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Cognition and Literacy in Massively Multiplayer Online Games

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For the current youth generation, the Internet has *always* existed. Online technologies have profoundly contributed to a dramatic techocultural shift in contemporary society, transforming how we learn, work, play, and socialize. Information from multiple sources on everything from Athabascan birch bark baskets to the calculation of z-scores is there for the Googling. Global social networks – made visible, designable, and searchable via services such as "Friendster" (http://www.friendster.com/) and "MySpace" (http://www.myspace.com/) – are increasingly becoming the must-have/must-do activity for businesspeople, college students, and fan communities alike. And whether it's collaboration on a formal project or informal socializing among peers, our modus operandi has shifted from face-to-face get-togethers, a couple of emails, and the occasional phone call to the overlapping "multimodal, multi-attentional spaces" (Lemke, n.d.) on today's computer screen – email in-boxes, webpages, collaborative authoring softwares (such as wikis and blogs), multiple instant messaging windows of conversation, videostreaming, file-sharing, voice over IP (VoIP), and even shared online 3D environments where players can fashion digital versions of their corporeal selves and get together in a server-stored tavern for a virtual beer. For those who have grown up with such technologies, this heterogeneous, networked, online global, "flat" (Friedman, 2005) world is the unremarkable mainstream. While the older, "world on paper" natives gasp and wonder and worry about the furious pace and penetration of online technologies into everyday life, the younger generations just adopt them, adapt them, and move on to the next (Lankshear & Bigum, 1999; Lankshear & Knobel, 2003).

The American educational system has done its best to keep pace, providing Internet connections to virtually all schools (99% in 2001), 87% of which are accessible to students via classrooms, libraries, computer labs, and other regulated spaces (Kleiner & Farris, 2002). Still, the *culture* of schooling carries on with business as usual – as it was ten or twenty years, ago,

that is. As a Pew Internet & American Life Report (Levin & Arafeh, 2002) on the digital disconnect between children and their schools details with excruciating clarity, what students do with online technologies *outside* the classroom is not only markedly different from what they do with them in schools (e.g. instant messaging, blogging, sharing files, consuming and producing media, engaging in affinity spaces, gaming, building social networks, downloading answers to homework, and researching for school projects and assignments), but it is also more goal-driven, complex, sophisticated, and engaged. If we care to understand the current and potential capacities of technology for cognition, learning, literacy, and education, then, we must look to contexts *outside* our current formal educational system rather than those within.

Videogames are an excellent starting point for such investigation. We know that videogames are a *push technology*, providing people entrée into other important technologies, such as computers. For example, games precede computers at every step of adoption in the home (see Figure 1) and, these days, have become nearly ubiquitous to the everyday life of the American child:

> More than eight in ten (83%) young people have a video game console at home, and a majority (56%) have two or more. About half (49%) have one in their bedroom, and just over half (55%) have a handheld video game player. (Rideout, Roberts, & Foehr, 2005, p. 36)

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Insert Figure 1 about here.

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More importantly, the online affinity groups that emerge around games function as a kind of *push community*, engaging members in identities, values, and practices markedly similar to the

intellectual and social practices that characterize high level, conceptual communities of innovation in fields such as science, technology, and engineering – Discourses (Gee, 1999) that American schools currently fail to provide young learners access to (in the wake of the Bush administration and their return to "skill and drill"), that the global market demands, and that other countries (such as India and China) now offer to two to six times as many individuals that we do (Gates, 2005). Beneath the veneer of fantasy and seeming childishness (e.g., "l337 speek"), videogames are sites for socially and materially distributed cognition, complex problem solving, identity work, individual and collaborative learning across multiple multimedia and multimodal "attentional spaces" (Lemke, n.d.), and rich meaning-making. For the (now K-12) millennial generation, videogames are a – if not *the* – leading form of entertainment, despite their complexity and the considerable cognitive investment they exact from those who play (Gee, 2003).

Massively Multiplayer Online Games

Massively multiplayer online games (MMOGs) are the quintessential example of such communities. They share the same features as other game worlds with one important exception – they are *played online*, allowing individuals, through their self-created digital characters or "avatars" within the game space, to interact not only with the *gaming software* (the designed environment of the game and the computer-controlled characters within it) but with *other players' avatars* as well. Thus, they are a thoroughly collaborative space, not only *beyond* the game (in fan sites, discussion boards, game information databases, etc.) but also *within* the game itself. Moreover, given that they are persistent virtual spaces played in real time yet instantiated in digital graphics and architectural code, they function as a highly visible and therefore thoroughly traceable medium (Moore, Ducheneaut, & Nickell, 2005) for the study of cognition,

learning, and literacy in online digital contexts.

