. Here research was usually more focused on persistent synchronous spaces. Two of the most influential theorists of the period were Allucquere Roseanne Stone and Sherry Turkle, who were both fascinated with how individuals engaged in often radical identity play online. That preoccupation had later consequences for future study, as I will explain shortly.

Stone's interest centered on how the Internet provided spaces for individuals to either create or express multiple personas or "selves." This went beyond gender-bending, to questioning the assemblage of a unitary self residing in one body. She popularized the idea that selves and bodies were not necessarily bound together in a one-to-one correspondence, and virtual worlds might be spaces where individuals could experiment with multiple aspects of the self, writing that "the technosocial space of virtual systems, with its irruptive ludic quality and its potential for experimentation and emergence, is a domain of nontraumatic multiplicity" (1995, pp. 59–60). She also felt that such identity play would become more common online (with positive and negative consequences), and perhaps become the norm as people got used to the (seeming) fluidity of identity in virtual worlds. Turkle (1995) also investigated individuals and identity work online, but from a psychological perspective. She studied users of virtual worlds who created characters who were different from their real-life personas, in order to experiment with or work through new, troublesome, or unexplored aspects of their identity.

Both Stone's and Turkle's work suggested not only that the Internet could be a space conducive to identity play, but also that identity play was becoming a norm in life online. As Lüders points out however, such analyses "were largely connected to the specific situation of the early 1990s, when people with no prior offline relations connected online and communicated in an environment where identity cues were less visible, and . . . where one of the main points was in fact to role-play" (Lüders, 2007, p. 10). Thus, early discourses suggested a space where individuals were perhaps much more radical in their activity than they really were, at least compared to mainstream users as they began to come online. Yet, they did popularize and legitimize the study of identity in virtual worlds, and established it as a mainstream avenue of research.

Other virtual-world researchers have looked at more specific aspects of identity including gender and race. Kendall examined gender in the MUD *BlueSky*, suggesting that identity could be central to feeling included (or excluded) in virtual worlds, because "on some MUDs, portrayals of females as sexual objects become part of ritual-like interactions. These rituals are important because they demonstrate belonging to, and shared history with, the group" (1996, p. 210). And such a gendering of identity was often a requisite for participation, as "all MUDs allow, and some insist, that players set their "gender flag," which controls which set of pronouns are used by the MUD program in referring to the player" (Reid, 1995, p. 179). While some MUDs and MOOs offered multiple genders (including *LambdaMOO*'s famous "spivak" gender), as virtual worlds have developed, most now have a default of two genders, and users must choose one, permanently affixing a gender to their activities in those worlds.

While gender may be a central component of identity in virtual worlds, such spaces do allow for the gender play that Turkle initially popularized, or at least, early spaces did. Researchers who took such studies a step further included Suler, who explored the activity of gender switching in *The Palace*, and Taylor, who investigated individuals' use of multiple (and multiply gendered) avatars in *EverQuest* (Suler, 1999; Taylor, 1999).

While early research promoted virtual worlds as places for active gender identity play, the same could not be said for another aspect of identity – that of race. In particular, Nakamura explored how race and "cybertypes" played a role in spaces such as *The Palace* and *LambdaMOO*, a role not very positive or liberating (2002). Nakamura detailed how individuals' choices of avatars that drew on limited images of Asians such as ninjas, samurai and geishas, was a form of "identity tourism" that was hardly transgressive or to be lauded. Instead, the reductive and stereotypical avatars encouraged "the enactment of cybertyped notions of the oriental" (p. 43). Thus, playing with identity was not always a positive or progressive activity.

Many other aspects of identity as expressed in virtual worlds have been explored, including sexuality, which is also given much more thorough treatment, along with gender, in Chapter 13 in this volume, "Queering Internet Studies: Intersections of Gender and Sexuality," by Janne Bromseth and Jenny Sundén. What makes virtual worlds important or different in regards to sexuality is that

they allow individuals and groups to build spaces and craft personas to engage in real-time interactions online, and create some sort of persistence and history for those representations. Because individuals with alternate sexualities often have difficulties in establishing publicly visible spaces in the physical world, the opportunity to do so in a virtual space is important.

Several scholars have examined those spaces, such as Woodland's study of the gay space Weaveworld within *LambdaMOO* (2000) and Jones's investigation of gay spaces in *Second Life* (2007). In Weaveworld users exploring the space would find cottages and tree houses "inhabited overwhelmingly by male characters – with a preponderance of strapping young men with artistic sensibilities" (Woodland, 2000, p. 422). Jones's exploration of gay spaces in *Second Life* also notes a preponderance of such spaces as markers of identity (2007). Thus, even as identity is often focused on avatars as a site for experimentation and marking, sites can also serve to construct identity, particularly spaces that are tied to identity struggles, or particular symbols or markers of identity.

Work that focuses on identity in virtual worlds is growing, yet increasingly refined. While some reports still talk of gender swapping in virtual worlds, we now know that such activities are not always the deeply motivated actions of individuals intent on exploring hidden aspects of the self, or expressing one of their many selves, but instead more mundane uses of multiple identities, for aesthetic, strategic, as well as possibly experimental reasons.

Avatars in virtual worlds: text made flesh

There has been additional work done on avatars separate from a focus on identity, and as graphical virtual worlds become the standard, understanding how avatars function within them for users is a critical focus. While avatars might not allow us to actually transcend our particular subject positions, they have allowed users to take different and multiple forms, across and within various virtual worlds. Taylor found that early virtual world users often created multiple avatars, and would use them strategically, writing "on several occasions, a person hinted at knowing me in some other form, but preferred to keep that interaction separate" (1999, p. 439). Different avatars allowed individuals to interact with others in various ways, to check on the reputation of a particular avatar, or to simply play with different forms. Such multiples have also been employed in game-based virtual worlds, as users often create a "main" avatar and then a series of alternates (or "alts"), which may or may not be publicly linked to each other (Consalvo, 2007).

Researchers have also documented how individuals learn to use their avatars to achieve whatever in-world goals they may have. Croon Fors and Jakobsson found that among new users in particular, the first question asked was "where am I?" but the question masked a larger intent, asking "where and what is my 'I,'" as users struggled to resolve their point of view in the world and to differentiate their body/avatar from others around them (2001, p. 43). Yet users often adapt quickly, and Webb writes that participants in at least some virtual worlds then

"use the medium to market their avatar character as a means of obtaining prestige, status and influence" (2001, p. 587). They also, of course, move their avatars around, and have been found to geographically arrange themselves in ways that mirror real-life proxemics. Webb described 2D avatars in chat-focused virtual worlds as spread out in relation to each other, maintaining a specific proximity (2001, p. 587).

More recent research confirms that we tend to carry real-life conventions into our virtual worlds, as "the rules that govern our physical bodies in the real world have come to govern our embodied identities in the virtual world" (Yee et al., 2007, p. 120). Such findings suggest that while we cannot easily "break free" of our embodied selves, conversely, we can use virtual worlds to help us better function in the real world. In research using *Second Life*, Yee and Bailenson found that "participants using attractive avatars became more intimate and friendly with strangers" (2007, p. 286). They conclude, "although avatars are usually construed as something of our own choosing – a one-way process – the fact is that our avatars come to change how we behave" (p. 287). Thus, we can use avatars to maintain or experiment with various versions of ourselves, as well as potentially use our avatars to better live our real-world lives.

Of course, many of those avatars are not far from normative real-life bodies, as research has consistently shown. Webb's virtual-world chatters were "heavily stereotyped along lines of gender and ethnicity" (2001, p. 563), just as Nakamura found in *The Palace* several years later (2002). Jones sees users of *Second Life* creating similarly normed avatars, as even queer users "adhere to stereotypical 'types,' such as the 'leather daddy' or the 'club kid' that are identifiable as such to other queer people" (2007, p. 59). This suggests that the pleasures we may take in avatars map back to our visions of real life, such that the avatar "reflects an ideal of beauty that the user desires within himself or herself" (p. 60). So although we may not be experimenting that deeply with different avatar forms, we are engaging in a form of self-expression that may reflect positively in our interactions across worlds, or at least bring us pleasure in the act of creation.