Conceptually, MMOGs are part of the rich tradition of alternative worlds that science fiction and fantasy literature provide us (e.g. Tolkien's *The Hobbit*, 1938); technically, they are the evolutionary next-step in a long line of social games that runs from paper-and-pencil fantasy games (e.g., Gygax & Arneson's *Dungeons & Dragons*, 1973) to main-frame text-based multi-user dungeons (e.g. Trubshaw & Bartle's famous first *MUD1*, 1978) through the first graphical 2-D chat environments (Morningstar, & Farmer, 1991) and first-person view massively multiplayer online environments (e.g., Kirmse & Kirmse's *Meridian 59*, 1996) to the now-common, high-end 3-D digital worlds of today (for a more complete history, see Koster, 2002). The virtual worlds that today's MMOGamers routinely plug in and inhabit are persistent social and material worlds, loosely structured by open-ended (fantasy) narratives, where players are largely free to do as they please – slay ogres, siege castles, craft a pair of gaiters, barter goods in town, or tame dragon hatchlings. They are notorious for their peculiar combination of designed "escapist fantasy" yet emergent "social realism" (Kolbert, 2001): in a setting of wizards and elves, dwarfs and knights, people save for homes, create basket indices of the trading market, build relationships of status and solidarity, and worry about crime. Successful MMOGameplay is cognitively demanding, requiring exploration of complex, multi-dimensional problem spaces, empirical model building and systems analysis (Steinkuehler & Chmiel, 2005), the negotiation of meaning and values within the relevant gaming community, and the coordination of people, (virtual) tools and artifacts, and multiple forms of text – all within persistent virtual worlds with emergent sociological cultural characteristics of their own (Steinkuehler, 2004a, 2004b).

There is a growing body of literature written on MMOGs specifically from a design perspective that is well worth investigation (Bartle, 2004; Koster, 2004; Mulligan & Patrovsky,

2003; Rollings & Adams 2003); for the purposes of this chapter, however, I review key research on MMOGs from the disciplines of economics, law, sociology, anthropology, and psychology as a way to push our discussion toward the theoretical rather than technical implications for understanding cognition and literacy. Using Gee's "big-D" Discourse Theory (1992, 1996, 1999), I argue that MMOGs instantiate the notion of *social construction* – that, oftentimes, the sense we make of events, contexts, and other people are sociocultural products, not natural facts. Formulating such games as a highly visible medium for understanding (both as researchers and as "just plain folk," Lave, 1988) how socially constructed worlds of meaning are collaboratively achieved, I then suggest five main areas of future MMOG research that might inform our theories of cognition and literacy within the globally networked, technologically mediated, "figured worlds" (Holland, Lachicotte, Skinner, & Cain, 1998) we now call home: (1) investigation into the ways in which the small, routine activities of participants reciprocally constitute macro-level Discourses within MMOGs, (2) exploration of the cultural resources game community participants leverage in the authoring of identities, (3) research on how individuals are enculturated into such practices and perspectives and how these align (or fail to align) with current practices in schools, (4) analysis of MMOG literacy practices and how they are used on the social construction of online worlds, and (5) exploration of how MMOG Discourses are caught up in conversation with others.

<div align="center">Review of the Research</div>

Economics & Law

In 2001, Castronova published an article entitled "Virtual Worlds: A First-Hand Account of Market and Society on the Cyberian Frontier" that captured the imaginations of mainstream media and public and established MMOGs as a nascent yet valid topic for research. In it, he

argues for the offline, "real" significance of online worlds by demonstrating their value well-established terms: the American dollar. While gamers before him had written on the in-game economies of virtual worlds (Hastings, 1999; Rathedan, 2001; Thompson 2000; Wong 2000), Castronova was the first economist to relate such virtual systems of exchange to real ones in terms that gave the non-gaming public insight into the real significance of virtual trade. His reasoning was straightforward:

> In economics, the value of objects does not depend on their characteristics or their components, but rather on their contribution to the well-being of the people who use them. Value is subjective, wholly created in the minds of people. If people in free markets determine that a shiny crystal called "diamond" is worth $100,000, economists basically accept the reality of that valuation. If the object in question is not a shiny crystal called "diamond" but is rather a magic sword called "Excalibur," that exists only in an online game, economists would still put the value of the item at $100,000. Similarly, if people are willing to incur large time and money costs to live in a virtual world, economists will judge that location to be lucrative real estate, regardless of the fact that it exists only in cyberspace. The mere fact that the goods and spaces are digital, and are part of something that has been given the label "game," is irrelevant. (Castronova, 2002, p. 15)

His conclusions surprised many: Thanks to out-of-game trading (on Internet sites such as eBay, http://www.ebay.com/) of in-game items, Norrath, the virtual setting of the MMOG *EverQuest*, was the seventy-seventh largest economy in the real world in 2001, with a GNP per capita between that of Russia and Bulgaria. One platinum piece, the virtual unit of currency in Norrath, was trading on real world exchange markets higher than both the Yen and the Lira. Thanks to the

continued publicity given his findings, the nongaming public finally realized that the online game worlds some folks were inhabiting on a regular basis were *virtual*, albeit, but far from trivial.

In the few years since Castronova's first publication, the study of the nature and dynamics of in- and out-of-game virtual world economies has indeed taken root (e.g., Cato, 2004; Maier, 2003; "Model Economy," 2005; Nash & Schneyer, 2004; Terdiman, 2003, 2004; Zackariasson & Wilson, 2004). Much of the research on virtual worlds has been done by a younger generation of scholars – undergraduates, graduate students and new professors –who have grown up with such technologies and tend to readily post their work online (primarily, blogs and websites) long before publishing in traditional print journals (if at all). Although this may seem troubling for some, the reality is that "game studies" is a nascent field growing at an incredible rate. In some respects, then, the print journal publication process is simply too slow for scholars to get their work out to the public rapidly enough for substantive conversation and feedback on their ideas while they are still relevant and of practical and intellectual use. Given the pace with which technologies and practices change, holding out for print publication only often means having your work seen only after your object of study is grossly out of date. This rise of formal study of the economics of virtual worlds, largely published online, has been accompanied by an equal number of companies and entrepreneurs who now make their living from online out-of-game trade of virtual in-game virtual goods (e.g., Book, 2004; Dibbell, 2003b; Dibbell, in press; companies such as IGE, http://www.ige.com). The in-game effects have been, in some cases, been profound. For example, entire "sweat shops" of "adena farmers" in China now earn lucrative salaries by earning virtual currency within *Lineage* and selling it online, with whole territories of the game world now inaccessible to the leisure gamer and core

game mechanics for which the game was once famous (between-clan sieges for castles in the virtual world) effectively transformed into Americans-versus-Chinese raids on said farmers by a community desperately trying to rid themselves of what they see as a "cancer" to the virtual world (Steinkuehler, 2004a). If our world is indeed increasingly "flat" (Friedman, 2005), then the MMOG is, in some respects, our proverbial canary in the coalmine.