Virtual worlds and surveillance, privacy, and control

Part of thinking about virtual worlds encompasses its control, which brings up concerns about privacy and surveillance. Early work in such areas mostly documented how virtual worlds were dealing with the systems they had set up, many of which were designed to be open and allow users great amounts of privacy and freedom. Scholars discussed how such systems dealt with the inevitable abuses that occurred, and how such activities helped formulate current notions about privacy, control, and surveillance.

One of the earliest cases was Stone's examination of the CommuniTree project in San Francisco in the late 1970s. In efforts to promote community and openness, the developers of the system allowed users to post anonymously, and in initial versions of the software had created no easy way for system administrators to delete postings or block the activities of troublesome posters. Such efforts to

encourage widespread, communal, and non-controlled discourse quickly led to the Tree's downfall. As Stone documents, "after only a few months of nearly continual assault that the system operators were powerless to prevent, the Tree expired, choked to death by a kind of teenage mutant kudzu vine, a circumstance that one participant saw as 'the consequences of unbridled freedom of expression' " (1995, p. 116).

Having learned their lesson, administrators created a second version of the Tree software, which ushered in "the age of surveillance and social control" (p. 117). Such changes spread slowly, however, as early MUD and MOO administrators gave users a certain level of anonymity in their activities. Such freedom offered individuals opportunities for greater exploration and play, as they were decoupled from real-life identities and attendant controls on their behavior. Yet for all the benefits this might offer, it also encouraged deviant behaviors, which were then difficult or impossible to track. The case of Mr Bungle in *LambdaMOO*, discussed earlier, is a prime example. Without being able to physically locate the offender, the MOO was left only with the option of deleting the offender's account. That would not, of course, stop the individual from creating a new account under a different name, which is what Dibbell believed happened (1993). But although Mr Bungle seemed to have either learned from his experience or moved on, other disruptive individuals do not always do so readily.

In assessing another incident with a disruptive individual, Bellman and Landauer report that one MUD's community decided to shun the offending individual, rather than do something radical such as restrict character creation in some way (such as tying character creation to real-life identities), which the residents felt would be "worse than the original problem" (2000, p. 108). Yet other system operators did not share that view, and some virtual worlds began keeping closer track of the ties between online and offline identities. In *Habitat*, for example, administrators known as Oracles were "able to observe both the official records of who has signed up for *Habitat* and also who is inside the simulation" (Stone, 1995, p. 119). And the designers of the system, writing of their experiences, warned new world creators "you can't trust anyone" (Morningstar & Farmer, 1990).

Such problems led to activities such as warranting (the attempt to verify the authenticity of real bodies behind an online character) and the creation of what have been termed location technologies, as the battle for control of systems continued (Stone, 1995; Tetzlaff, 2000). System operators needed to keep worlds not only operational but also satisfying for all users, and so they started to better track and control movements in virtual worlds, via the addition of new code. Operators learned that the early freedom that users had in virtual worlds came at too steep a price: without the ability to locate and punish egregious offenders, virtual worlds could lose the communities they had so carefully built. A balance had to be created between freedom for users, and surveillance and control of potentially troublesome individuals.

More recently, my own work on cheating in MMOGs has pointed to the difficulties of permanently ascribing identities to activities that are usually fleeting and

harmless, such as the use of walkthroughs or cheat codes in multiplayer games (Consalvo, 2007). Individuals may experiment with cheating in virtual worlds, but attempts to track users often rely on computer and hardware identifiers rather than individuals, providing an imperfect system at best for finding offenders. What seems more promising is giving other residents of virtual worlds the opportunity to call out and perhaps punish offenders, through blacklists, in game patrolling, and reports to the game administrators. Thus control and surveillance can become a dynamic, shared enterprise between developers and users, rather than a top-down system that implies little or no trust in users (Consalvo, 2007).

Additional strands of interest and research related to control have also emerged, investigating areas such as the control of virtual items, virtual property, and users' rights within the spaces of virtual worlds. Particularly as more virtual worlds have become commercial ventures, it has become necessary to identify where the rights of users begin and end, relative to world creators. So with the affixing of a "real" identity to an avatar or character, users and developers have begun to wrestle with concerns about what those users own or control within virtual worlds, and how policies deciding such things are made.