The legal implications of virtual worlds, not just in terms of out-of-game trade of in-game items but also and as crucially in terms of intellectual property rights, in-game governance, and the legal jurisdiction of play, are still being worked out (Balkin, 2004; Balkin & Noveck, in press; Castronova, 2004; Crawford, 2003; Dibbell, 2003a; Hunter, 2003; Johnson, n.d.; Lastowka & Hunter, 2004, 2005; Noveck, 2004; Shirky, 2003). Issues such as *who has intellectual property rights to what* in the context of MMOGs are far more complicated than they at first appear. In some contexts, the MMOG is owned by a company in one nation, with legislation based on one set of definitions of notions such as ownership and value, yet inhabited by citizens in other nations with very different legislation based on very understanding of such concepts. Moreover, important aspects of the "content" of games are, in fact, the work of *gamers*, not game companies (Herz, 2002; Hunter & Lastowka, 2005; Taylor, 2002; Taylor, in press). The game player communities that inhabit the worlds to which game companies declare sole ownership, in actual practice, create much of the substance that makes such virtual worlds what they are. As Humphreys (2004) points out,

> Player activities are being commodified by the publishers and structured into their
> business models. This shift in "consumer"/publisher relations requires a reconsideration
> of how the relationship is theorized. Most discussion of games and the law characterize
> commodification as the process of giving "real world" value to in-game items such as the

virtual swords and armour accumulated by a player. The initial bedrock process of

harnessing player productivity (Herz, 2002) in all its forms, including the social and

emotional, is the commodification that is ignored… (p. 3)

In theories of cognition and literacy, this blur between production and consumption is a

familiar one, as it lies at the heart of all constructivist theories of human sense making (e.g.,

Cobb & Bowers, 1999; Piaget, 1978; Von Glasersfeld, 1995; Vygotsky, 1978). People actively

construct the world around them, engaging in what de Certeau (1984) calls the "hidden

production" of consumption. Yet in the context of MMOGs, this blurred relationship between

production and consumption is caught up with the broader economic, legal, social, and ethical

dilemmas of a world that is increasingly networked and accessible yet corporate owned (Boyle,

1996; Coombe, 1998; Lessig, 1999). In MMOG communities, as with other participatory

cultures (Jenkins, 1992, 2004), *consumption is production*, manifested in gamer-authored

practices, products, and social networks, which are then commodified by corporations and sold

back to the very groups who authored them in the first place. Through their in- and out-of-game

activities, game communities effectively assert their right "to form interpretations, to offer

evaluations, and to construct cultural canons. …fans raid mass culture, claiming its materials for

their own use, reworking them as the basis for their own cultural creations and social

interactions." (Jenkins, 1992, p. 18) Yet, to date, game companies (with the exception of Second

Life, http://secondlife.com/) claim full ownership of all content within the virtual worlds they

publish and often ban the account of any enterprising player who is caught selling in-game

materials for out-of-game profit, even when the object of trade is, for example, the gamer's own

digital body, their online avatar. The grand irony, of course, is that the games companies

themselves freely borrow not just from their players but also from other literary and creative

sources (e.g., the orc characters that appear in many of MMOGs, which are the explicit property of Tolkien estate, Taylor 2002), including other games (e.g. yellow exclamation marks used to denote quest-giving characters – a design feature first used in *World of Warcraft*, then magically appearing in *Lineage* just a few months later with their next software update).

From this perspective, the difference between game *players* and *game companies* appears more a matter of access to power (in shaping legislation) than rightful claim to authorship/ownership per se: Both game players and game designers actively appropriate and rework the cultural resources at hand, with *game companies* laying legal claim to their creative outputs and full rights to all profit from their sale and *gamers* doing equally substantive game-related creative work yet paying for use under terms defined by company EULAs that deny them ownership of any form. In effect, a system of inequity emerges as intellectual property rights, originally designed to protect individual creative authors, are now evoked by corporations to create "monopolies over public meaning" (Coombe, 1998, p. 26). As Taylor (2002) writes,

> The act of appropriation is but one of many ways media consumers try to
> creatively work with and through the cultural artifacts they encounter. Indeed
> their reworkings highlight the ways the bits and pieces of culture are quite
> malleable, open to multiple interpretations, and in some ways "made real" only
> through engagement with audiences. The idea that one might regulate all aspects
> of a media product and try to control and contain its meaning runs directly against
> what sociological and anthropological studies of culture teach us. (p. 233)

Sociology & Anthropology

Interpretive communities such as those found in MMOGs take up the symbolic, cultural materials offered them by media and the like to collectively create the form and substance of

their own cultural worlds (Squire & Steinkuehler, in press; Taylor, 2002, in press). In this way, they are no different from the folk cultures of old, except that, now, the consumers have increasingly user-friendly tools at their disposal to work with: in-game virtual environments to play within and off of, softwares for the creation of digital images, movies, soundtracks, and stories, and the online access and sociotechnical networks that enable their easy distribution. As Jenkins (1998) summarizes,

> Historically, our culture evolved through a collective process of collaboration and elaboration. Folk tales, legends, myths and ballads were built up over time as people added elements that made them more meaningful to their own contexts. The Industrial Revolution resulted in the privatization of culture and the emergence of a concept of intellectual property which assumes that cultural value originates from the original contributions of individual authors… Our emotional and social investments in culture have not shifted, but new structures of ownership diminish our ability to participate in the creation and interpretation of that culture. Fans respond to this situation of an increasingly privatized culture by applying the traditional practices of a folk culture to mass culture, treating film or television as if it offered them raw materials for telling their own stories and resources for forging their own communities… (¶ 32)

The cultural production that communities accomplish with/in virtual worlds has been fairly well documented over the past decade of research, beginning with text-based MUD and MOO environments (Clodius, 1997; Reingold, 1993), the technological predecessors of today's highly graphical MMOGs. Gamers are the form and substance of the thick social networks within each virtual environment that comprises much of what differentiates MMOGs from

single-player games: They create rich political systems, hierarchies, and power structures (Curtis, 1992; Rosenberg, 1992) and the means for their enforcement (Lin, & Sun, 2005; Reid, 1994; Taylor & Jakobsson, 2003). They collaboratively construct a sense of "space" and "place" in worlds that exist, in reality, on servers alone (Clodius, 1994; Ducheneaut, Moore, & Nickell, 2004). They generate social capital, often in the form of formal guild and alliance networks (Clodius, 1996a; Steinkuehler, 2004d; Steinkuehler & Williams, 2005). They devise rituals and performances that connect the individual to the social networks of which they are a part (Clodius, 1995; Clodius, 1996b) and generate in-game antics and adventures, archetypes and characters, and derivative fan art and stories (Steinkuehler, 2004c; Steinkuehler, 2005d). Such communities instantiate their *collective intelligence* (Levy, 1999) in the form of unofficial user manuals that are far more accurate than official ones, authoring and maintaining database-backed websites that function as "how to" manuals for the game (Squire & Steinkuehler, 2005; Steinkuehler, 2005e), and they create in-game apprenticeship systems (Galarneau, 2005) that enculturate newcomers into valued cultural practices: Gamers who have already mastered the social and material practices requisite to gameplay apprentice, through scaffolded and supported interactions, newer gamers who lack such knowledge and skill (Steinkuehler, 2004b). Game communities are even part of the on-going production cycle of the actual game designs themselves (Humphreys, 2004): They debug games not only during beta testing periods but also on a continued basis once the game goes retail; they offer ideas for fixes and improvements to game companies' "property" via official discussion boards and focus groups that are implemented (or ignored) at the companies' will; and, when all technical solutions fail, they generate in-game social norms that balance flawed game design (Steinkuehler, 2004a). MMOGs are not merely designed objects; they are *emergent cultures*. And those cultures are created,

maintained, and subsidized by the labor (of love) of those who actually play them.

Through such activities, participants in virtual worlds collectively create cultural resources for the *construction of members' identities*, not through shared geographical location, nationality, or other demographics per se but through *shared social, (virtual) material, and discursive practices* (Carlstrom, 1992; Cherney, 1999; Clodius, 1997; Masterson, 1994, 1996; Raybourn, 1998; Reid, 1994; Schaap, 2002). These resources – and the individual sense that is made with them – are not always straightforward or unproblematic. Nor should they be. Rather they enable (if not prompt) gender(ed) play and conflict (Bruckman, 1993; Danet, 1998; Herring, 1996), the problematizing of race (Nakamura, 1995), the enactment of player "types" not always aligned with the game design or community (Bartle, 1996; Ito, 1997; Steinkuehler, 2005c; Stivale, 1997; Yee, 2005b), and of course, sex (Dibbell, 1998; Kaufman, 1996; Van Gelder, 1996). Yet, as Walls (2005) remarks, "it is through MMOGs that players have the greatest ability/responsibility to explore, construct, and resist those concerns of dominant culture's representations" (¶ 1). And it is through such semiotic, virtual, sociocultural resources that participants in virtual worlds reify themselves on screen in a process of "becoming and being, which centers around images and text projected and manipulated on a screen" (Nash, 2004, ¶ 3; see also, Filiciak, 2003).

Psychology

To date, MMOG research from the domain of psychology has largely focused on issues of addiction (not discussed here as such research tends to rely on a deficit model in which gamers, through their online participation, "make up" for something their real life purportedly "lacks") and, more recently, motivational factors and patterns of use (Yee, 2005a, 2005b). By far, the most influential work on the psychology of MMOGs is Turkle's (1995) early work, *Life*

on the screen: Identity in the age of the Internet, based on psychoanalytic perspective. In it, Turkle outlines how MUDs (and therefore MMOGs, their technological descendants) function as laboratories for individual identity play (also see Kitchin, 1998; Suler, 1996) by providing a "psychosocial moratorium" (Erikson, 1963) where one can have meaningful experiences without the consequences accompanying then in everyday real life. Such spaces function as a "window" (Turkle, 1995, p. 184) where individuals can project themselves into roles that may not have available to them in the everyday offline world – not just fantasy roles, such as an elf or princess, but also sociocultural roles, such as the powerful leader of a successful campaign. According to Turkle, this ability to create alternate personas in alternative "windows" or frames allows individuals to cycle through multiple versions of who they are – an experience of self not readily available in life offline where "lifelong involvement with families and communities kept such cycling through under fairly stringent control" (p. 179). In her own words,