The roots of studies of virtual property and ownership also began back in the era of MUDs. William Mitchell argued in 1999 that "as pioneering MUDs and MOOs quickly discovered, there have to be some concepts of property and ownership, some conventions governing who has control of what, and some ways of enforcing the conventions" (p. 126). Yet as other scholars pointed out, such ownership had consequences not only for the status quo in virtual worlds, but for contemporary society, which increasingly recognizes "virtual" items (such as digital versions of films, and credit cards) as real. David Tetzlaff explains, "the postmodern economy depends on the ability of capital to make the virtual act like the real, to make information, ideas, strings of ones and zeroes function as material commodities" (2000, pp. 117–18).

Thus it was only a matter of time before legal scholars became interested in how to regulate as well as to understand ownership in virtual worlds. In one of the earliest pieces to address the subject, Lastowka and Hunter argue that virtual property must be taken seriously as a legal issue, along with the "enforceable moral and legal rights" of avatars (2003, p. 2). Drawing from the work of Castronova, who studied the economy of *EverQuest* and found it equal to several developing nations (2001), they believe that "virtual assets can be characterized as property for the purposes of real world law" (Lastowka & Hunter, 2003, p. 96). They also believe that while traditional legal approaches will work, the issue must be addressed soon to redress the imbalance of power between the creators and users of virtual worlds, because "if corporate gods own every part of our lives, it cannot be too long before courts decide that property interests can be asserted against those corporations without deferring to the contract we signed to enter our (avatar) lives" (p. 96).

That approach led to a flood of interest in the legal world in addressing issues relative to virtual worlds, including virtual property generally (Hunt, 2007), the

role of contracts (Fairfield, 2007), copyright (Miller, 2003), intellectual property (Herman, Coombe, & Kaye, 2006), end-user license agreements (Glushko, 2007; Miller, 2003), and taxation (Camp, 2007). Lastowka's and Hunter's call for avatar rights has likewise led to debate, with some developers (Bartle, 2007) calling for very limited versions of rights, and others (Koster, 2007) famously advocating for an "avatar bill of rights."

A particular challenge for legal studies of virtual worlds is the variety of virtual worlds themselves, including variations in what rights they assign to users and how virtual worlds differ. A major challenge to total control of intellectual property (IP) rights by world developers came in 2003 when Linden Lab announced that it would allow all users of its virtual world *Second Life* to keep IP rights for items they created in the world (Ondrejka, 2004). Most other virtual worlds maintain strict end-user license agreements (EULAs) asserting that anything users create "in world" is the property of the world creators, and further attempt to limit practices such as real-money trade that make in-game assets convertible into real currencies. Again, Linden Lab takes a different approach, operating its own exchange market (the LindeX). Scholars are currently attempting to tease out the distinctions between different kinds of virtual worlds, and to make the best arguments for how real-world laws should intersect with virtual worlds and their legal and economic systems.

To help policymakers get informed on such issues and keep track of rapid developments in research and study, specialized groups are forming. In 2007, a "Declaration of Virtual World Policy" was posted to the virtual worlds blog Terra Nova by Thomas Malaby, following a conference at Indiana University where participants debated the importance of issues relative to governing and running virtual worlds (Malaby, 2007). A year later, Ren Reynolds formed the international Virtual Policy Network as a thinktank "established to explore the policy implications of virtual worlds" (Reynolds, 2008). Such groups and activities have attempted to explore and differentiate between different types of virtual worlds, the competing interests of owners and users, and how various legal bodies (national, international, regional) can make reasoned and intelligent decisions on how to regulate such spaces.

Virtual worlds applications and their study

Many virtual worlds are game-based, and studies of their inhabitants are well documented in Chapter 17. However, socially based virtual worlds often developed purposes and uses going far beyond the merely social. Such activities often centered around education, therapy, and healthcare, with researchers documenting as well as evaluating those practices, which are highlighted in this section. Systematic psychological study actually began with early virtual reality systems and then migrated to persistent virtual worlds, as therapists began to use them for behavior modification, treating individuals with phobias of heights, spiders, and other phenomena (Anderson, Rothbaum, & Hodges, 2000; Taylor, 1997). And,

in education, many professors saw promise in early MOO systems for teaching a variety of topics, including writing, foreign languages, group dynamics, and programming (Banks, 1994; Fanderclai, 1996).