> [Virtual worlds] imply difference, multiplicity, heterogeneity, and fragmentation. Such an experience of identity contradicts the Latin root of the word, *idem*, meaning "the same." But this contradiction increasingly defines the conditions of our lives beyond the virtual world. [Virtual worlds] thus become objects-to-think-with for thinking about postmodern selves. Indeed, the unfolding of all [virtual world] action takes place in a resolutely postmodern context… Since [virtual worlds] are authored by their players, thousands of people in all, often hundreds as a time, are all logged on from different places; the solitary author is displaced and distributed. Traditional ideas about identity have been tied to the notion of authenticity that such virtual experiences actively subvert. When each player can create many characters and participate in many games, the self is not only

decentered but multiplied without limit. (Turkle, 1995, p. 185).

Based on such reasoning, MMOGs become the instantiated means with which individuals can think *about* and *with* a thoroughly postmodern conception of the self, one marked by "multiplicity, heterogeneity, flexibility, and fragmentation" (Turkle, 1995, p. 178)

It has been a decade, however, since Turkle's foundational publication and important aspects of MMOGs, in particular, and the role of technology in everyday life, in general, have evolved. In the last ten years, we have witnessed increasing economic, sociocultural, and technological *convergence* (Jenkins, 2001). MMOGs are no exception: "Real world" companies now advertise in virtual worlds (Book, 2004) and entrepreneurs and corporations can now trade their in-game "loot" for out-of-game profit (as discussed above). References to MMOGs such as *World of Warcraft*, for example, increasingly show up in the mainstream media, such as the stand-up routines of popular comedians (Thorsen, 2005) and televised gameshows (Lees, 2005) and large percentages of MMOGamers play online with "real life" romantic partners, family members, co-workers, and friends (Seay, Jerome, Lee, & Kraut, 2005; Yee, 2005a). Even the technological "magic circle" that once bounded the virtual world from life beyond has become increasingly porous thanks to recent innovations such as voice over IP software (that allow real-time verbal communication during gameplay) and integrated IM (for example, the in-game chat system of *Lineage II* is now consolidated with MSN's instant messaging service, allowing individuals to slay dragons while attending online meetings with coworkers at one and the same time). In truth, the discursive space of MMOGs is one with fuzzy boundaries that expand with continued play: What is at first confined to the game alone soon spills over into the virtual world beyond it (e.g., websites, chatrooms, email) and even life off-screen (e.g., telephone calls, face-to-face meetings), and the communities such practices serve likewise expand from collections of

in-character playmates to real-world affinity groups. Thus, not only does offline life bleed into virtual worlds, but virtual worlds bleed back into offline life as well. Caught up in such economic, sociocultural, and technological convergence, MMOGs function less and less as "laborator[ies] for experimenting with the constructions and reconstructions of self" (Turkle, 1995 p. 180) and more and more as just another of the many "figured worlds" (Holland, Lachicotte, Skinner, & Cain, 1998) we inhabit. From this perspective, then, it is not the *self* that is "decentered but multiplied without limit" (Turkle, 1995, p. 185) but *our interpretive frames*.

Turkle's (1995) argument that virtual worlds instantiate concepts in postmodern theory (e.g., the fragmentation and fluidity of the self) and render them accessible to the general public has served the last decade of research well. Still, given the changing face of today's world both within virtual environments and beyond, it would seem worthwhile to reconsider what theory MMOGs actually instantiate in the lived-in worlds of those who inhabit them. I argue that they instantiate the broad notion of *social construction* rather than postmodernity per se. MMOGs are highly visible mediums for understanding the way in which specific cultures shape individual sense making (i.e. cognition) and vice versa (Steinkuehler, 2006, cf. Nasir, 2005). Through participation in and reflection on such worlds, we are better able to understand how it is that the sense we make of events, contexts, and other people are not fixed and inevitable "truths" out in the world but interpretations that are created, maintained, and transformed by specific groups of people at specific historical times for specific reasons. MMOGs allow us to discern, both as researchers and as "just plain folk" (Lave, 1988), how it is that *socially constructed worlds of meaning* are collaboratively achieved.

A Proposal for Research on Cognition and Literacy in MMOGs

MMOGs function as highly visible and therefore traceable mediums by providing "near-

total data on all player activities" (Moore, Ducheneaut, & Nickell, 2005, ¶1) both within the game and within the game's surrounding online fandom. As such, they provide both participants and researchers powerful contexts for observing and theorizing individual participation in the creation and interpretation of culture – which is to say, in the *social construction of "figured worlds"* (Holland, Lachicotte, Skinner, & Cain, 1998). As contexts for the study of cognition, learning, and literacy, however, the "virtual omniscience" (Moore, Ducheneaut, & Nickell, 2005, ¶1) afforded by MMOGs alone cannot suffice – we need both theory and method that can provide analytical insight into the co-constitution of individual meaning making and macro-level cultural norms and values. *Gee's "big-D" Discourse* theory and method (1992, 1996, 1999) is one such analytical framework. Coming out of New Literacy Studies (e.g., Barton, 1994; Cazden 1988; Cook-Gumperz 1986; Gumperz, 1982; Heath, 1983; Knobel, 1999; Kress, 1985; Lankshear, 1997; Street, 1984, 1993), Gee's Discourse theory maintains a focus on individuals' (inter)action in the social and (virtual) material world, but, by foregrounding the role of d/Discourse (language-in-use/"kinds of people") in such interactions, it provides a fulcrum about which theory and method can be coherently leveraged to gain insight into the situated meanings individuals construct, the definitive role of communities in that meaning, and the inherently ideological nature of both.

"Big-D" Discourse Theory

To begin, we need a more robust account of meaning-making process itself. The meaning of a symbol, event, or activity is not a stable, abstract, entity transparently encoded from the environment; rather, it is *situated* (Gee, 1992, 1999): It is multiple, varying across different situations, integrally tied to specific contexts of use, and based on how the current context and prior experiences are construed (Agar, 1994; Barsalou 1991, 1992; Clark 1993, 1996; Kress

1985; Levinson 1983). What guides individual's sense making is (often tacit) assumptions about how the world "works," assumptions that hang together to form *cultural models* (Holland & Quinn, 1987), explanatory theories or story lines of prototypical people and events. Such "emblematic visions of an idealized, 'normal,' 'typical' reality" (Gee, 1996, p. 78) allow us to get on with the business of interpreting in the world by setting up what counts as normal and typical (and, therefore, what counts as marginal and non-typical as well). Such cultural models are exceedingly community specific (i.e., what counts as "normal" varies wildly depending on what community of people one is, here and now, calling from), change over time, compete with one another (especially when the distribution of goods are at stake), overlap or connect up with one another in complex ways, and are distributed across individuals heads, other people, practices, and material resources (Gee, 1992, 1996, 1999). The sense we make of our world at any given time, then, is contingent on the cultural models we bring to bear on it. Yet these cultural models are created, maintained, and transformed by specific social groups whose ways of being in the world underwrite them (Gee, 1999). These "ways of being in the world" or "forms of life" (Wittgenstein, 1958) are what Gee (1992, 1996, 1999) calls *big D Discourses*. They are similar to what various other theorists have called ("small d") discourses (Foucault, 1966, 1980), communities of practice (Lave & Wenger, 1991), discourse communities (Miller, 1984), distributed knowledge systems (Hutchins, 1995), thought collectives (Fleck, 1979), practices (Bourdieu 1977, 1990; Heidegger 1927/1996), cultures (Geertz 1973, 1983), and actor networks (Latour 1987).

> [Big-D Discourses are] different ways in which we humans integrate language
>
> with non-language "stuff," such as different ways of thinking, acting, interacting,
>
> valuing, feeling, believing, and using symbols, tools, and objects in the right

places and at the right times so as to… give the material world certain

meanings… make certain sorts of meaningful connections in our experience, and

privilege certain symbols systems and ways of knowing over others. (Gee, 1999,

p. 13)

A "big D" Discourse is the social and material practices of a given group of people

associated around a set of shared interest, goals, and/or activities (e.g., gamers within a particular

MMOG community). These practices include shared *discursive resources* such as word choice

and grammar (e.g., "l337 speek") and other communicative devices involved in language-in-use

(e.g., text conventions for prosody, gestures or emotes); shared *textual practices* for both

production and interpretation (e.g., in-game letters, unofficial player written manuals, discussion

board flame wars); customary practices for *social interaction* (e.g., social conventions for in-

game group hunts); characteristic ways to *coordinate and be coordinated by material resources*

such as tools, technologies, and systems of representation (e.g., conventions for the use of VoIP

technologies while in-game); and shared *folk theories* (e.g., the belief that female characters

receive more gifts in MMOGs than male characters, regardless of level), *appreciative systems* or

ways of valuing some "things" and not others, (e.g., selecting avatar equipment based on

function rather than form); and *epistemologies* (e.g., the privileging of a game community's

collective intelligence instantiated in game databases over official hardcopy game manuals).

Such practices function as the observable means with which individuals display their

membership within a given Discourse community and others recognize them as such (cf.

Steinkuehler, in press).

Theorizing MMOGs as *Discourses* rather than corporate owned designed objects (in the

case of standard intellectual property legislation) or "identity workshops" (in the case of Turkle,

1994) enables us to examine not only individual meaning-making and social and material (inter)action but also the reciprocal relationships between individual practice and the Discourses those practices constitute. On the one hand, Discourses are normative and regulatory. Because members of the Discourse share similar practices and perspectives, they are, to some extent, assured similar experiences and interpretations of similar (thoroughly theorized) worlds. On the other hand, because they are constituted by the actual ongoing activities of their members, Discourses are prey to inadvertent or deliberate transformation by the very people who participate in them. For example, the early Discourse of the MMOG *Lineage II* included a glorification of in-game siege participation and a displayed contempt for all gamers who bought in-game gold with real world dollars (and admitted it). When castle sieges became more and more difficult to participate in (at a point when several castles were held by Chinese clans of unknown profession), individuals effectively converted the high status given sieges into serious in-game cachet for those willing to go on group raids in order to "exterminate" any and all (who were perceived to be) Chinese "adena farmers" (Steinkuehler, 2004a). This transformation to *Lineage II* Discourse can be traced, historically, back to a handful of individual gamers, their facility with creating game movies with dramatic hard-rock scores, and the rhetoric they used to frame the supposed farmers as a "cancer" and "plague" and, therefore as a logical consequence, their outright aggression toward them as a magnanimous salve to a wounded game. Thus, the Discourse of *Lineage II* gaming changed over time, not as some hegemonic monolith with a life of its own but rather, through the everyday routine activities and performances of a few members with a certain set of tools and skills.