The history of virtual worlds' use for serious purposes has of course been tied to other new media developments, as for example healthcare providers and patients began to experiment with Internet-based communities, employing mailing lists, websites for information, chat forums, as well as virtual worlds; attempting to see what would work best, across a variety of contexts for diverse individuals and their needs. Yet the specificity of virtual worlds offered particular affordances for such groups, and as graphics have advanced and more individuals have access to high-speed Internet connections and more powerful computers, virtual worlds have become increasingly important sites for education and healthcare.

Research documenting the development of such activities has often been summative, providing post-mortems of singular activities such as one college course or the work of one health-related education group (Elliott, 2007; Watson et al., 2008). Overarching analyses of the large-scale effectiveness of such activities are rare (Jäkälä & Pekkola, 2007) and needed. Yet such experiments and projects are proliferating, with researchers taking varied approaches to using virtual worlds. But although schools and universities are busily constructing virtual campuses, these practices don't necessarily take advantage of the unique properties of virtual worlds.

Innovative researchers have used virtual worlds in a couple of different ways. First, they have used the building of such spaces as itself an educational activity, attempting to demonstrate that "conceptual understanding and contextualized activity are fundamentally interrelated and mutually constitutive" (Barab et al., 2001, p. 86). Thus, learning is not divorced from doing, and in the case of Barab et al., students learn about some phenomenon, such as astronomy, through the building of 3D interactive models of galaxies. Likewise, Croon Fors & Jakobsson (2002) had students construct a virtual world based on the early *Active Worlds* software that was supposed to be used for a meeting place, but they found that the structure was "better understood through the notion of the unfinished," as the space came to center on exploration and construction possibilities, rather than as a simple conference area (p. 50).

The second approach has focused on using the capacities of virtual worlds to transform education. The work of many educators in the *Second Life* Educators Group is illustrative of this, as they re-envision how we learn in a networked environment, and how to best take advantage of that (Kemp, 2008). Robbins, for example, has not only explored how we can use virtual worlds to create new sorts of learning experiences, but also argues that universities and formal learning institutions must adopt approaches that mirror how individuals learn through online social networks, as the gate-keeping function that formal learning institutions have held over traditional knowledge could soon disappear (2008).

In healthcare, individuals and groups have been active in creating spaces to learn, to support one another, and to build community. Many healthcare institutions such as the American Cancer Society and the US Centers for Disease Control are

active in spaces such as *Second Life*, and more healthcare providers are seeing the possibilities of virtual worlds (Watson et al., 2008). Medical researchers have begun to document the positive as well as negative implications of virtual worlds on individuals with disabilities such as paralysis (Ford, 2001). While advantages are often easy to imagine (such as the creation of communities, and more opportunities to educate individuals), drawbacks include the further erasure of the visibility of certain disabilities, and a related lack of agency in overcoming problems associated with life outside of virtual worlds (Ford, 2001). Yet there are still many positive outcomes and experiences, as such spaces give individuals with disabilities the chance to interact with others without the stigmas attached to their disabilities (Ford, 2001). Other uses have included the modeling of certain disability experiences such as schizophrenia to increase empathy in others (Elliott, 2007), and the possibilities for virtual worlds to help diabetes patients better manage their illness (Watson et al., 2008).

Future research directions

Virtual worlds are a constantly moving target, as new worlds are regularly being built and older ones are quietly shutting down. But beyond simply studying worlds themselves, there are key overarching areas that deserve further investigation by virtual-worlds researchers. First, there is little scholarly work done on how children are interacting in commercially based, entertainment-focused virtual worlds, or how such spaces might differ from worlds targeted at older users. Sara Grimes investigates regulation and ethical issues surrounding online games created for kids (2008), and Deborah Fields and Yasmin Kafai have studied kids' use of semi-educational spaces such as *Whyville* (2007), but more attention in this area is clearly needed. More than 100 virtual worlds devoted to children are either online or in development (Virtual World News, 2008), and high-profile sites draw massive numbers of users. The Finnish world *Habbo Hotel* draws 7.5 million unique users per month globally, mostly in the 13–16-year-old range, yet we know little about the game other than what the developers have found through their own studies (Nutt, 2007). Likewise, news that Disney paid $350 million in cash to acquire *Club Penguin*, which has 700,000 paid subscribers (Arrington, 2007), and that the virtual world *Barbie Girls* had 3 million users sign up in the first 60 days after launch (Riley, 2007) suggest that virtual worlds for kids are mainstream, and are desperately in need of study.