Human beings participate in multiple Discourses, and these Discourses are often in conversation with one another in complex ways. Some are more or less aligned (e.g., the

Discourse of academic games scholarship and the Discourse of being a Lineage princess). Some are in conflict (e.g., the Discourse of lawyers versus the Discourse of game culture studies scholars in the construction of what constitutes "intellectual property"). Both cases are a source for change. At the micro-level, participation in multiple discourses lends itself to a "blending" of one into the next. As long as one's novel performance in one Discourse is "close enough" to the norm to be recognized, then one can "'infected' one Discourse with another and widened what 'counts'" as doing being a member of it (Gee, 1999, p. 21). At the macro-level, because Discourses are often in conversation with one another, as one evolves, the others evolve to greater or lesser degrees in response (e.g. the changing Discourse of education, since the Bush administration, has changed the games and learning Discourse as it responds to new issues, new rhetoric, and new disputes). Thus, theorizing MMOGs as Discourses rather than "laboratories for the construction of identity" (Turkle, 1995) alone allows us to maintain a focus on individual identity and sense-making without losing sight of the ways in which much broader contexts shape, constrain, and transmute those individual pursuits. It essence, it is to theorize not just the individual "cycling through of windows" (Turkle, 1995) but the way those "windows" frame the identities enacted within them and other "windows" beyond them.

Discourse-Analysis Based Cognitive Ethnography

Within this theoretical framework, the appropriate method for analyzing meaning making at both the micro- (individual) and macro- (Discourse) levels is *discourse-analysis based cognitive ethnography*. Discourses are "not in anyone's head, but embedded in the history and social practices of the group" (Gee, 1992, p. 105); therefore, "think description" (Geertz, 1973) of the socially and materially distributed cognitive practices that constitute the game (hence, "cognitive ethnography," Hutchins, 1995) is necessary in order to unearth the assumptions,

values and beliefs embedded in the social and material activities of the group under study. As with most ethnographies, the researcher participates overtly in the daily life of the game, observing what goes on within the virtual world, taking digital video recording and fieldnotes, listening to what is said, asking questions, and generally "collecting whatever data are available to throw light on the issues that are the focus of the research." (Hammersley & Atkinson, 1986, p.1) From such data, patterns of routine cognitive/cultural activities can be discerned. In addition to routine observation and fieldnotes, informants of varying ages, ethnicities, socio-economic statuses, and levels of expertise/social status within the community are recruited and interviewed repeatedly in unstructured (e.g. informal conversation within the game), semi-structured (e.g. telephone interviews about particular topics of interest), and structured (e.g. repertory grid interviews, Fransella & Bannister, 1977) formats. Finally, community documents (such as player-authored user manuals, fan sites, and fan fiction) and transcripts from game-related discussion boards and chatrooms are also collected in order to capture gameplay not only within the virtual game space itself (between login and logoff) but also beyond.

Such thick description, however, must be augmented by microanalysis of how group members' utterances construe the world in particular ways and not others in order to infer the Discourse(s) as play. Therefore, data collected from the cognitive ethnography are analyzed using discourse analysis procedures (Fairclough 1989, 1995; Gee, 1999; Gumperz 1982; Halliday & Hasan, 1989) – "the analysis of language as it is used to enact activities, perspectives, and identities" (Gee, 1999, p. 4-5) in order to unpack how the *meaning* of events, practices, and people is constructed, maintained, and transformed. Such analyses focus on the configurations of linguistic cues used in spoken or written utterances in order to invite certain interpretive practices (Gee, 1992) – for example, word choice, foregrounding/backgrounding syntactic and prosodic

markers, cohesion devices, discourse organization, contextualization signals, and thematic

organization. Configurations of such devices signal how the language of the particular utterance

is being used to construe reality in terms of: (1) *semiotics*, what symbol systems are privileged,

how they construe the relevant context (the world), and on what epistemological basis; (2) *the*

material world, what objects, places, times, and people are relevant and in what way; (3)

sociocultural reality, who is who and what their relationships are with one another, including the

implied identity of the speaker/writer and who the audience is construed to be, all in terms of

affect, status, solidarity, and (shared or disparate) values and knowledge; (4) *activities*, what

specific social activities the speaker and her interlocutors are taken to be engaged in; (5) *politics*,

what social goods are at stake and how they are and "ought" to be distributed; and finally (6)

coherence, what past and future interactions are relevant to the current communication (Gee,

1999). Particular configurations of linguistic cues prompt specific situated meanings of these six

aspects of "reality," meanings which are indelibly linked to particular Discourses, allowing

speakers and hearers to display and recognize the "kind of people" each purports to be. Through

such discourse-analysis based ethnographic work, we can better capture the sense human beings

make of virtual worlds and their (inter)action with/in them. And, in so doing, we may very well

discover something new about cognition and literacy in this increasingly heterogeneous,

networked, online global, "flat" (Friedman, 2005) world of ours.

Questions for Research

      Toward the development of an understanding of MMOGs as Discourses that are created,

maintained and transformed by individuals who participate in them, I propose the following five

areas of research: (1) Investigation into the complex ways in which the small, routine activities

of participants constitute, and are constituted by, macro-level Discourses within the game

(Steinkuehler, 2004a, 2005a, 2005c), (2) exploration into the cultural resources game community participants leverage in the authoring of identities (both their own and others) within such virtual worlds (Steinkuehler, in press), (3) research that examines how individuals are enculturated into such Discourses (Steinkuehler, 2004b), (4) analysis of the literacy practices within and beyond such virtual spaces and how they operate to create and maintain a coherent world of both practice and perspective (Steinkuehler, 2003, 2004c, 2004d, 2005b, 2005d, 2005e), and (5) exploration of how the Discourse of MMOGs is caught up in conversation with other Discourses and how participation in them is situated within gamers' everyday lives (Steinkuehler, 2004a; Steinkuehler & Williams, 2005). This list of areas for further research is surely not complete, yet my hope is that they might start us down path toward research that, on the one hand, will explicate the function and meaning of MMOGs in the lives of those who inhabit them while, on the other hand, will better inform our theories of cognition and literacy within the globally networked, technologically mediated, "figured worlds" (Holland, Lachicotte, Skinner, & Cain, 1998) we increasingly call home.

Key research questions specifically related to education emerge across all five research areas: What are the actual practices (especially, the forms of literacy) that constitute MMOGs and how do they align (or fail to align) with valued practices beyond it, including those we purport to foster in schools? What are the ways of believing and valuing that characterize MMOG Discourses and how are they in conversation with Discourses beyond them (such as science in classrooms, Steinkuehler & Chmiel, 2005? How to individuals come to understand the notion of *social construction* and the epistemological and ideological issues it raises? How do people author new identities within such worlds, what role do these identities play in the transformation of self, and how do they compare to those we make currently available in formal

and informal educational environments? And finally, what are the mechanisms for learning built into MMOGs, both as designed object and emergent culture, and how might the inform our theories of learning and schooling? Answering such questions is crucial to addressing the current digital disconnect between the use of online technologies in and out of classrooms. By demonstrating the potential of such online worlds/cultures rather than reifying the current impoverished use of such technologies in schools, we might one day change the very culture of schooling into something more relevant, promising, and transformative for all. Besides, if my hunch is correct and MMOGs are indeed push communities that function as our proverbial canaries in the coalmine when in comes to the life in the globalized online world, then research on them *now* can only better prepare us for the radical changes to come, whether schools respond or render themselves further obsolete.

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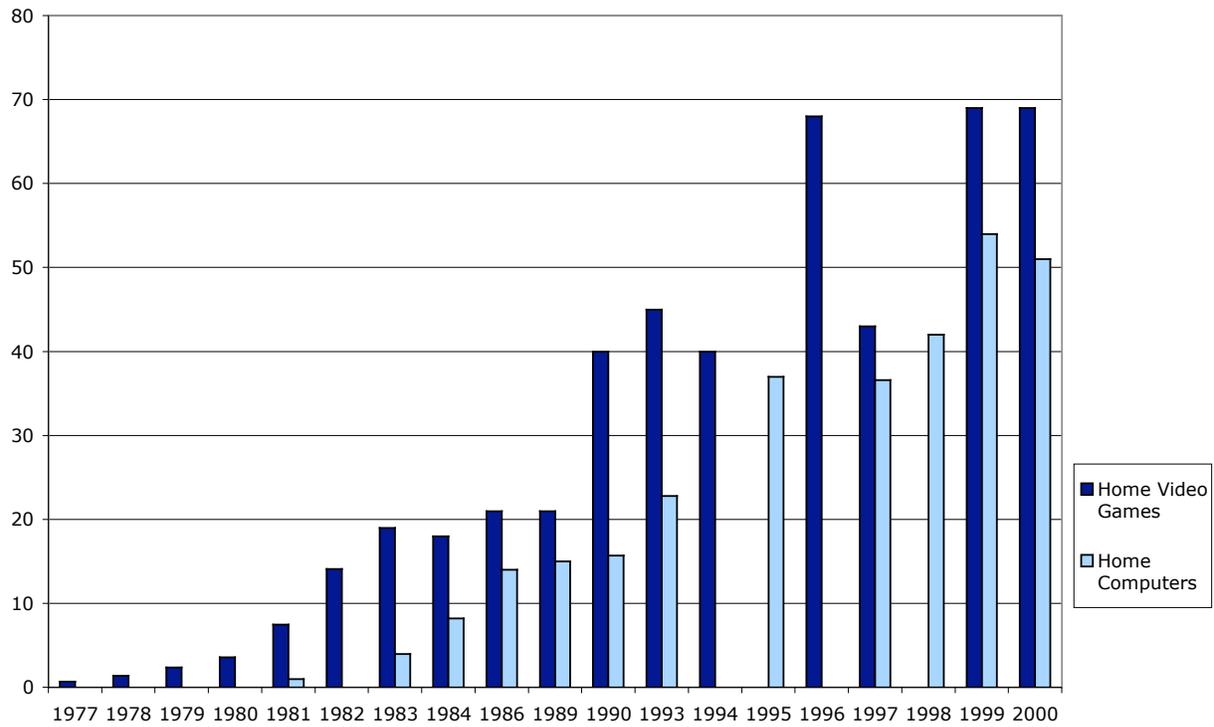
Figure 1. Videogames as a "push technology" for computers in the home. *From* Trouble

in River City: The Social Life of Video Games*, by D. Williams, 2004, Unpublished*

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