Another area in need of attention relates to the role of business in virtual worlds. We need more critical analyses of how businesses are operating in virtual worlds, as they have set up their own worlds and spaces within other worlds in increasing numbers. Spaces such as *Second Life* have seen influxes of corporations as such institutions try to take advantage of new ways to reach potential consumers, yet often without knowing how best to do so. But beyond attention to in-game economies or potential business models (Castronova, 2001; MacInnes & Hu, 2007; Mennecke, McNeil, Roche et al., 2008), we need to understand

the implications of businesses within worlds, their impacts, and the long-term effects of their activities. Do branding and corporate sponsorship mean different types of virtual worlds, or changes to their character? How does the spread of consumerism and capitalism shape the design and user space of virtual worlds, especially given the early roots of the industry in libertarian and utopian possibilities? Right now we don't have answers to such questions. Likewise, we need political economic analyses of virtual worlds. Who is making virtual worlds, and what are their agendas? If we are encouraged to spend great amounts of time (as well as money) in such spaces, what are the limits of our abilities to speak, act, or control our virtual property? Beyond legal studies, we must scrutinize the corporations that are building worlds, and the design decisions they are making. Who is actively cultivated as a user base, and who is excluded or marginalized? If online worlds are increasingly important places for individuals to gather and socialize, we must have a better idea of who is in control of those spaces, and how they are defining rules for participation (Steinkuehler & Williams, 2006).

Finally, virtual worlds are global. Although many operators limit their user base through language options or regionally based servers, users are increasingly moving across spaces regardless of such limitations (Nutt, 2007). Some game-based virtual worlds make a point of bringing together users from around the world (such as *EVE Online* and *Final Fantasy XI*), and socially based spaces such as *Second Life* have user bases ranging across North America, Europe, and Asia. But we don't have much research yet addressing how disparate user groups might interact with each other, if they are interacting at all. Some research suggests that some North American game players in *FFXI* enjoy interactions with Japanese players, particularly if they are already interested in Japanese popular culture and are learning Japanese (Consalvo, 2008). But we need to know how users might be crossing language and cultural barriers to communicate, and what they take from those interactions. We also need to know if they are *not* crossing language and cultural barriers – if separate worlds within worlds are actually being created, as users self-segregate for reasons related to built-in technological affordances for certain communicative preferences or cultural values, or for reasons we have yet to discover. Finally, if users are coming from around the globe, how does that affect matters of law and policy? The Internet already challenges many traditional approaches to policy and law formation (see Chapter 7 in this volume, "Internet Policy" by Sandra Braman, for a more detailed discussion), yet virtual worlds have their own particular needs. We need more attention paid to the global base of virtual worlds, and what players are doing in those spaces that might be unique or different from more regionally based virtual worlds.

Conclusions

Writing about the technological boom of the late 1990s, Berland described how discourse about new media often employed a metaphor of evolution, describing

developments as natural or inevitable, the result, apparently, of some kind of natural selection. She argued such approaches ignored the materiality of the body, and led to calls that were non-critical and did not engage with new media in ways other than being celebratory or automatically accepted. It would be well for us to similarly engage with virtual worlds in critical ways. Such spaces are no more inevitable than any other technology. Every day, developers, users, businesses, and regulatory bodies choose to make them matter, to call them into being, in particular ways. And the ways that we talk about such worlds likewise forms them, and shapes how we understand them. Clearly they are not free and liberating spaces, nor are they all mindless consumerist shopping malls in disguise. Our building of them and use of them must be careful and considered. We must likewise avoid the easy rhetoric of the brave new virtual world, lest we forget our past histories with worlds and spaces, and what happens when we don't carefully consider the possible ramifications of what we are doing. Virtual worlds have great potential, but research on them is only really beginning. We must continue to critically investigate them, asking thoughtful questions and using careful methods, to best arrive at an understanding of what virtual worlds are and can be.

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